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ABSTRACT

Documents which address the interface between forestry and the social sciences comprise this annotated bibliography. The publications described are grouped under five headings: (1) social science applied to forestry at large: (2) applied to forestry's productive agents: (3) applied to forest production: (4) applied to manufacturing: and (5) applied to marketing, trade, and demand for forest output. Arranged alphabetically by author, each entry contains the document's complete citation and a brief abstract. If the publication is not in English, the language used is indicated. A subject index and author index are provided. Compilation sources include numerous U.S. and foreign journals, publications lists from U.S. Forest Service Experiment Stations, and selected data bases. (WB)

# SOCIAL SCIENCES in FORESTRY

## A CURRENT SELECTED BIBLIOGRAPHY

NO. 55 JUNE 1981



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# SOCIAL SCIENCES IN FORESTRY

## A Current Selected Bibliography

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SOCIAL SCIENCES IN FORESTRY

Subject-matter Classification Scheme

Note: This outline is regarded as working for the most part from the general to the specific. Material covering two or more sections of this outline is classified in the most general of these sections. Material which is classifiable in any of two or more sections is classified in the most specfic of these sections. *Asterisks mark those subjects which are not represented in this issue.

I. SOCIAL SCIENCE APPLIED TO FORESTRY AT LARGE

A. General principles, scope, content, method

B. History, status, prospects of forestry in an area, society in an area (This section includes material on forest resources alone, as opposed to that on consumer or intermediate resources alone, for which see appropriate sections.)

1. General
2. United States, Canada
3. Other north-temperate nations
4. South-temperate nations
5. Nations in lower latitudes

C. Law, politics, policy, plan, program, and their administration

D. Other influences

1. Taxation

a. General
b. Property, general and special; severance; lieu payment
c. Income, inheritance, other

2. Valuation (See also IIIA5i)
*3. Insurance
4. Social interest, value system, custom, folklore, culture
*5. Characteristics of the individual
6. Public relations, other

E. Research (For research on specifc topics, see those topics.)

F. Professional and subprofessional affairs, education, employment of foresters

G. Social and economic development (See also IB)

H. Environmental concern

II. APPLIED TO FORESTRY'S PRODUCTIVE AGENTS
(See also the individual operation or type of output in III, IV, V)

A. Labor (Some material on labor will be found in IF, IV)

1. General, employment, demand
*2. Supply, union
3. Wage, cost hours, productivity, technology, training, return, benefit
4. Working condition, turnover, absenteeism, safety, insurance
*5. Characteristics of the worker

B. Owner, ownership, manager, entrepreneuer, holding (See also IC, IIC3)

*1. General
2. Public

a. General
b. Federal, central
c. Regional, local

3. Private

a. General
b. Industrial
c. Nonindustrial

C. Land

1. Context of supply, requirement, etc.
2. Description, use trend and status, interpreted description
3. Management, use prospect and plan, planning, marketing, tenure
*4. Research method

D. Capital

1. General, investment, interest, finance
   (For investment in forest production, see IIIE; for that in manufacturing, see IVA4)
*2. Credit

III. APPLIED TO FOREST PRODUCTION (See also IIB, C)

A. Production including nontimber commodities and services

1. General, supply, multipurpose management
*2. Christmas trees, greens
3. Range and livestock
*4. Naval stores, maple product
5. Recreation

   a. General
   *b. Research
   c. Decision
   d. Demand, consumer, market
   e. Parks and wilderness areas
   *f. Interpretation
   g. Aesthetic values
   h. Consumer activities such as driving, walking, camping, etc.
   *i. Valuation

6. Water, soil, watershed management, shelterbelts
7. Wildlife, hunting, fishing
8. Urban forestry

B. Production chiefly of timber

1. General, supply
*2. Soil, site, site improvement
3. Tree regeneration and improvement; plantation
4. Intermediate cutting, pruning, stand improvement
5. Harvest cutting, rotation, cutting cycle, stocking, regulation, allowable cut
   (For harvesting treated as engineering, see IVB)

*C. Roads, other forest-management transportation
(For transportation in harvesting, see IVB4; in manufacturing and marketing, VD)

D. Damage and protection

1. From fire
*2. Prescribed burning
3. From insects

*4. From other agencies
(For water damage and soil erosion, see IIIA6)

E. Decision making, planning, investment, accounting, inventorying
(For investment in general, see IID1)

IV. APPLIED TO MANUFACTURING
(For material on forestry in general, including forest land resources, see IID1)

A. The industry in general

1. Status and trend

a. General
b. United States, Canada
c. Other north-temperate nations
*d. South-temperate nations
e. Nations in lower latitudes

*2. Directory
(Includes those covering specific branches of industry.)
3. History
4. Decision making, planning, investment, accounting, inventorying
(For a specific branch of industry, see that branch, "Operation of firm"; for investment in general, see IID1)

B. Timber-harvesting industry
(Includes roundwood in general; for specific types, see IVC, "raw material." For harvesting as silviculture, see IIIB4, 5)

1. Status and trend
*2. Operation of firm
3. Utilization of the stand or tree
(For utilization of a specific product, see the branch of industry in question.)

a. General
b. Logging residue and its disposal

4. Transportation (Skidding, yarding, loading, hauling to mill. For transportation in forest management, see IIIC; in manufacturing and marketing, see VD)

C. Wood-using industry

1. Lumber, allied product, pallet

*a. Industry status and trend
*b. Production, consumption, stocks, other statistics
(For sawtimber, see IB, IVB; for sawlogs, see IVC1d)
c. Operation of firm
*d. Raw material

2. Pulp, paper, board

a. Industry status and trend
b. Operation of firm
c. Raw material
*d. By-products

3. Veneer, plywood, panel

a. Industry status and trend
b. Operation of firm
*c. Raw material

*4. Bark, chips other residue
(See also IVB3 and the industry branch in question, "Operation of firm.")
5. Furniture
6. Particleboard, hardboard, fibreboard, flakeboard
*7. Construction
8. Charcoal, fuelwood, other combustibles; energy
*9. Other wood-using industry (including pole, piling, post, mine timber, railway tie)

D. Other forest industry

*1. Decorative product
2. Naval stores
*3. Maple product
4. Other

V. APPLIED TO MARKETING, TRADE, DEMAND FOR FOREST OUTPUT
(For marketing and demand for productive agents, see II)

A. Demand (See also IF)

1. General; history of consumption; consumption-production relationships
2. Consumption or production prospect, goal, requirement, prediction (For material on short-term requirement, see the industry in question in IV, "Industry status and trend.")
*3. Consumer and his preference
(For material on specific forest resources, see also IIIA,B)

B. Market, marketing, trade, export, import

1. General
*2. Futures, hedging
3. Stumpage, log
4. Lumber, plywood, composition board
*5. Pulp, Paper, paperboard
   a. Product
   b. Raw material
6. Other wood products
*7. Christmas trees, greens
*8. Other type of output (See also IIC3)

C. Price, value

1. General
*2. Stumpage, log
*3. Other type of output
*4. Price reporting

*D. Transportation (Includes transportation in manufacturing.) (For transportation in forest management, see IIIC; in harvesting see IVB4)

1111. 55 IA BARY-LENGER A., EVRARD R., GATHY P. The Forest: Ecology, Msnagement, Economics, snd Conservstion. Second Edition. Liège, Belgium; Vaillant-Carmanne S.A. (See Forestry Abstracts Vol. 41, No. 12) (1979), 616 pages. In French. Textbook based on Belgian conditions, simed st both professionsl foresters snd the general resder.

1112. 55 IA BOSSHARD W. "Hermann Tromp, Economy, Policy, and Law in Forestry and Forest Industry: Selected Essays and Pspers, 1945-1980." Swiss Federal Institute of Forestry Research, Birmensdorf, Report Vol. 56, No. 2. (1980), 405 pages. In German with some French summaries. A reprint of 41 essays by H. Tromp on questions of business administration, policy, law, and economic policy in forestry and forest industry. Includes s list of all publicstions since 1945.

1113. 55 IA LEIBUNDGUT H. Forests, Man snd Silviculture, A collection of essays and speeches by Professor H. Leibundgut published on his retirement by the Swiss Forestry Society. Schweizerische Zeitschrift für Forstwesen 130, No. 9/10 (See Forestry Abstracts Vol. 41, No. 10) (1979), pages 669-928. In German, snd French. Inst. Wsldbau ETH Zurich, ETH-Zentrum, 8092 Zurich, Switzerland. Special double issue containing 19 papers by Leibundgut published between 1948 and 1978.

1114. 55 IA SAGL WOLFGANG "Problems snd Development of Forest Economic Science in the Future." Centralblatt für das Gesamte Forstwesen, Vol. 97, No. 4 (1980), pages 233-241 In German with brief English summary. Bssic problems of forestry economics. Analysis of management methods for forest firms is urged.

1115. 55 IA SANDOR J.A. "Land Mansgement Plsnning Involving the Forests of Alaska." In Proceedings of the Eighth World Forestry Congress, Jakarta, Indonesia, 16-18 Oct. 1978. USDA Forest Service, PO Box 1628 Juneau, AK 99802 USA. (See Forestry Abstracts Vol. 41, No. 11) (1978), ? pages.

1116. 55 IB1 STEINLIN H. "World Wood Production. Ecological, Social, and Economic Aspects." Schweizerische Zeitschrift für Forstwesen, Vol. 130, No. 2 (1979), pages 109-131. In German with French abstract. Areas under forest, growing stock, current and estimated potential increment, imports and exports, and future demands and trends. Forecast for the year 2000 is that the greater part

of Asia and Africa will not be self-sufficient even in fuelwood at present trends, and that fast-growing plantations will be needed.

1117. 55 IB2 ARMSON K.A. "Forestry in Canada, State of the Art." The Forestry Chronicle, Vol. 56, No. 6 (1980), pages 271-274. The state of forestry from both a cultural and profeasional perspective as opposed to the more conventional statistical viewpoint.

1118. 55 IB2 DECOSTER LESTER A. "New England - What's Happened in the Woods?" Northern Logger and Timber Processor, Vol. 29, No. 7 (1981), pages 16-17. Statistics: Forest area of New England, New England forest ownership (1952-1977), net annual growth, removals, mortality, population.

1119. 55 IB2 FELT DOROTHY G. Forest Area and Timber Resource Statistics for the Bear River and Wasatch Front Working Circles, Utah, 1976-1977. USDA Forest Service Resource Bulletin INT-22 (1980), 25 pages. Land area, commercial timberland area, timber inventory, and growth and mortality data.

1120. 55 IB2 FELT DOROTHY G. Forest Area and Timber Resource Statistics for the Mountain Lands and Uinta Basin Working Circles, Utah, 1977-1978. USDA Forest Service Reaource Bulletin INT-23 (1980), 24 pages. Land area, commercial timberland area, timber inventory, and growth and mortality data.

1121. 55 IB2 FIELD DAVID B. The Economic Importance of Maine's Spruce-Fir Resource. Cooperative Forestry Research Unit, Research Bulletin No. 2, School of Forest Resources, Life and Agric. Exp. Sta., Univ. of Maine at Orono 04469. (1980), 34 pages.

1122. 55 IB2 FLICK WARREN A., TRENCHI PETER III, BOWERS JOHN R. "Regional Analysis of Forest Industries: Input-Output Methods." Forest Science, Vol. 26, No. 4 (1980), pages 548-560. To better understand the economic role of forest-based industries in Alabama, a 25 sector input-output model of Alabama's economy was constructed for 1977. Methods allow consistent estimates of taxes paid to two categories of government and give exports and imports determined from survey data. A complete model can be developed within eighteen months of the close of the model's base year.

1123. 55 IB2 HEGG KARL M., SIEVERDING HAROLD Timber Resources of the Kuskokwim Flood Plain and Adjacent Upland. USDA Forest Service Resource Bulletin

PNW-87 (1979), 40 pages. Commercial forest area of 252.5 thousand acres with a growing-stock volume of 343 million cubic feet. Noncommercial strstum covering 70.4 thousand acres with s volume of 65.9 million cubic feet does not qualify as commercial forestlsnd. Southwestern Alsska.

1124. 55 IB2 JOSEPH J., IRLAND L.C., HOWARD T. Planning for the Forest Resources of Maine. Evaluation Document No. 1, 1980. Div. of Plsnning and Development, Msine Forest Service, Dept. of Conservation, Augusts, Maine. (1979), 76 pages.

1125. 55 IB2 REYNOLDS RUSSELL ROY The Crossett Story: the Beginning of Forestry in Southern Arkansas and Northern Louisiana. USDA Forest Service Gensrsl Technicsl Report SO-32 (1980), 40 pages.

1126. 55 IB2 SHEFFIELD RAYMOND M. Forest Statistics for Northeast Florida, 1980. USDA Forest Service Resource Bulletin SE-53 (1980), 33 pages. Statistics on ownership of forestlsnd, volume of growing stock snd timber removals.

1127. 55 IB2 VAN HEES WILLEM, HEDLUND "Arkansas' Hardwood Resource Availability and Qusility." Proceedings, Mid-South Upland Hardwood Symposium for the Practicing Forester and Lsnd Manager. Harrison, Arksnsas. April 30-Msy 2, 1980. USDA Forest Service Technical Publication SA-TP12 (1980), pages 6-17. 1978 Forest Survey data from Arksnsss are re-snslyzed. Indicators of timber qusility suggest s decline in the resource quality. Timber availability is shown to be sffected by sdverse site conditions and by owner priorities.

1128. 55 IB2 WOLF ROBERT E. "Forestry and the Role of Governments." The Forestry Chronicle, Vol. 56, No. 6 (1980), pages 267-270. Historical view of forestry and government's effects on it in the U.S. and Cansda.

1129. 55 IB3 BAUER E., "Our Forests Represented in Historic Msps: Contributions to the History of Forest Mapping in Rhineland-Palatinate." State Forest Service of Rhineland-Pslatinate, Mitteilungen aus Forsteinrichtung und Waldbau, Mainz, No. 22. (1980), 317 pages. In German. History of forests in Rhineland-Palatinate as seen in msps from Roman times to the present. Contains pictures of 61 historic maps.

1130. 55 IB3 DICKERMAN M.B., DUNCAN DONALD P., GALLEGOS CARL M., CLARK F. BRYAN "Forestry Today in China: Report

of a Month's Tour by a Team of American Foresters." Journal of Forestry, Vol. 79, No. 2 (1981), pages 64, 71-75. Initial visit by an SAF forestry team to China laid groundwork for program of technical information exchange, offered suggestions for improving reforestation practices, discussed plans for cooperation research and education.

1131. 55 IB3 ELIZAROV A.F. "Forests and Forestry in the Mongolian People's Republic." Lesnoe Khozyaistvo, no. 7 (See Forestry Abstracts Vol. 41, No. 12) (1979), pages 68-70. In Russian. Development of forestry in Mongolia since 1921: main forest statistics, education in forestry, and administration, staffing and organization of forestry under the Ministry of Forests and Woodworking Industry.

1132. 55 IB3 FLORENTIN G., VALEIX J. "Impressions of Forestry from a Study Tour in China." Revue Forestière Française, Vol. 32, No. 3 (1980), pages 329-336. In French.

1133. 55 IB3 GUILLARD J. "Forestry and Forest Products." In, Perspectives in World Agriculture. Commonwealth Agriculture Bureau. (see Forestry Abstracts Vol. 42, No. 2.) (1980), pages 153-180. Review of the development of the sciences and technology related to forestry and forest products in the first fifty years of the Commonwealth Agric. Bureau (1930-1980): advances in knowledge through research and education, development of forestry techniques, developments in utilization of forest products, changing economic and social role of forests and wood, comment on the future.

1134. 55 IB3 HSIUNG WEN-YUE, JOHNSON FREDERIC D. "Forests and Forestry in China." Journal of Forestry, Vol. 79, No. 2 (1981), pages 76-79. China has an area slightly larger than the United States with over four times the number of native trees. Some thirteen percent of the forest area is occupied by more than fifty species of commercial bamboos. One of the present major efforts is planting millions of hectares to boost production of wood, fiber, food, and medicinals and to ameliorate climate in semiarid areas.

1135. 55 IB3 KORPEL STEFAN "Forests and Forest Management in Norway." Lesnícky Časopis, Vol. 26, No. 4 (1980), pages 357-364. In Czech with an English abstract. Variety in geography and management methods cause great diversity in forest conditions in Norway. Individual private ownership prevails but

forest management is of high quality.

1136. 55 IB3 MORLEY PETER "Contemporary Forest Practices in Sweden and Finland." Pulp and Paper Canada, Vol. 81, No. 12 (1980), pages 61, 63, 65, 76, 69.

1137. 55 IB3 PACHER J. "The Importance of Forests as a Source of Raw Materials in the Second Half of the Eighteenth Century." Allgemeine Forst- und Jagdzeitung, Vol. 151, No. 3 (1980), pages 49-53. In German with English and French abstracts. Review of the economic situation in Germany, showing the transition from the mercantile economic view of forests (as a free source of raw materials) to the commercial forestry of the nineteenth century, as a result of increasing demand and scarcity.

1138. 55 IB3 PUWEIN W., SEDELMAIER K., STEMBURGER T. "Supply of Round wood in Austria." Allgemeine Forstzeitung, Vienna, No. 11. (1980), pages 304-309. In German. Three articles deal with the supply of raw material from the point of view of timber industry, sawmills, and forestry. Reasons for insufficient supply in the past and chances for increased production in the future are discussed.

1139. 55 IB3 RYMER L. "Recent Woodland History of North Knapdale, Argyllshire, Scotland." Scottish Forestry, Vol. 34, No. 4 (1980), pages 244-256. Major deforestation took place during Iron Age. Before the eighteenth century the woods were not important commercially, but provided timber, bark and areas for overwintering cattle. During the eighteenth century the developing shortage of charcoal for iron smelting and the increasing demand for tan bark, together with the opening up of the Highlands to English exploitation after the Jacobite rebellions, led to the introduction of more careful management practice and the beginning of plantations. In 1930, a large area of the parish was bought by the Forestry Commission and is now planted with exotic conifers.

1140. 55 IB3 SCHEIFELE M. "The Forests of Baden Wurttemberg. Development of Working Methods in Forestry and in the Recreational Use of Forests." Revue Forestière Française, Vol. 31, No. 6 (1979), pages 455-464. In French with English, German, and Spanish abstracts. In 1976 when a new forest law was passed for Baden-Wurttemberg, the state forest service drew up a medium-term program silviculture. Forestry is to be based more on natural habitats, with stable mixed forests being conserved. Two thirds of the forest area will be conifers and one third broadleaved trees.

1141. 55 1B3 SCHEIFELE M. "Which Economic Claims Will Forestry Have to Meet in the Future?" Forst- und Holzwirt, Hannover, No. 21. (1981?), pages 429-434. In German. Forests are still the most important natural resource based on the principle of sustained yield and its ecological advantages. In the future most forestland must meet several forest functions on the same area, producing goods and services. This will be implemented only if economic livelihood from forestry can be guaranteed.

1142. 55 IB3 SELBY J. ASHLEY Field Afforestation in Finland and Its Regional Variations. Tiivistelma: Peltojen metsittamisen alueellinen vaihtelu Suomessa. Commun. Inst. For. Fenn.Author's address: Finnish Forest Research Inst., Unioninkatu 40 A, SF-00170 Helsinki 17, Finland. Vol. 99, No. 1 (1980), pages 1-126. Four levels of field afforestation in Finland: regions and communes (aggregate levels), and farms and fields (individual levels). Theories and concepts concerning social and economic development, agricultural environments, land use location and economic behavior form the frame of reference for the investigation.

1143. 55 IB3 SINNER K.F. "Forest Functions in Central Franconia." Forstarchiv, Vol. 50, No. 12 (1979), pages 265-267. In German. Percentage of forest area devoted to different functions in the industrial and rural subregions of this part of Bavaria. Forty-five percent is used mainly for timber production, remainder serves recreational or protective functions.

1144. 55 IB3 SPEIDEL G. "Economic Position of Forestry in the German Federal Republic and Its Consequences for Forest Policy." Schweizerische Zeitschrift für Forstwesen, Vol. 129, No. 4 (1978), pages 279-295. In German with a French summary. Net revenue has generally declined from 1967 to 1976: annual data are given for state, communal and private forests (excluding farm forests). Proposed measures to improve the situation include: increased efficiency within the forest sector, government support for non-commercial thinnings, further education of forestry personnel, and public relations work.

1145. 55 IB3 TSEKHMISTRENKO A.F., FEOFILOV V.A. "Main Trends in Development of Forestry in the Comecon Member Countries." Lesnoe Khozyaistvo, No. 11 (See Forestry Abstracts Vol. 41, No. 12) (1979), pages 12-17. In Russian. Forest resources, logging production and utilization, and forestry practice in

USSR, Bulgaria, Hungary, E. Germany, Cubs, Mongolia, Poland, Romania, and Czechoslavakia. Data are tabulated on area of forests, annual cut, and production of various types of forest and wood-based products. Policies and trends in forest management are reviewed.

1146. 55 IB3 VESIKALLIO H. "Development Prospects for Utilization and Harvesting of Forest Resources in Finland." Paper, American Society of Agricultural Engineers. No. 79-1594 (1979), pages ? Cent. Ars. Finnish For. Ind., SF-00520, Helsinki 52, Finland. In English. Removals, forest ownership, organization of logging, harvesting conditions and timber procurement costs and development in Finland in the 1980's.

1147. 55 IB3 VINOKUROV A.A. "The Regional Forest-Industrial Complex." Lesnoĭ Zhurnal, No. 4. (See Forestry Abstracts, Vol. 41, No. 11.) (1979), pages 120-123. In Russian. Economic importance of the forest and wood industry in the Northwest economic region of the USSR. Production is quantified relative to other branches of the industrial economy and the internal economic structure of the forest and wood industry in the region is described.

1148. 55 IB3 ZEHETMAYR J.W.L. "The Role of Forestry in the Future Environment of Mid Wales." Quarterly Journal of Forestry, Vol. 75, No. 1 (1981), pages 23-29. Mid Wales carries a higher than average woodland cover; 14 percent which could approach 20 percent by the end of the century. Expansion by afforestation is currently at a post-war low, timber production increases by ten percent a year and employment exceeds 1,300 in an area of chronic rural depopulation.

1149. 55 IB3 Forestry Statistics, 1980. Office of Forestry (1980), 526 pages. In Korean and English. Forestland area, growing stock, reforestation, forest protection and industries in the Republic of Korea.

1150. 55 IB3 The Wood and Forest Sectors in the Southwest of France. Expansion Committee midi-Pyrenees. Regional Development Agency - Toulouse. (1980), 106 pages + table. In French. Present situation and suggested course of action for the future.

1151. 55 IB3 "Balance of Wood Supply in Austria, 1926-1978/79." Edited by the Federal Board of Forest Industries. Holz-Kurier, Vienna, No. 48. (1980), 55 pages, 86 tables. In German, table headings also in English. Wood consumption, origin

of material, production of forest industries, and balance of supply in Austria over a period of more than 50 years.

1152. 55 IB3 "Forest and Forest Products, Country Profile No. 5 - Norway." FAO, Supplement 6 to Vol. 32 of the Timber Bulletin for Europe, Geneva. (1980), 28 pages. Forestry, forest industry, and forest product situation in a series of statistical tables.

1153. 55 IB3 "Forest and Forest Products, Country Profile No. 6 - U.S.S.R." FAO, Supplement 5 to Vol. 33 of the Timber Bulletin for Europe, Geneva. (1980), 25 pages. Forestry, forest industry and forest products situation in a series of statistical tables.

1154. 55 IB3 "Forest and Forest Products, Country Profile no. 4 - Switzerland." FAO, Supplement 3 to Vol. 32 of the Timber Bulletin for Europe, Geneva. (1979), 28 pages. Forestry, forest industry and forest product situation in a series of statistical tables.

1155. 55 IB3 "Forestry in Austria." Allgemeine Forstzeitschrift, Munich, No. 30/31- (1980), pages 785-836. In German. Special issue with articles on forest policy, education, research, planning, and timber industry in Austria.

1156. 55 IB3 "Utility of Our Forests: Timber, Protection, and Recreation." Forst- und Holzwirt, Hannover, No. 1. (1981), pages 1-29. In German. This issue reviews the objectives of forestry and forest industry as information for a presentation at the International Green Week in Berlin, 1981.

1157. 55 IB3 "Wood as Raw Material and Sources of Energy." Edited by University for Agriculture, Vienna, Department of Forestry and Forest Industry, Vienna. (1980), 136 pages. In German. Report of a meeting about wood production, timber utilization, and energy farms showing status and perspectives of forestry and forest industry in Austria.

1158. 55 IB4 SCHUERHOLZ G., MANN G. Forestry Research and Development, Chile. FAO Working Document 23 (1979), 94 pages. In Spanish. (Cited in FAO Documentation, Oct. 1980). Proposals for the administration and management of wildlife resources in Chile.

1159. 55 IB4 WILSON L.A. "The Status of Softwood Plantation Development in Australia." Appita, Vol. 34, No. 1 (1980), pages 12-16.

1160. 55 IB5 ALUMA R.J.W. "Uganda: a Damage Report." Unasylva, Vol. 31, No. 126. (1979), pages 20-24. Examination of the timber harvesting industry in Uganda.

1161. 55 IB5 BUONGIORNO JOSEPH Forestry and Forest Products Development, Indonesia. A Timber Supply Model for Indonesia, Model Description and Users Manual. Forestry and Forest Products Development Project of FAO, Bogor. Working Paper 2. (1978), 44 pages. Economic model for evaluating broad, long-term development strategies for the forest sector of Indonesia. Economic efficiency is main criterion. Model may be used to analyze the effect of choosing alternative domestic or foreign demand targets, of altering the allowable cut in different regions, of exporting manufactured products instead of logs, of expanding port capacity at specific locations, and other alternatives.

1162. 55 IB5 BUONGIORNO JOSEPH Forestry and Forest Products Development, Indonesia, Model Description and Users Manual. Forestry and Forest Products Development Project of FAO, Bogor. Working Paper 9 (1980), 42 pages.

1163. 55 IB5 BYERS A.C. III "The Changing Ecology of Wood Supply in Nepal's Arid Zone: the Example of Muktinath." Discussion Paper Series, Dept. of Geography, Syracuse Univ. No. 59 (See Forestry Abstracts Vol. 41, No. 11) (1979), 52 pages. Forest location, harvesting and supply outlook in W. Central Nepal suggests current removal for fuel and timber exceeds the regeneration capacity of the forests. Measures for improvement suggested: increased reforestation, community education, more local control of forests, improved harvesting efficiency and development of alternative energy sources.

1164. 55 IB5 DEVILLE J. Development of Forest Resources and Strengthening of Forestry Service, Upper Volta. FAO Technical Report 1 . (1979), 49 pages. In French. (Cited in FAO Documentation, Oct. 1980). Contribution of rural communities to the reclamation of forest resources.

1165. 55 IB5 FAEHSER LUTZ "Extirpation or Management - a Decision for the Last Natural Forests of Parana pine in Brazil." Forstarchiv, Hannover, No. 1 (1981), pages 22-25. In German with an English summary. No effort so far has stopped the devastation of Parana Pine in Brazil. Perhaps forest policy will succeed in offering popular forms of management which

are a compromise between financial and ecological claim.

1166. 55 IB5 GONZÁLEZ R. "Designation and Development of Forest Resources in Costa Rica." Agronomia Costarricense, Vol. 3, No. 2 (1979), pages 161-166. In Spanish with English summary. Over a million ha of forest have been designated as forest reserves in Costa Rica. One quarter is reserved for protection of land and watersheds, remainder has been designated for multiple use. Management plans for each reserve and their role in educating local inhabitants about the rational use of forests.

1167. 55 IB5 MYERS NORMAN Conversion of Tropical Moist Forests. Office of Publications, National Academy of Sciences, 2101 Constitution Ave., NW, Washington, D.C. 20418. (See Forestry Abstracts Vol. 41, No. 11) (1980), ix + 205 pages. Chapters cover: methods used in survey of different forms and degrees of conversion; definition of tropical moist forests; roles of forest farmers, timber trade, cattle raising, and firewood cutting in conversion; monitoring of conversion trends; regional reviews of southern and southeast Asia and Melanesia, tropical Latin America, and tropical Africa.

1168. 55 IB5 PALO M.S. Philippines - Multiple-use Forest Management. FAO Project Working Paper 2 (Cited in FAO Documentation, November 1980.) (1980), 131 pages. Past development and present situation with special reference to the role of shifting cultivation and uncontrolled logging in social and economic development.

1169. 55 IB5 SACHTLER M. Forest Inventory and Management, Bolivia. FAO, Working Document 3 (1979), 164 pages. In Spanish. (Cited in FAO Documentation, Oct. 1980). Forest survey in the Chimanes region including results of complementary works on marketing, supply and transportation of wood; recommendations for forestry industry development.

1170. 55 IB5 SORG J.P. "The Natural Forest of Nyungwe, Rwanda: Exploitation or Protection?" Schweizerische Zeitschrift für Forstwesen, Vol. 129, No. 6 (1978), pages 445-452. In French with a German abstract. Inst Sci Agron. Rwanda, Rubona, Rwanda. Geography, vegetation types, logging, and value for water, soil and nature conservation. Main problems are the control of [illegible]ging, mining and agricultural settlement. A pil[illegible]oject has established plantations of f[illegible]owing and indigenous species on the forest margi[illegible]d is working for more effective

political protection of the forest.

1171. 55 IB5- WHITE EDWIN H., POU ROSARIO "Overview of Forestry in Uruguay." Journal of Forestry, Vol. 78, No. 12 (1980), pages 746-747. Uruguay is trying to develop a forest resource to offset extremely unfavorable cash flow and to diversify agricultural products. Soils and climate favor rapid growth of exotic species, especially eucalypts. Tax incentives encourage private landowners to establish plantations. Forestry education needs to be expanded and transportation systems and mechanization are inadequate.

1172. 55 IC AINSCOUGH GRANT L. "The Forest Industry - Government Interface." The Forestry Chronicle, Vol. 56, No. 6 (1980), pages 277-280. Advises Canadian industrial forest managers to know and work with politicians and to promote an appreciation of the value of forest industry.

1173. 55 IC APSEY T. MICHAEL "Public Planning: Needs at the Public/Private Interface." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 27-33. In British Columbia, the Ministry of Forests, through provision of Provincial legislation, is responsible for the management of 95 percent of the forest land of the Province. Carrying out this responsibility requires that management goals, and means to achieve them, be clearly defined by the Ministry and communicated to the Provincial legislature, the forest and range industries, and the general public.

1174. 55 IC ARMSON K.A. The Resources Needed to Implement Forest policy in Temperate Regions. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 19 pages. Many of the factors which determine forest policy have their origins in military and political decisions which in themselves are not concerned with forests except as an exploitable resource. Some of the exploited capital value of the forest has been used to create social and economic infrastructure. Attitudes of certain segments of the public have had an effect but although necessary for forest exploitation and management, labor until very recently has been largely passive in its influence on forest policy.

1175. 55 IC BITTIG B. "The Effectiveness of Forestry Policy." Schweizerische Zeitschrift für Forstwesen, Vol. 129, No. 12 (1978), pages 963-971. In German with a French abstract. People involved in forestry have almost no influence over forestry policy. This situation could be improved by greater contact and exchange of ideas between foresters and forestry workers and among forestry organizations.

1176. 55 IC BOSSHARD W. "In a Weak Position One Must Show Courage and Intelligence: or, Forestry's Lack of Political Power." Schweizerische Zeitschrift fur Forstwesen, Vol. 129, No. 12 (1978), pages 953-962. In German with a French abstract. Eidgenössische Anstalt fur das forstliche Versuchswesen, 8903 Birmensdorf, Switzerland. Despite the economic importance of forestry in Switzerland, foresters have little influence over forestry policy, which is controlled by strict laws. Most foresters and forestry workers take a non-political stand, and forest policy is not taught adequately in forestry schools.

1177. 55 IC CAMPBELL RICHARD "The Development of the New Forest Act." The Advocate, Vol. 38, part 3 (1980), pages 189-203. Review of the development of forestry legislation in British Columbia from the first Forest Act in 1912 to the Forest Act and Ministry of Forests Acts in 1978. Includes an outline of the evolution of tenures and summaries of the findings of three provincial Royal Commissions from 1910 to 1976.

1178. 55 IC CONTESSE GONZÁLEZ J. "Planning a National Program of Forest Plantations." Chile Forestal, Vol. 3, No. 29 (Supl.) (1978), 7 pages. In Spanish. Financial, economic, social, technical and ecological factors involved in the implementation of a national planting program in Chile in accordance with the government's forest policy.

1179. 55 IC DARGAVEL JOHN "The Potential Detection of an Australian Forestry Perspective." Australian Forestry, Vol. 43, No. 1 (1980), pages 5-15. A review of four essays previously published (Vol. 42, No. 2) in Australian Forestry dealing with environmental management. Dargavel establishes that the prevailing paradigm of Australian forestry views environmental management from a particular political position that not all citizens or foresters would share.

1180. 55 IC ELLEFSON PAUL V., CUBBAGE FREDERICK W. State Forest Practice Laws and Regulations: A Review and

Case Study for Minnesota. Station Bulletin 536-1980, Agric. Exp. Station Univ. of Minnesota (1980), 42 pages..

1181. 55 IC , GIBSON ROB, BIESTERFELDT ROBERT A Recommended Renewable Resources Program - 1980 Update. USDA Forest Service FS-346 (1980), 540 pages plus 5 appendices.

1182. 55 IC GOTSCH H. "Forestry Policy in Terms of Systems Theory." Allgemeine Forstzeitung, Vol. 90, No. 10 (1979), pages 313-316. In German. Forestry must be regarded as a social system and not simply as an interaction of several social systems concerned with forests. The interaction of forestry with the social system of politics is the field of forestry policy, whose primary function should be to keep forestry self-regulating.

1183. 55 IC HAROU PATRICE A. "Planning through Project Selection." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Foreatry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 178-187. Planning through project selection consists in budgeting projects that have been appraised taking into consideration the national objectives and the sector goals and constraints and is particularly useful in the first planning stage of the forestry sector when few data are available.

1184. 55 IC MACCLEERY DOUGLAS Identifying Land Unsuitable for Timber Production: What Should Industry Do? Special Report, National Forest Products Association. (See Forestry Abstracts Vol. 41, No. 10) (1980?), 9 pages. Sixth in a series describing the new National Forest planning process and detailing how industry should be involved.

1185. 55 IC MCGAUGHEY STEPHEN E. "Forestry Policy Issues in Agricultural Sector Analysis." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 168-177. The Inter-American Development Bank and other international agencies have used agricultural sector analysis to assess sector policies and recommend investment strategies. Two

approaches have evolved, policy- and investment-oriented studies and complex quantitative models. Forest-based sector studies have lagged behind those of the other sectors, so that much can be learned to improve these studies. Multiple objective analysis should be introduced and to the extent that policy interactions with other sectors are better known, forestry planners in Latin America will have greater influence over national policies which affect them.

1186. 55 IC RICKART THOMAS M. "Wilderness Land Preservation: The Uneasy Reconciliation of Multiple and Single Use Land Management Policies." Boston College Environmental Affairs Law Review, Vol. 8, No. 4 (1980), pages 873-917. Origins of wilderness preservation, the multiple-use sustained yield act, the wilderness act, RARE I and RARE II, Bureau of Land Management Wilderness Survey.

1187. 55 IC ROSE DIETMAR W., GREGERSEN HANS M., EK ALAN R., HOGANSON HOWARD "Planning with Minimum Data and Technology." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) Sympoaium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Foreatry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 188-197. Planning situations are reviewed with emphasis on those constrained to data and/or technology. Suggested planning approaches are subsequently developed and illustrated by examples of timber harvest scheduling and decision problems.

1188. 55 IC WEYREUTHER F. "The Unconstitutionality of Salvatoric Rules for Compensation in Expropriation Law." Duncker and Humblot- Verlag, Berlin. (1980), 53 pages. In German. Salvatoric rules for compensations in numerous laws are precautions only as the basic law demands compensation for expropriation. By this formal readiness for compensation the unconstitutionality of such rules is avoided. The problem occurs in many laws affecting forestry.

1189. 55 IC The World's Tropical Forests: A Policy, Strategy, and Program for the United States, Report to the President. United States Interagency Task Force on Tropical Forests. For sale ($3.50) by the Supt. of Docs., US Govt. Print. Office, Washington, D.C. 20402. (1980), 53 pages.

1190. 55 IDIA BENTICK B.L. "Property and Income Taxation

in Rural Industries with Different Rotation Periods." National Tax Journal, Vol. 33, No. 2 (1980), pages 219-225. A simple model of a rural economy of land uses involving activities with different rotation periods, such as forests and annual crops and grazing; that makes three points: (1) confirms the traditional view of foresters that a fully capitalized property tax does transfer out of forestry land which is on the margin with other uses; (2) because it provides activities which compete with forestry, it is able to analyze policy prescriptions; (3) imperfections in the tax treatment of receipts and costs will pull resources in different directions, so that more research on these effects is needed before support could be given to property tax relief for forests and not to other rural enterprises which also earn deferred receipts.

1191. 55 ID1A HART CYRIL "Effect of Taxation on Forest Management and Roundwood Supply." FAO, Supplement 4 to Vol. 33 of the Timber Bullletin for Europe, Geneva. (1980), 120 pages. Tax incidence for ECE countries. There is a definite need for improved management and increased roundwood supply in much of Europe's private forestry sector. Countries might consider a reexamination of their forest taxation measures so as to analyze their impact on management and roundwood supply, and to make their provisions efficient and equitable instruments of forest policy.

1192. 55 ID1B GITTINS D. "Forestry - Taking Care of the Tax Problems." Accountancy, No. 90. 55-56 Goswell Rd., London EC1M 7AB, U.K. (See Forestry Abstracts Vol. 41, No. 12) (1979), pages 46-47. Guide to personal taxation in the United Kingdom as it relates to forestry. Includea problems involved in lease agreementa, syndicates and overseas forestry investments.

1193. 55 ID1C CONDRELL WILLIAM K. "New Reforestation Tax Incentive: How It Worka." Forests and People, Vol. 31, No. 1 (1981), pages 8-9, 33-34. Landmark legislation provides investment tax credits and amortization deductions, principally benefitting owners of small- and medium-sized tracts of land.

1194. 55 ID1C HELLES FINN Capital Tax Legislation in Denmark, An Analysis of a Political Process Potentially Disastrous to Forestry. Reports from Dept. of Forestry - Series 2: Studies, No. 8. Royal Veterinary and Agric. Univ., Thorvaldsensvej 57 DK 1871 Copenhagen V, Denmark. (1981), 25 pages. Act which taxea the capital yield from private foreatry so heavily that if not amended it may

undermine private forestry as an enterprise in Denmark.

1195. 55 IDIC KUTSCHER G. "New Ascertsining of Profits According to Aversge Rstea for Agriculture snd Forestry - the Frame of Legal Resrrangements." Die Information uber Steur und Wirtschaft, Freiburg, No. 4. (1981), pages 73-77. In German. Reasons for the legsl resrrangements of income tsxation for sgriculture and forestry and the effects of the new regulation on income taxstion of private holdings.

1196. 55 IDIC PRINDLE ALLEN M. "Impacts of Federal Estste Taxation on Investments in Forestry: Commeht." Lsnd Economics, Vol. 57, No. 1 (1981), pages 122-125.

1197. 55 IDIC SUTHERLAND CHARLES F. JR., TEDDER PHILIP L. "Impacts of Federal Estste Tsxstion on Investments in Forestry: Reply." Lsnd Economics, Vol. 57, No. 1 (1981), pages 126-127.

1198. 55 ID2 KIM DONG CHUN "Evalustion of Intsngible Forest Benefits." Report on Forest Administration Resesrch, Office of Forestry, Korea. (1980), pages 1-91. In Koresn. Qusntifies snd evaluates the intangible benefits for establishing optimum forest management models.

1199. 55 ID4 FRIEDMAN JANET "Federsl Cultursl Resource Mansgement: Constraint or Opportunity?" Journal of Forestry, Vol. 79, No. 3 (1981), pages 142-145. Federal forestlsnds contain prehistoric and historic sites important to an understsnding of human culture and behavior. Msnagers have responsibility, clearly stated in law, for protecting the sites from dsmage by vandals or from incidentsl harm by forestry activities. They sre beginning to see that the responsibility is not so much a constraint ss sn opportunity to serve the public.

1200. 55 ID4 KENT JAMES A., GREIWE RICHARD J., FREEMAN JAMES E., RYAN JOHN J. An Approsch to Socisl Resource Management. USDA Forest Service Surface Environment and Mining Progrsm. Billings, Montana. (1979), 124 pages. Guides to predicting social changes resulting from resource developments on or near forests snd grsssiands, and to sllocating forest resources so as to enhance socisl benefits or minimize disruptions. A ten-step "social impact analysis" method is presented, which stresses that (1) people snd land must be seen ss closely relsted; (2) people have the right to psrticipate in resource decisions that affect them, snd (3) forest mansgers

can affect the well-being of people who live within and beyond the forest boundaries.

1201. 55 ID4 NIESSLEIN E. "Landscape Maintenance in Wooded Areas." Forstarchiv, Hannover, No. 10. (1980), pages 189-195. In German. The status of forests in a social system, questions of orderly forest management, suppy with forests, behavior of administration and people versus forestry.

1202. 55 ID4 SHANNON MARGARET A. "Sociology and Public Land Management." Western Wildlands, Vol. 7, No. 1 (1981), pages 3-8. The importance of social analysis in forest planning.

1203. 55 ID6 BAUR GEORGE N. Publications and the State Forest Service. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 14 pages. Success in establishing a satisfactory relationship with the public depends on the forest service's policies and operational practices and its ability to explain these. Its tools are listening, informing, educating, and consulting.

1204. 55 ID6 KROTH W., PLOCHMANN R. "Public Relations as a Problem of Forestry and the Wood Using Industry." Forstliche Forschungsberichte, Munich, No. 46. (1980), 114 pages. In German.

1205. 55 ID6 LENZ R. "Public Relations Work: the Image of Forestry in Education." Allgemeine Forstzeitung, Vol. 91, No. 5. (See Forestry Abstracts, Vol. 41, No. 11.) (1980), pages 129-131. In German.

1206. 55 ID6 RAMDIAL BAL Forestry Publicity and Promotion Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 14 pages. Forestry depends on public support and needs to keep the public well informed. If forestry and wildlife projects are not to suffer low priority treatment then information about them must not be left to chance.

1207. 55 ID6 RIS H. "The Citizen: Our Duty and Our Opportunity." Schweizerische Zeitschrift für Forstwesen, Vol. 129, No. 12 (1978), pages 972-982. In German with French abstract. Publicity and public relations are necessary to give the public a wider understanding of the aims of forestry and of the importance of silvicultural and technical operations.

1208. 55 IE KEIPI KARI "Business Economics in Forestry Research in Finland." Silva Fennica, Vol. 14, No.

3 Author's address: The Finnish Forest Research Inst., Unioninkatu 40 A, SF-00170 Helsinki 17, Finland. (1980), psges 505-518. Reviews past research in the five major subfields of Business Economics of Forestry. Although the twelve doctoral dissertations in the discipline distribute evenly among the subfields, timber production economics hss gained the major weight during the past 10-20 years. The new forest products market development requires the focus be shifted from pulpwood to high quality sawntimber production. Maintaining the current market share requires effective measures to control the wood costs. Nine research projects relating to these market demands sre proposed.

1209. 55 IE LEWIS GORDON D. The Eisenhower Consortium for Western Environmental Forestry Research: Reseasrch Highlights, 1972-1980. Eisenhower Consortium Bulletin 8, Rocky Mountain Forest and Range Exp. Station, USDA Forest Service. (1980), 31 pages. Brief summaries of final reports submitted upon completion of research sgreements with the 9 Consortium universities. Research emphasizes relationships between human recreationsl activities and nstural environments. Summaries organized under topics of air quality, water quality, watershed management, wildlife, social and economic effects, management activities, snd fire.

1210. 55 IE MOELLER GEORGE H., SHAFER ELWOOD L. "Importsnt Factors in the Forestry Innovation Process." Journal of Forestry, Vol. 79, no. 1 (1981), pages 30-32. Analysis of 81 innovstions by scientists of the USDA Forest Service and their cooperators delinested 22 factors that tended to be present in successful research. Adaptation of existing techniques or technology, pilot testing, cooperation with privste industry, and acquisition of underlying theory appear most often.

1211. 55 IE OJA S. Abstracts of Publications, 1979. The Finnish Forest Research Institute. Folia Forestslia, No. 435. Editor's address: Finnish Forest Research Institute. Unioninkatu 40 A, 00170 Helsinki 17, Finland. (1980), 49 pages. In Finnish and English. The Finnish Forest Research Institute publishes two research series: Communicationes Instituti Forestales Fenniae (since 1919) and Folia Forestalia (since 1963). In 1979, 43 studies were published in Folia Forestslia and 15 studies snd 2 bibliographies in Communicationes. In addition to the sbove series, mimeographed bulletins are issued in Finnish by the reasearch stations and departments of the Institute.

1212. 55 IE SPEIDEL GERHARD "Reflections on the Present Situation and Future Problems of Forest Science Research." Forstwissen-schaftliches Centralblatt, Hamburg and Berlin, 100. (1981), pages 15-27. In German with English summary. Improvement in roundwood supply and the melioration of the environment are the main tasks in forest research.

1213. 55 IF BEAUFAIT WILLIAM R., TWOMBLY ASA D., BLAKE GEORGE M. "Continuing Education for Northwestern Silviculturists." Journal of Forestry, Vol. 79, No. 4 (1981), pages 206-209. The Northern Region was the first in the USDA Forest Service to provide continuing education for and certification of silviculturists in 1973; the Pacific Northwest Region followed in 1978. Both programs were planned in close coordination with universities, which provide the classrooms and most of the teachers. Instruction is on the graduate level, emphasizing physical and biological principles and their application in practical silviculture.

1214. 55 IF BUCKNER EDWARD "Hardwood Silviculture Emphasis in Universitiea in the South." Proceedings, Mid-South Upland Hardwood Symposium for the Practicing Forester and Land Manager. Harrison, Arkansas. April 30-May 2, 1980. USDA Forest Service Technical Publication SA-TP12 (1980), pages 64-73. Commercially important hardwoods receive less than half the classroom attention devoted to the few commercially important yellow pines. Educators are generally aware of the inequity but feel pressure to continue a strong pine emphasis due to: (1) their location, (2) needs of their graduates, and (3) support grants. Historical, biological, and economic reasons for this imbalance are discussed in the context of a current trend toward increasing hardwood utilization.

1215. 55 IF COUFAL JAMES E. "Forest Technician School Enrollment and Employment of Graduates, 1979-1980." Journal of Forestry, Vol. 79, no. 4 (1981), pages 218-220. A survey located 73 two-year forest technician schools in 28 states during 1979-1980. Total enrollment was 4,000 to 4,800 students, with 1,500 to 1,800 graduates expected in 1980. Of 1979 graduates, 73 percent had found jobs in forest technology by early 1980, and 11 percent had other employment. For the third year, industry was the main employer.

1216. 55 IF DUNCAN DONALD P. "Forestry Doctorates: Production in 1974-1978 and Demand in 1979-1983." Journal of Forestry, Vol. 78, No. 12 (1980),

pages 743-745. Production of forestry doctorates in the US appears to have leveled out at about 120 annually. Total demand for forestry doctorates in traditional outlets seems likely to remain fairly constant. Some disciplines have needs substantially beyond current production, while others may be in danger of over production.

1217. 55 IF EISENHAUER G. Evaluation of Requirements in the Field of Forestry Education and Training in Brazil, Colombia, Ecuador, and Venezuela. FAO Report No. TF/INT 286 (SWE) (See Forestry Abstracts Vol. 41, No. 12) (1979), 198 pages. In Spanish. Federal For. Res. Cent., Hamburg - Reinbek, German Federal Republic.

1218. 55 IF EISENHAUER G. Forest inventory and Management, Bolivia. FAO Working Document 4 (1979), 64 pages. In Spanish. (Cited in FAO Documentation, Sept. 1980). Suggestion for restructuring the curriculum of forest engineering degree courses in Bolivia.

1219. 55 IF ENANDER K.G. Present Situation, Trends and Objectives of Training and Extension Services in Forestry in Some Member Countries of the Joint FAO/ECE/ILO Committee (spec. Europe, USA, Canada, and Israel). FAO, Geneva. Joint ECE/FAO Agric. and Timber Div. (1980), 60 pages. In English and French. (Cited in FAO Documentation, Sept. 1980).

1220. 55 IF HUETTERMANN A. "The Faculty for Forestry Has Been in Goettingen Ten Years, an Interim Balance." Forstarchiv, Hannover, No. 1. (1981), pages 29-36. In German. An essay showing the situation of teaching, research and scientific personnel in times of incressed student enrollment and limited funding.

1221. 55 IF PUURI CARL R., WEINMANN RAYMOND G. "Continuing Education and Certification of Silviculturists in the USDA Forest Service." Journal of Forestry, Vol. 79, No. 4 (1981), pages 204-206. Various regions of the USDA Forest Service offer advanced training and certification of silviculturists. Each region developed its own program, usually in conjunction with one or more forestry schools. Though all programs have the central aim of improving applied silviculture, variations are wide. National standards, flexible enough to be adjusted to regional conditions, have recently been set.

1222. 55 IG FORSTER R.B. Social and Economic Costs and Benefits of Forests in the Temperate Zone.

Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 21 pages. There are many advantages in using forestry as a base for economic development. It is based on a renewable resource; is flexible in scale and provides a continuous flow of benefits including soil stabilization, stream flow regulation and outdoor recreation.

1223. 55 IG GUESS GEORGE M. "Technical and Financial Policy Options for Development Forestry." Natural Resources Journal, Vol. 21, No. 1 (1981), pages 37-55. Ecological and economic benefits of forestry suggest that less developed countries' policies should focus on designing and implementing development forestry projects. While some technical issues remain, obstacles to moving beyond narrow industrial forestry to agriforestry programs, with development benefits in land productivity, employment, and income distribution are primarily issues of political preference and administrative structure.

1224. 55 IG KING K.F.S. Forestry's Contribution to Social and Economic Development. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 23 pages. Role of forestry both now and in future contributing to industrial development and employment and thus to the economies of many developing countries. Too often indigenous people have profited little from the exploitation of their forests. Role of the forest in food supply and erosion control is also discussed.

1225. 55 IG ROCHE L., COOPER R.J. Forestry for Local Community Development: Manpower, Training and Education Requirements. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 24 pages. The role of forestry for rural development has been much undervalued in developing countries both by international agencies and their own government. Often the social value of minor forest products, in particular, fuelwood, outweighs that of industrial wood. Adequate rates of development will only be attained if governments recognize the regional value of these minor products and plan through education and training programs to provide manpower sufficient for future needs.

1226. 55 IG SCHALLAU CON H Stages of Growth Theory and Money Flows from Commercial Banks in Timber-Dependent Communities. USDA Forest Service Research paper PNW-279 (1980), 16 pages. The flow of funds from commercial banks in western Oregon may indicate

how a timber shortfall will affect community stability. Results suggest the inappropriateness of a single public forest management policy.

1227. 55 IH CARLISLE A. Forest Exploitation and Environmental Objectives. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 39 pages. If forests are to be managed to meet the conflicting needs of society, foresters must develop a stewardship ethic through which the genetic integrity of the forest and biological productivity of the soil may be maintained.

1228. 55 IH MUSSER LLOYD A., MORSE ERIC, SASSAMAN ROBERT W. "Environmental Analysis: A Ranger District's Approach to NEPA." Journal of Forestry, Vol. 79, No. 2 (1981), pages 83-84. Two timesaving refinements to the USDA Forest Service's basic National Environmental Policy Act guidelines have been developed which combine a formal decision-making process and a threshold-of-concern technique to formulate and analyze management alternatives.

1229. 55 IH OFOMATA G.E.K. "Impact of Road Building, Urbanization, and General Infrastructural Development on the Nigerian Rainforest Ecosystem." Landscape Planning, Vol. 8, No. 1 (1981), pages 21-29. Issues of pollution, surface mining, road building, industrialization and urbanization are reviewed. Careful management of the forests is required while continuing to improve the status of the population. A comprehensive national land-use policy is needed.

1230. 55 IH SASSAMAN ROBERT W. "Threshold of Concern: A Technique for Evaluating Environmental Impacts and Amenity Values." Journal of Forestry, Vol. 79, No. 2 (1981), pages 84-86. The threshold-of-concern technique is an interdisciplinary planning tool useful in evaluating impacts of proposed land-management practices. It is most helpful for dealing with impacts that are difficult to quantify in physical terms or dollars.

1231. 55 IIA1 FREY U., GRIEDER E.P. "The Forestry and Wood Industries as Employers in the Swiss Cantons." Schweizerische Zeitschrift für Forstwesen, Vol. 130, No.5 (1979), pages 367-380. In German with a French abstract. Between 1955 and 1975 the number of people employed in forestry and wood industries dropped from almost 100,000 to 70,000. Forestry could increase timber production from 4 million cubic meters per year to 5.5-7 million, creating 2,000 jobs, if the Swiss timber enterprises strengthened their position on home and foreign markets.

1232. 55 IIA1 PATALAS Z. "Directions and Results of Research on the Organization of Work in Forestry in Poland." Beiträge für die Forstwirtschaft, Vol. 14, No. 1. (See Forestry Abstracts Vol. 41, No. 11.) (1980), pages 22-24. In German. Outline of the administration and organization of forest work from 1950 to the present, covering changes in size of working teams, transport to work, sequence of work operations, and a proposed system of management control for increased productivity.

1233. 55 IIA1 SAKKAS G. "The Manpower of Greece (Employment and Unemployment) and Its Participation in the Forest Sector 1950-74." The Forest (Dasos), No. 87. (1980), pages 25-32. In Greek. The labor force in Greece is examined, with emphasis on employment in forestry and wood-using industries.

1234. 55 IIA1 "Trends in Forestry Employment in Europe and North America, 1965 to 1977." FAO, Suppl. 3 to Vol. 33 of the Timber Bulletin for Europe, Geneva. (1980), 38 pages. Data on forestry labor force, labor input and productivity, and earnings in forestry as compared with other sectors of the economy.

1235. 55 IIA3 WUTZ A. "Training Farmers for Salvage-Logging in Snow-Damaged Stands." Allgemeine Forstzeitschrift, Munich, No. 12. (1981), pages 281-283. In German. Trained farmers were an effective help in handling the salvage of timber in private forests after a snow-break catastrophe in eastern Bavaria.

1236. 55 IIA4 BLOCH G.W., EISENHAUER G. "Principal Hazards in Work with Powersaws as Seen by Forest Workers." Forstarchiv, Hannover, No. 10. (1980), pages 213-216. In German. Forest workers were interviewed by questionnaire. Main disadvantages are noise, vibration, and exhaust. Industry must develop more economical saws and research must develop working methods that minimize risk to workers.

1237. 55 IIA4 SHOFNER JERRELL H. "Forced Labor in the Florida Forests, 1880-1950." Journal of Forest History, Vol. 25, No. 1 (1981), pages 14-25. Exploitation of blacks in the lumber and naval stores industries of Florida.

1238. 55 IIA4 THOMMEN F. "The Forestry Labor Force in Switzerland: Needs and Specifications." Schweizerische Zeitschrift für Forstwesen, Forstamt Regensdorf ZH, Switzerland. Vol. 129, No. 4 (1978), pages 261-270. In German. Labor force

structure is analyzed: quantity of different types of work; degree of strength, skill or intelligence required; level of training; and proportion of part-time workers. Proposals for improving the status and safety record of forest work.

1239. 55 IIA4 "Realization and Observance of Sources for Accidents." Allgemeine Forstzeitschrift, Munich, No. 32. (1980), pages 837-867. In German. Reports of a meeting about prevention of accidents in forestry.

1240. 55 IIB2A HARTGRAVES CHARLES R. "Research Needs for Land Management Planning for Public Lands." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 214-223. Land management planning for public lands now requires increasingly formal and comprehensive planning processes. Public land management agencies are developing and adopting planning processes that involve quantitative systems analysis and up-to-date information processing tools which change the information and research needs of the agencies: (1) quantitative predictions of the effects of management activities on a large number of resource, environmental, social, and aesthetic outputs are needed; (2) research to improve the tools for analysis and the planning processes themselves are also needed.

1241. 55 IIB2B CORTNER HANNA J., SCHWEITZER DENNIS L. "Public Forest Resource Planning and Reality: Institutional Problems and Limitiations." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 11-26. Major institutional factors impose significant constraints on the planning process for national-public forest resources. These problems are categorized as (1)those inherent in the bureaucratic context in which such planning takes place and (2) those arising from the shared perceptions and traditions of the public foresters who comprise the planning teams in the planning agency.

1242. 55 IIB2B STOTTLEMYER J. ROBERT "Evaluation of Management Policy and Research in the National

Parks." Journal of Forestry, Vol. 79, No. 1 (1981), pages 16-20. The general aim of Park Service management policies is to return park ecosystems to those prevailing before the arrival of Europeans. Present administrative authority is sufficient to mitigate most countervailing factors originating within park boundaries, but research must be considerably augmented and the findings applied.

1243. 55 IIB2C "Forestry 1980 - The State Forest Service of Baden-Wuerttemberg: Situation, Problems, Aspects." Allgemeine Forstzeitschrigt, Munich, No. 49. (1980), pages 1369-1404. In German. The work of the forest service of Baden-Wuerttemberg in public and private forestry presented in eleven papers.

1244. 55 IIB2C "Social Balance 1980 for the State Forest Enterprise in Baden-Wuerttemberg." Edited by Department for Nutrition, Agriculture, Environment and Forestry, Stuttgart. (1980), 27 pages. In German. State forests must attempt to serve the common good. Results of those efforts in Baden-Wuerttemberg are presented.

1245. 55 IIB3 HUGENTOBLER C. "Management Objectives of the Forest Owner as an Entrepreneur." Schweizerische Zeitschrift für Forstwesen Vol. 129, No. 2 (1978), pages 153-156. In German with a French summary. Since the forest owner has considerable freedom of choice in economic, social, technical, and ecological spheres; moderate policies are likely to prove more constructive than extreme ones. Most owners are obliged to give priority to economic criteria: the state should therefore consider financial inducements to develop social functions of forests beyond the level which (in Switzerland) is fixed by the owner's legal obligations.

1246. 55 IIB3A KINGSLEY NEAL P., BIRCH THOMAS W. The Forestland Owners of Maryland. USDA Forest Service Resource Bulletin NE-63 (1980), 78 pages. A statistical analytical report of the owners of privately owned commercial forest land in Maryland. Trends in forest land ownership and the attitudes and intentions of owners regarding reasons for owning forest land, timber management, timber harvesting, and recreational use.

1247. 55 IIB3A PAMPE J. "The Position of Forest Owners between Requirements and Demands." Forstarchiv, Hannover, No. 12. (1980), pages 260-263. In German. The basic law guarantees ownership but requests social commitment. However, social commitment is limited by carrying capacity of the

property.

1248. 55 IIB3A VOGEL P. "Specific Problems of Private Forests." Schweizerische Zeitschrift für Forstwesen, Vol. 130, No. 7 (1979), pages 503-508. In German with a French abstract. About 70 percent of the forest area in Lucerne canton, Switzerland, is privately owned and divided into small plots. To improve management land was redistributed and consolidated: number of landowners changed from 1,641 to 1,260, and the number of plots from 8,405 to 1,682; average plot size increased from 0.29 ha to 1.47 ha. Better management has been achieved in the remaining two thirds of private forest through greater cooperation among owners without redistribution of land.

1249. 55 IIB3B BARROS OSCAR, WEINTRAUB ANDRES "Planning in Forest Enterprises." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 150-163. A linear programming model and an information system designed for tactical planning in an enterprise that manages forest lands, a pulp plant, and a sawmill. The model considers technological, geographical, silvicultural, and economic aspects and gives indications about the management of timber lands, supply of timber to plant and mill, buying and selling of timber, etc.

1250. 55 IIB3B BENTLEY WILLIAM R. "Research Needed to Support Improved Industrial Forestry Planning." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), Pages 210-213. The critical research needed to support industrial forest planning is improved methodologies for handling uncertainty. The means include better data/model interactions and better processes for strategic planning.

1251. 55 IIB3B ELLEFSON PAUL V., CHOPP MICHAEL E. U.S. Industrial Ownership of Forest Land: Extent, Strategies, and Management Intensity. Staff Paper Series No. 17, Dept. of Forest Resources, Univ. of Minnesota. (1979), 27 pages. Review of the structure of forest industry landownership, trends,

and implications in order to identify issues.

1252. 55 IIB3C BOYCE STEPHEN G. "Biological Potential for Southern Timber Supplies." In Proceedings: Timber Supply: Issues and Options. For. Prod. Res. Soc., Madison, WI (1980?), pages 153-157. Volume and value of timber supplies from nonindustrial private forest lands in the South can be increased by: (1) inventing ways to use all forms of woody biomass for marketable products, and (2) increasing incentives for sale of timber by developing ways for landowners to obtain more personal benefits from their forests with little or no investment in culture.

1253. 55 IIB3C BRABAENDER H.D. "Structure of Property and Income Function of Farm Forests." Forst- und Holzwirt, Hannover, No. 23. (1980), pages 469-476. In German. The income function has marginal aspects for 81 percent of farm enterprises with a forest area of less than five hectares. It becomes more important with increasing size of forest property and gives financial background for farm families. Forestry can give an important share to permanent income in comparison to agriculture for a small number of large enterprises only.

1254. 55 IIB3C BRABAENDER H.D., KOESTER U., HODAPP W. "Utility - Cost Analysis of Forest Cooperatives." Schriften aus der Forstlichen Fakultaet der Universitaet Goettingen und der Niedersaechsischen Forstlichen Versuchsanstalt, Vol. 65. (1980), 300 pages. In German. A study on request by the Federal Department of Nutrition, Agriculture and Forestry analyzing economics of individual forest cooperatives, financial assistance for cooperatives, and fiscal aapects of cooperatives depending on their legal status.

1255. 55 IIB3C CHO EUNG HYOUK "Private Forest Owners' Attitudes toward Forest Practices." Bull. of the Seoul N. University Forests, No. 16 (1980), pages 47-61. In Korean with English summary. Origina, types and purposes of private forest ownerahips, and their attitudes toward forest management practicea.

1256. 55 IIB3C DENNIS DONALD F. "Estate Planning for Forestland Owners." American Forests, Vol. 87, No. 1 (1981), pages 11-14.

1257. 55 IIB3C FISCHER D. "Practical Farm Forestry and Management Assistance." Forst- und Holzwirt, Hannover, No. 23. (1980), pages 476-481. In German. In the long run farmers will work in their forests as long as they know that it is to their

economic advantage. The state forest service promotes this objective by counseling and management assistance.

1258. 55 IIB3C FRANKLIN E. C. "An Expanded Concept of the Role of Forest Industry in Private Nonindustrial Forestry." Tappi, Vol. 63, No. 12 (1980), pages 99-101. The way to make forest management attractive to the private nonindustrial sector is to cut the cost of it. Forest industry might make present programs more attractive by tailoring them to landowners' investment and production goals. The key to reducing regeneration costs is to offer natural regeneration and direct seeding as alternatives to plantation establishment.

1259. 55 IIB3C GANSNER DAVID A., HERRICK OWEN W. Cooperative Forestry Assistance in the Northeast. USDA Forest Service Research Paper NE-464 (1980), 8 pages. Summary of a recent inventory of aervice forester activities in twenty northeastern states. Each year some 500 local state foresters give one half million hours of technical assistance and advice about the management of forest resources to nearly 50,000 woodland owners and involving more than two million acres of nonindustrial private forest.

1260. 55 IIB3C HICKMAN CLIFFORD A., GEHLHAUSEN RANDY J. "Landowner Interest in Forestry Assistance programs in East Texas." Journal of Forestry, Vol. 79, No. 4 (1981), pages 211-213. Most popular assistance programs are proposals for requiring loggers to post a performance bond and providing management assistance aimed at nontimber as well as timber products. Least popular are proposals for forming cooperatives and initiating long-term leases. Well-educated business and professional people, living in urban areas away from their properties, are most interested in forestry assistance.

1261. 55 IIB3C MANTAU U. "Historical Backgrounds of Forest Owners' Aasociations in Sweden and West Germany." Allgemeine Forst- und Jagdzeitung, Frankfurt, No. 1. (1981), pages 8-15. In German with English and French summariea. Swedish forest owners were able to deal with challenges more effectively because of favorable development within the agricultural structure and the support of an intensive financial and consulting relationship and favorable political conditions.

1262. 55 IIB3C OEDEKOVEN KARL "Small Private Forests in the Federal Republic of Germany." Journal of Forestry, Vol. 79, No. 3 (1981), pages 161-162.

A half-million private owners hold 44 percent of the forestlsnd in the Federsl Republic of Germany. Their tracts sverage 15 scres and though growing stock is sbout equal to that on public lsnds the volume tends to be in young age clssses. A 1969 lsw favored establishment of cooperatives to counter the disadvantsges of fragmented ownership and smsll tracts, snd federal and state governments offer direct finsncisl sid. Cooperstives now represent more than half of the totsl area in forests of less thsn 250 acres. They hsve brought about improvements in management and will be an importsnt part of future forest policy.

1263. 55 IIB3C PARK MYEONG KYU "Farmers' Economics snd Their Forest Mansgement in Mountainous Areas." Bull. of the Seoul N. Univ. Forests, No. 16 (1980), pages 47-61. In Korean with English summary.

1264. 55 IIB3C PARK TAE SIK "Incentives for the Voluntary Reforestation of Small Private Woodland Owners." Report on Forest Administration Research, Office of Forestry, Kores. (1980), pages 93-211. In Korean. Anslyzes problems of small-acale lsndowners' individual planting works together with necesssry government supports to them.

1265. 55 IIB3C VASIEVICH J. MICHAEL, KAISER H. FRED, DUTROW GEORGE F. "Public Plsnning for Nonindustrisl Forest Ownerships in the United States." In Proceedings of the Internstional Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Plsnning: Present Practice snd Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and Stste Univ., Blacksburg, VA, USA. (1981), psges 200-209. Analysis of s major federal reforeststion program to increase timber supplies and productivity of nonindustrial forest lands. Effects of the program were determined with the timber assessment market model snd showed that improved ability to determine how landowners respond to programs, better ways to identify treatment needs, and new methods to project effects of programs on social goals are needed.

1266. 55 IIC1 ZUNDEL R. "Problems of Conservation and Increase of Forestland." Forstarchiv, Hannover, No. 12. (1980), psges 256-259. In German. Low-yield agricultural land needs to be afforested in order to compensate for losses of forest areas. This can be achieved by subsidies with the side effect of decreasing agricultural surplus.

1267. 55 IIC2 MYERS NORMAN "The Hamburger Connection: How Central America's Forests become North America's Hamburgers." Ambio, Vol. 10, No. 1 (1981), pages 2-8. Central American rainforests are converted to pasture lands to support cattle. The beef is exported to the U.S. where it serves as a non-inflationary source of meat for the fast-food trade. The price of the beef does not reflect the environmental costs involved in the destruction of some of the mostdiverse ecosystems in the tropical biome, including exceptional concentrations of species.

1268. 55 IIC3 ALLEYNE PATRICK Forestry and the Wise Use of Land. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 22 pages. Land use policy must be based on the needs of people for products from the land. Forest policy for production and protection is an important part of national land use policy but all must be based on land use capability classification appropriate to the geographical regions in which they are used.

1269. 55 IIC3 CORDELL H. KEN, MCLELLAN ROBERT W., LEGG MICHAEL H. "Managing Private Rural Land as a Visual Resource." From: International Symposium on Tourism and the Next Decade Proceedings, Tourism Planning and Development Issues. George Washington Univ., Washington, D.C. (1980), pages 87-97. Little permanent potential exists for small-scale recreational and tourist enterprises in rural areas. Such developments often degrade rural environments and provide second-class services to visitors. Promotion of such enterprises should cease, and a strategy should be followed that emphasizes the beauty and rustic attractiveness of our private rural lands.

1270. 55 IIC3 HORDIJK P. "Forestry and Land Use Planning." Nederlands Bosbouw Tijdschrift, Vol. 51, no. 5/6 (1979), pages 123-126. In Dutch. Brief account of land use planning in the Netherlands with reference to detailed local plans and restrictions on the use of forest land.

1271. 55 IIC3 KURTH H. "Johann Friedrich Judeich: an Important Forest Scientist of the Nineteenth Century." Beiträge fur die Forstwirtschaft, Vol. 14, No. 1 (1980), pages 32-40. In German. The career and work in forest management and economics of F. Judeich (1828-94), director of the Royal Saxon Forestry Academy at Tharandt, including a short biography and full bibliography of his papers.

1272. 55 IIC3 SANDOR JOHN A. "Land Classification Decisions and Plans Involving the Forests and Related Resources of Alaska." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 34-50. Since passage of the Alaska Native Claims Settlement Act in 1971, various proposals for the classification of Alaska's public interest lands have been made. The collective activities of private, State, and Federal organizations and the Congress have provided a remarkably complex, yet thorough, basis for considering alternative proposals for the classification and management of Alaska's lands. The enactment of an Alaska Lands bill will markedly influence present practices and future directions in the management of Alaska's forests and related resources.

1273. 55 IIDI SAKKAS G. "Total Investments and Investments in Forestry in Greece, 1950-74." The Forest (Dasos), No. 88 (1980), pages 30-35. In Greek with English summary.

1274. 55 IIDl BRANDENBERG M. "Forestry - Softwoods and Hard Cash." Accountancy, No. 90. 55-56 Gosell Rd., London ECIM 7AB, U.K. (See Foreatry Abstracts Vol. 41, No. 12) (1979), pages 40-44. Investment prospects of private forestry in Britain, with addresses of nine forestry advisory organizations and notes on their activities.

1275. 55 IIDl SPEARS JOHN S. Overcoming Constraints to Increased Investment in Forestry. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 52 pages. Since publishing its Forestry Sector Policy Paper in 1978 the World Bank has increased its forestry lending program by more than five fold. Main features of various project types with constraints most commonly encountered and summaries of how they were handled.

1276. 55 IIIAl ALIM A. Rural Wood-Lots for Timber, Fuel, Fodder and Shelter. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 9 pages. Population pressure particularly in Asian countries is diminishing forest areas. Foresters as well as economic planners have failed to appreciate the value of forests for food, fodder and energy provision and have limited production to timber as an industrial raw material. The Bangladesh

government has a policy to create wood-lots on denuded land involving the landless rural poor. Training and organization of family groups will be done through village governments and union councils.

1277. 55 11IA1 BOWES MICHAEL D. "Multiple-Use Planning with Non-Commodity Services." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 116-124. In English with French, Spanish and German summaries. Economic approach to decision making, discussion of the demands for forest outputs, and a view of forest supply.

1278. 55 11IA1 BOYCE STEPHEN G. "Translation of Biological Information into Forest Management Plans." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 118-128. A technique for translating biological information into forest management plans is used to make biological information compatible with conventional functions used in designing forest management systems.

1279. 55 11IA1 CHANG SUN JOSEPH "Multiple-Use Forest Management by Goal Programming Input-Output Analysis." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 72-78. In English with French, Spanish and German summaries. The goal programming/ input-output anlysis model is proposed to provide a plausible solution to the problem of multiple use forest management. In addition to parametric programming and specification sensitivity analysis, compatibility analysis and trade-off analysis are also performed to allow for the fine-tuning of management decisions.

1280. 55 11IA1 COLEMAN DEREK J. "Forest Management Outputs: The Issues." In, Forest Management Outputs: Who Needs Them and Why? Proceedings of a Technical Session of the Working Groups on Economics and Policy, Forest Management, and Land Use Planning. Canadian Forestry Service/Pacific Forest Research Center, Victoria, B.C., BC-X-206. (1980), pages 28-33. Abstracts in English and French. An economic decision model for multiple use is developed and related to real-world problems. The economic issues of multiple-use are related to the economic model.

1281. 55 IIIA1 CUMMING D.G. Integration of Agriculture and Forestry - Over-wintering Cows with Calves in a Scottish Plantation. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 14 pages. Research project undertaken by the Forestry Commission, the North of Scotland College of Agriculture and the Department of Forestry in the University of Aberdeen to examine the value of over-wintering cattle in the forest plantations compared with the more traditional but increasingly expensive practice of over-wintering in specially constructed buildings.

1282. 55 IIIA1 FEUCHTER ROY W., MOELLER GEORGE H. "Recreation and Multiple Use of Forests, Parks, and Preserves: An Interface between Man and the Ecosystem." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 136-139. In English with French, Spanish and German summaries. Recreation is locally established as a multiple use of forest land. A review of past research reveals several ways to compare resource outputs so that noncommodity values can be effectively included in land management planning. Better methods to value noncommodity outputs will be needed in the future.

1283. 55 IIIA1 GATHY PIERRE "How We Use the Principle of Multiple-Use Forestry in Belgium." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 97-101. In English with French, Spanish and German summaries. Almost all Belgian forests are managed for multiple-use and are likely to be used for research. All functions are compatible provided: the forest is well known and soundly managed, foresters show understanding towards the public, and the public is disciplined.

1284. 55 IIIA1 HABER W. "Development and Problems of Cultivated Land Reflected by Their Ecosystems." Forstarchiv, Hannover, No. 12. (1980), pages 245-250. In German. Cultivated land including forestland should not only produce timber but also recreation opportunities.

1285. 55 IIIA1 HAROU PATRICE "Monitoring the Performance of Multiple-Use Forestry Projects." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 125-131. In English with French, Spanish and German summaries. Since the management of multiple use forestry projects is a

dynamic process, projects are seldom implemented exactly as they appear in the initial appraisal or project plan and it becomes important that a careful monitoring methodology be set in place at an early stage in the project. Periodic comparison of estimated and actual costs and revenue figures should permit the decision maker to react quickly to unexpected variances. The alternative test should be used to reassess the profitability of the project, in whole or in part, during its implementation.

1286. 55 IIIA1 KARSCHON R. "Multiple-Use Research in Israel." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 85-86, In English with French, Spanish and German summaries. Status of multiple use research in Israel. Available data on water, range and recreation could serve as a basis for multiple use management of forests.

1287. 55 IIIA1 KAUL O.N. "Impact of Forest Land Uses on Environment in India." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 59-71. In English with French, Spanish and German summaries. Multiple use of forest lands is a necessity caused by resource scarcity and growing population. Little research has been done on multiple use in India.

1288. 55 IIIA1 KERMANI W.A. "Developing Multiple-Use Silvicultural Practices for Forests of Arid Regions." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 39-45, In English with French, Spanish and German summaries. Water scarcity, land hunger, rising population, mounting food demands, present a challenge to Pakistan's arid zone, necessitating development of agro-forestry practices. Eucalypt-cotton combination is best multiple use plan for production and profits.

1289. 55 IIIA1 KING K.F.S. "Multiple-Use Research." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 3-9. Forests in developing countries are being felled to provide necessities of life and in developed countries forest management is being restricted by the demands of the affluent for areas of recreation. Multiple-use forests might be a solution to both sets of problems however, more research is needed.

1290. 55 IIIA1 KUFAKWANDI SIMONA F. Possibilities for

Agri-silviculture in Zambia. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 9 pages. Agricultural crops intercropped with newly planted forest trees show no loss of agricultural crop yield compared with purely agricultural areas and no significant reduction of tree growth rate.

1291. 55 IIIA1 MIEGROET M. VAN "On Forest Stability." Sylva Gandavensis, No. 46 (1979), 29 pages. Stability in forestry takes two forms: stability in the physical structure and condition of the forest and stability in the use of the forest. The former is essential to the latter. Optimal forest use is possible only if the forest is in optimal condition. This thesis provides a guide to forest management and forestry research.

1292. 55 IIIA1 OKIGBO BEDE N. "Development of Multiple-Use Management for Tropical Forests through Research in Africa." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), Pages 26-38. In English with French, Spanish and German summaries. Modeling and simulation offer opportunities for understanding and predicting effects of different management systems. Studies are to be located in selected sites representative of relevant ecosystems or benchmark areas within the forest zone of concern.

1293. 55 IIIA1 SHEIKH MAHMOOD IQBAL "Integrated Research in Forestry Reaources." IUFRO/MAB Conference: Research on Multiple Use of Forest Resources. USDA Forest Service General Technical Report WO-25. (1980), pages 102-106. In English with French, Spanish and German summaries. Forests, watersheds, and grazing lands in Pakistan are highly depleted. Silvicultural investigations have mainly focused on introduction of fast-growing tree species, development of cultural methods; selection of species for arid and semi-arid lands, developing methods of regenerating forests, water requirements of species, and growing trees with farm crops. Socio-economic conditions are being studied to determine why afforestation measures in watersheds are not reasonably succeasful.

1294. 55 IIIA1 STEUER RALPH E., SCHULER ALBERT T. "Interactive Multiple Objective Linear Programming Applied to Multiple Use Forestry Planning." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry,

and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 80-93. The interactive multiple objective linear programming procedure samples from the Pareto-efficient surface in a progressively more concentrated fashion to converge to the forest planner's most preferred solution. Sampling is carried out using traditional LP software along with some additional software straightforward enough to be written by the user.

1295. 55 IIIA1, History of Shifting Cultivation Re-Settlement. Office of Forestry. (1980), 607 pages. In Korean. Origins and trends of fire cultivation and re-settlement programs in Korea.

1296. 55 IIIA3 PEARSON H.A., CHILD R.D., BYINGTON E.K., GRELEN H.E., LEWIS C.E. Selected Bibliography on Southern Range Management, 1973-1978. USDA Forest Service General Technical Report SO-31 (1980), 61 pages. Contains 1049 entries classified by subject matter and indices of authors and keywords.

1297. 55 IIIA5A CHAW-MING CHEN Preliminary Report on Forest Recreation Resources in Taiwan: Inventory and Analysis. Dept. of Forestry, National Taiwan University (Dec. 1980), 117 pages. In Chinese. Inventory of forest recreation resources in Taiwan. Classification and ranking system are suggested.

1298. 55 IIIA5C BROWN PERRY J., DRIVER B.L., BRUNS DONALD H., MCCONNELL CHARLES "The Outdoor Recreation Opportunity Spectrum in Wildland Recreation Planning: Development and Application." In, First Annual National Conference on Recreation Planning and Development, Vol. 1 (1979), 4 pages. Bureau of Land Management and the USDA Forest Service are developing a new outdoor recreation planning system which is based on the Recreation Opportunity Spectrum (ROS) concept. Includes relationships of the system to multiple-use land management planning.

1299. 55 IIIA5C DRIVER B.L. "Potential Contributions of Psychology to Recreation Resource Management." In, Environment and the Social Sciences: Perspectives and Applications. J.F. Wohlwill and D.H. Carson (eds.) Published by the American Psychological Assn. (1979), pages 233-244. Why recreational opportunities are increasing in social importance; and the nature, scope, and value of psychology's potential contributions to recreation resource planning, development, and management.

1300. 55 IIIA5C IRLAND LLOYD C. Costs of Managing

Backcountry Recreation Areas in Maine, 1978. Technical Report No. 5, Bureau of Parks and Recreation, Dept. of Conservation, State House Station 22, Augusta, Maine 04333 (1980), 4 pages. In 1978, annual costs of managing backcountry recreation in Maine ranged from $3 to $5 per visitor day, or $2.50 to $6 per acre. A policy decision will be required on what portion of recreation management and land opportunity costs should be paid by recreationists.

1301. 55 IIIA5C WAREING K.J. State Forests of Victoria - Their Management for Recreation and the Conservation of Flora, Fauna, and Landscape. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 13 pages. Forests of Victoria are managed under a multiple use regime with priorities for use in different zones determined by different social and material needs and the ability of forests to meet these needs. The Foresta Commission of Victoria has established a forest environment and recreation branch which maintains contact with public groups having recrestion and conservation interests. Detailed planning and control of wood production operations has made it possible to accommodate all the communities' needs.

1302. 55 IIIA5D CHAW-MING CHEN Preliminary Report on Forest Recreation Demand in Taiwan: Survey and Analysis. Dept. of Forestry, National Taiwan University. (Dec. 1980), 178 pages. In Chinese: Analysis of visitor survey data consisting of visitor characteristics, use pattern, scenic preference and attitudes.

1303. 55 IIIA5D DWYER JOHN F. "Estimating Consumer Satisfaction Aassociated with an Increase in Public Tourism Supply: An Economic Approach." In, Tourism Planning and Development Issues. Editors: Donald E. Hawkins, Elwood L. Shafer, James M. Rovelstad. George Washington Univ., Washington, D.C. (1980), pages 371-379. One approach to evaluating consumer satisfaction (benefits) is to estimate the willingness of users to pay for these opportunities. With this approach the tourism benefits can, in a benefit-coat framework, be directly compared with the benefits obtained from other undertakings. This facilitates evaluation of the critical tradeoffs that are to be faced by public planners and managers (in the future) when resources are scarce, which is likely to occur in both developed and underdeveloped countries.

1304. 55 IIIA5D JONES ROY S., COTTERELL CALVIN C.

Recreation, Wildlife, and Nature Conservation. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 18 pages. Increasing demand for recreation and conservation in Jamaica and problems of providing facilities in upland forest reserves and national parks through the responsible government agencies.

1305. 55 IIIA5D KOCH N. ELERS "Forest Recreation In Denmark. Part II, The Use of the Forests Considered Regionally." Forstl. Forsøgsv. Vol. 37, No. 2 (1980), pages 73-383. In Danish with an English summary. Yearly number of visitor hours and visits and the number of persons at one time at peak use has been estimated for 446 forests with a total area of 187,000 hectares. Altogether 601 forests covering nearly three fourths of the area of Danish forest properties of 50 hectares or more, are classified according to their recreational use.

1306. 55 IIIA5D MEIS SCOTT "Recreation as a Forest Product: The Demand, the Market and Future Resource Conflicts." In, Forest Management Outputs: Who Needs Them and Why? Proceedings of a Technical Session of the Working Groups on Economics and Policy, Forest Management, and Land Use Planning. Canadian Forestry Service/Pacific Forest Research Center, Victoria, B.C., BC-X-206. (1980), pages 8-20. Abstracts in English and French. While recreation is a forestry product, it poses unique management problems. Present and future patterns of recreation use of forest areas conflict with previous developments or uses of the resources. Non-recreation demands (timber, mining, hydro, and urbanization) are also a problem.

1307. 55 IIIA5D MORE THOMAS A. Emotional Responses to Recreation Environments. USDA Forest Service Research Paper NE-461 (1980), 8 pages. Data on moods of visitors to state parks, golf courses, and museums are compared. While there are differences in moods between individual areas, it is not possible to attribute these differences solely to the type of recreation environment. There may be a process of anticipation and consumation that pervades recreation experiences and tends to outweigh differences between environments.

1308. 55 IIIA5E ALLEN STEWART "Comment: No-Rescue Wilderness - A Risky Proposition." Journal of Forestry, Vol. 79, No. 3 (1981), pages 153-154.

1309. 55 IIIA5E GAMBLE HAYS B. "Comment on 'Wilderness Coats in New England.'" Journal of Forestry, Vol.

79, No. 4 (1981), pages 215-216. Methodology proposed by R.W. Guldin (Journal of Forestry 78:548-552, 1980) to calculate wilderness costs contains a basic flaw in economic logic, resulting in overestimates of such costs and a misallocation of resources.

1310. 55 IIIA5E GULDIN RICHARD W. "'Wilderness Costs in New England' - a Reply." Journal of Forestry, Vol. 79, No. 4 (1981), page 217. The direct social-cost-accounting method is appropriate for analyzing wilderness costs. The partial opportunity-cost analysis used during designation deliberations on New England wildernesses (Guldin, Journal of Forestry 78: 548-552, 1980) warranted concentration on improving methodology for estimating costs.

1311. 55 IIIA5E HRUBES ROBERT J., CONNAUGHTON KENT P., SASSAMAN ROBERT W. Roadless Area-Intensive Management Tradeoffs on the Sierra National Forest, California. USDA Forest Service Research Paper PSW-149 (1979), 11 pages. This hypothesis was tested by a linear programming model: Roadless areas on the Sierra National Forest precluded from planned future development would be candidates for wilderness designation, and the associated loss in present and future timber harvests could be offset by investing in more intensive management. Results of this simulation test suggest that levels of programed harvesting cannot be maintained when roadless areas are withdrawn and funds are reallocated for intensive management on other areas. Additional tradeoffs were found in estimating the effects on fish, wildlife, recreation, and visual resources.

1312. 55 IIIA5E LOOMIS JOHN B. "Comment on 'Wilderness Costs in New England.'" Journal of Forestry, Vol. 79, No. 4 (1981), page 216. In emphasizing the desirability of improved estimates of wilderness costs, R.W. Guldin (Journal of Forestry 78:548-552, 1980) fails to note that such refinements will yield little improvement in land-use allocations unless estimates of benefits are also improved.

1313. 55 IIIA5E MCAVOY LEO H., DUSTIN DANIEL L. "The Right to Risk in Wilderness." Journal of Forestry, Vol. 79, No. 3 (1981), pages 150-152. An expansion of outdoor recreation opportunities is proposed including wilderness areas in which users would bear sole responsibility for their personal welfare. Agencies managing areas designated for full-risk use would be absolved, indeed prohibited, from intervening at any time on behalf of any

recreationist in distress.

1314. 55 IIIA5E MERINO CUEVAS R. "National Parks and Their Contribution to National Economic Development." Ciencias Forestales, Vol. 1, No. 1 (1978), pages 13-17. In Spanish.

1315. 55 IIIA5E WAGAR J. ALAN "Comment on ' The Right to Risk in Wilderness.'" Journal of Foreatry, Vol. 79, No. 3 (1981), pages 152-153.

1316. 55 IIIA5E Additions to the National Wilderness Preaervation System. Joint Oversight Hearings before the Subcommittee on Public Lands, Committee on Interior and Insular Affairs, and the Subcommittee on Forests, Comm. on Agric., House of Representatives, Ninety-sixth Congress, first session, Washington, D.C. US Govt. Print. Office, Washington, D.C. 20402. (1980), ? pages.

1317. 55 IIIA5E "National Park Bavarian Forest." Edited by the Bavarian State Department for Nutrition, Agriculture, and Forestry, Munich. (1980), 121 pages. In German. Guide to the first German national park explaining its history and landscape, educational and recreational services, including hiking tours.

1318. 55 IIIA5G DEARDEN PHILIP "Public Participation and Scenic Quality Analysis." Landscape Planning, Vol. 8, No. 1 (1981), pages 3-19. This paper examines the queation of whether public participation is desirable in landscape evaluation techniques and, if so, which members of the public should be included in such deliberations. A wide range of literature concerning these problems is referenced.

1319. 55 IIIA5G JU-YUAN LIU "Investigation of the Vegetation and Landscape of Chushan Bamboo Forest Recreation Area, 1980." Quarterly Journal of Chinese Forestry, Vol. 13, No. 4 (1980), pages 129-151. In Chinese. Local environmental factors, structure and composition of different vegetation types, and the relation between vegetation and landscapes.

1320. 55 IIIA5H ELEFTERIADIS N.-- "Tourist Inventory in Thassos." The Forest (Dasoa), No. 89 (1980), pages 3-27. In Greek with English summary. A two-part survey questionnaire has revealed that 41 percent of the visitors in the island of Thassos in northern Greece are "forest visitors." Sixty-two percent visited the ialand more than once, fifty-three percent of visitors preferred beaches

surrounded by forest and only four percent did not care about forests.

1321. 55 IIIA5H MORE THOMAS A. Trail Deterioration as an Indicator of Trail Use in an Urban Forest Recreation Area. USDA Forest Service Research Note NE-292. (1980), 4 pages. Trail width indicates use generally at best. Simply inspecting the physical condition of a trail may lead to erroneous conclusions about its use.

1322. 55 IIIA5H PLAGER ANNA, WOMBLE PETER "Compliance with Backcountry Permits in Mount McKinley National Park." Journal of Forestry, Vol. 79, No. 3 (1981), pages 155-156. While 93 percent of hikers sampled in 1978 had a permit, about half of this group deviated to some extent from the trip described on the document. Compliers and partial compliers strongly supported the system. Managers could improve compliance by providing hikers with detailed information about their planned trips and by making the permit system as unrestrictive as possible.

1323. 55 IIIA6 MANNING TRAVIS W., VEEMAN TERRENCE S. "Future Water Demands in Western Canada." In, Forest Management Outputs: Who Needs Them and Why? Proceedings of a Technical Session of the Working Groups on Economics and Policy, Forest Management, and Land Use Planning. Canadian Forestry Service/Pacific Forest Research Center, Victoria, B.C., BC-X-206. (1980), pages 21-27. Abstracts in English and French. Data are presented for western Canada, showing gross withdrawal and net consumption uses of water. Factors affecting water requirements in various categories are analyzed. Implications of changing water usage for individual watersheds and alternative forest outputs are considered.

1324. 55 IIIA6 "Maintenance of Protection Forests." Allgemeine Forstzeitung, Vienna, No. 1. (1981), pages 1-22. In German. Papers presented at a meeting in Innsbruck about the management of protection forests especially against floods and avalanches.

1325. 55 IIIA6 "Water Management Plan for the River Isar." Edited by Bavarian State Department for Land Development and Environment, Munich. (1980), Short version 103 pages and 16 maps, long version 350 pages and 25 maps. In German. This plan describes the natural, social and economic situation of the Isar-watershed and tries to solve the conflicts between utilization of the water for energy and

drinking, waste water, recreation, and the ecology of the whole area.

1326. 55 IIIA7 ADDISON RAY B. "Wildlife: Manageable Resource or Environmental Absolute?" (Abstract only) In, Forest Management Outputs: Who Needs Them and Why? Proceedings of a Technical Session of the Working Groups on Economics and Policy, Forest Management, and Land Use Planning. Canadian Forestry Service/Pacific Forest Research Center, Victoria, B.C., BC-X-206. (1980), pages 7-8. Abstracts in English and French. Recent trend to consider wildlife as a component of the natural environment rather than as a distinct resource has given a broader base of support for wildlife protection which draws upon individuals who have a general concern for environmental quality. However, the new movement introduces difficult problems for resource managers.

1327. 55 IIIA7 STAHL D. Game - The Living Environment. Problems of Hunting, Wildlife Protection and Ecology, Historically Presented and Documented. Frieburg/Munich, German Federal Republic; K. Alber (See Forestry Abstracts Vol. 41, No. 10) (1979), 349 pages. In German. Man's role in relation to wildlife. Main text is supplemented by extracts, with commentary, from early works on the subject.

1328. 55 IIIA7 UTSCHIK H. "Suggestions for Forest Regeneration in Colonies of the Grey Heron." Forstwissenschaftliches Centralblatt, Hamburg and Berlin, 100. (1981), pages 40-45. In German with an English summary. Mature stands of spruce are preferred nesting grounds of the grey heron in Bavaria. The use of long-term regeneration methods combined with cutting outside the nesting season will force the herons to establish secondary colonies and reproduction rates can be maintained. Such regeneration methods are not economically inferior to clearcutting.

1329. 55 IIIA8 ANDRESON J.W. Urban Tree Contributions to the Commonwealth. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 15 pages. Much peri-urban forest has been exploited and destroyed. As cities expand national governments and forest departments must increase the momentum of urban forest and tree management practices. Planning, education, and research are needed in many countries.

1330. 55 IIIA8 BARKER PHILIP A. "Some Key Aspects of Tree Ordinances." In: Proceedings of the National Urban Forestry Conference, Vol. II, State Univ. New York,

ESF Pub. 80-003, (1980), pages 724-729. Tree ordinances are broadening in scope to apply to private lands. Recent legislation has provided for preservation or restriction of trees on private property to ensure visual or solar access. Responsibilities of personnel in urban forestry are being extended to include new duties in public relations and a knowledge of state and regional laws as they affect urban trees.

1331. 55 IIIA8 KHANBEKOV R.I., TSAREGRADSKAYA S. YU "Classification and Organization of Forests Near Cities." Lesnoe Khozyaĭstvo, No. 5 (See Forestry Abstracts Vol. 41, No. 10) (1979), pages 59-61. In Russian. A formula is derived for calculating the permissible recreational load, and the recreational suitability of groups of forest types in the Moscow region is assessed, in relation to the need for forestry measures to improve their suitability. Permissible recreational loads are tabulated for various groups of forest types in three different situations: when in the natural condition, when measures are taken to improve the resistance of the plant communities to recreational use, and when recreational use is short-term.

1332. 55 IIIA8 LITTON R. BURTON JR. "Applying Visual Research Concepts and Methods from Forestry to the Urban Scene." In: Proceedings of the National Urban Foreatry Conference, Vol. I, State Univ. New York, ESF Pub. 80-003 (1980), pages 340-348. Three general procedures of visual research concepts and methods from forestry are well adapted to the urban forest: landscape inventory, landscape control point, and visual resources evaluation.

1333. 55 IIIA8 MORONNE DAINA DRAVNIEKS "Urban Forestry: Agency Guidelines for Public Involvement." In, Proceedings of the National Urban Forestry Conference, Vol. I. Nov. 13-16, 1978, Washington, D.C. State Univ. New York ESF Pub. 80-003. (1980), pages 127-133. An agency or institution can achieve commitment to urban forestry by involving the public in the planning procesa, plus by using psychological principles applicable to small-group behavior. Citizens will participate when they feel they have some control over the project, but will not participate when they feel they have no real influence.

1334. 55 IIIB1 BRAZIER J.D. "Never Mind the Trees, What About the Wood?" Scottish Forestry, Vol. 34, No.4 (1980), pages 257-263. Review of the joint PRL/Forestry Commission work examining the effect of

forest practices on the yield and quality of British timber.

1335. 55 IIIB1 FRISSE E. "Four Years of Public Relations for Beech, the Poor Man's Tree." Allgemeine Forstzeitschrift, Stuttgart, No. 43. (1980), pages 1181-1186. In German. Activities and results of a campaign to promote utilization of beech by the German Marketing Association for Agriculture.

1336. 55 IIIB1 GILLILAND JOHN "A Re-appraisal of Irish Silvicultural Practices." Irish Forestry, Vol. 37, No. 2 (1980), pages 107-111. The unique climate, the terrain and industries of Ireland require particular silvicultural methods which have not yet been determined satisfactorily.

1337. 55 IIIB1 HANSEN TORSTEN "Economic Aspects of Norway Spruce-Growing on Stiff Clay Soil in Denmark." Dansk Skovforenings Tidsskrift, Vol. 66, No. 1. (1981), pages 24-48. In Danish with an English summary. (1) Christmaa trees can considerably improve the profits of Norway spruce-growing. (2) Age-class graduated thinning seems to be the most favorable grade of thinning. (3) A spacing of 1.75 x 1.75 meters is superior to one o f 1.20 x 1.20 meters from an economical point of view. (4) The best Norway -alternatives seem to be superior to beech-alternatives from an economic point of view. However, a low rotation age of Norway spruce can make it possible for the beech to yield a bigger average net value per year.

1338. 55 IIIB1 HECKEMANN H. "The Utilization of Beech." Allgemeine Forstzeitschrift, Stuttgart, No. 43. (1980), pages 1157-1180. In German. Forest situation, cuttings, grading, timber prices, import and export quantities and potential for utilization of beech in Germany.

1339. 55 IIIB1 HOEFLE HANNS H. "Machinery Use in Forest Enterprises: Improvising and Planning." Holz-Zentralblatt, Stuttgart, No. 139/140. (1980), pages 2125-2128. In German. Science is providing methods to enable a manager to solve systematically; technical, economic, ergonomic, social, organizational, and legal problems of machinery use in forestry.

1340. 55 IIIB1 MAYER HANNES "The Optimization of Ecological, Silvicultural, and Economic Factors in Austria's Forestry." Internationaler Holzmarket, Vienna, No. 25/26, No. 1/2 (1980), (1981), pages 12-19, pages 6-8. In German. Forestry can improve

its productivity by increased cuttings, regeneration of risk-free, stable mixed forests in accordance with site classification; avoidance of animal damage and other measures. Long- and medium-term calculations of production and investments and adequate silvicultural methods will help to reach this objective.

1341. 55 IIIB3 HEINEMANN G.L. "Regenerating the Southern Forests, Its Importance, Problems and Future." In, Proceedings Tenth Forestry and Wildlife Forum, April 17-18, 1980. Regenerating the Southern Forest. Edited by R.L. McElwee and N.H. Bell. Publication MT-103. Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061, USA. (1980), pages 1-20.

1342. 55 IIIB3 SELBY J. ASHLEY "Field Afforestation at the Farm Level in Finland." Fennia, Vol. 158, No. 2 (1980), pages 63-81.

1343. 55 IIIB3 SIMS DANIEL H. "An Overview of Mid-South Upland Hardwood Regeneration Problems and Alternatives." Proceedings, Mid-South Upland Hardwood Symposium for the Practicing Forester and Land Manager. Harrison, Arkansas. April 30-May 2, 1980. USDA Forest Service Technical Publication SA-TP12 (1980), pages 56-63. Many of the Mid-South's most productive upland hardwood sites need regenerating because they have reached financial maturity or are inadequately stocked.

1344. 55 IIIB3 Environmental Consequences of Timber Harvesting in Rocky Mountain Coniferous Forests: Symposium Proceedings, Sept. 11-13, 1979. USDA Forest Service General Technical Report INT-90 (1980), 526 pages.

1345. 55 IIIB3 "Australian Forest Development Institute Code of Practice for Afforestation Investment Companies." Australian Forest Grower. Royal Exchange of Sydney, GPO Box 78, Sydney 2001, NSW, Australia. Vol. 2, No. 4 (1979), pages 32-33. Part A of the Code: Recommended minimum information to be given to prospective investors before investment - covers form of investment, taxation, project description, land details and description, forester's report, reserves for future costs, and estimates of future returns. Part B: Information to be included in annual report to investors - outlines information needed in a forester's report and in a financial report. Guide to taxation treatment is included with examples of two revenue projects and two capital projects.

1346. 55 IIIB4 CHIANG KAO "Optimal Timing and Intensity of

Silvicultural Practices, 1980." Quarterly Journal of Chinese Forestry, Vol. 13, No. 4 (1980), pages 25-52. In Chinese. Precommercial thinning, commercial thinning, fertilization, and regeneration harvest are considered jointly using a three-dimensional dynamic programming network.

1347. 55 IIIB4 JOHANN K., POLLANSCHUETZ J. "Thinning with Profit: Wish, Dream, or Reality?" Allgemeine Forstzeitung, Vienna, No. 11. (1980), pages 310-314. In German. Success in forest regulation comes mainly through more intensive protection and larger dimensions in final harvesting.

1348. 55 IIIB4 LEAK WILLIAM B. Rapid Economic Analysis of Northern Hardwood Stand Improvement Options. USDA Forest Service Research Note NE-296. (1980), 6 pages.

1349. 55 IIIB5 ARTHUR JEFFREY L., DYKSTRA DENNIS P. "Timber Harvest Planning - A Combined Optimization/Simulation Model." Environmental Management, Vol. 4, No. 6 (1980), pages 491-498. A four-part methodology that analyzes harvesting feasibility, computes the optimal solution to the cascading fixed charge problem, undertakes a GASP IV simulation to provide additional information about the proposed harvesting operation, and permits the forest managers to perform a time-cost analysis that may lead to a more realistic, and thus improved solution.

1350. 55 IIIB5 BINKLEY CLARK S. "Economic Analysis of the Allowable Cut Effect." Forest Science, Vol. 26, No. 4 (1980), pages 633-642. A simplified two period harvest scheduling model is developed and used to explore the implications of including the allowable cut effect in timber investment analysis.

1351. 55 IIIB5 FIELD RICHARD C., DRESS PETER E., TURNER BRIAN J., WILLSON REGAN B., FLOWERS WILLARD R. JR. "Determining the Optimal Sustained-Yield Forest Structure in USDA Forest Service Planning." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 68-79. The National Forest Management Act of 1976 requires comprehensive land management plans be prepared for all the National Forests in the US by 1985. An approach to such planning based on a generalized forest regulation model has been

developed. Solutions may be obtained using a two-stage computational procedure: (1) optimal forest structure for the sustained yield of all products is determined in the first stage, (2) this structure is used to constrain optimal conversion period policies as determined in the second stage.

1352. 55 IIIB5 KONOHIRA YUKICHI "Feasible and Optimal Sustained-Yield Planning for National Forests in Japan." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 61-67. National Forests in Japan are facing serious managerial and financial problems that are closely connected with its sustained-yield planning system. Traditional methods for calculating standard cutting volume and new models are discussed.

1353. 55 IIIB5 TEDDER P.L. "The Timber Resource Economic Estimation System (TREES) in Corporate Planning." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 138-145. Why a corporation should enter into harvest scheduling planning and how the TREES model may be helpful in the planning process.

1354. 55 IIID VORONTSOV A.I., ISAEV A.S. "New Tasks in Forest Protection." Lesovedenie, No. 6 (See Forestry Abstracts Vol. 41, No. 11) (1979), pages 3-11. In Russian with an English summary. Review of literature on the current status and development of forest protection in the USSR.

1355. 55 IIID1 CHASE RICHARD A. FIRESCOPE: A New Concept in Multiagency Fire Suppression Coordination. USDA Forest Service General Technical Report PSW-40 (1980), 17 pages. FIRESCOPE is a system developed to improve the capability of firefighting agencies in southern California to allocate and manage fire suppression resources.

1356. 55 IIID3 MOTT D. GORDON "Spruce Budworm Protection Management in Maine." The Maine Forest Review, Vol. 13 (1980), pages 26-33. Special issue on the Spruce Budworm infestation of Maine.

1357. 55 IIIE ALIG RALPH J., KURTZ WILLIAM B., MILLS THOMAS J. "Financial Return Estimates of Alternative Management Strategies for 9- to 15-Year-Old Southern Pine Plantations in Mississippi." Southern Journal of Applied Forestry, Vol. 5, No. 1 (1981), pages 3-7. Generally no significant differences in estimated net worths between passive management and immediate treatment. Immediate management strategy only produces larger financial returns in plantations that contain high hardwood basal areas. Management regimes that delay treatment until the stand is 30 years old produce lower financial returns than either passive or immediate treatment.

1358. 55 IIIE ANDERSSON S., ERICSON O. "Profitability in Forestry, 1970-1987." Redogörelse, Forskningsstiftelsen Skogsarbeten, No. 4 (See Forestry Abstracts Vol. 41, No. 11.) (1978), 28 pages. In Swedish with an English summary. Trends are analyzed in wood value and costs of harvesting and silvicultural operations in Sweden during the period 1970-77. Forecasts are given for 1982 and 1987.

1359. 55 IIIE BITTIG BERNHARD "Experience with the Planning and Information System of the Swiss Federal Forestry Office (SFFO)." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 1-10. The SFFO planning and information system is used for management purposes but shows conceptual shortcomings in forest policy.

1360. 55 IIIE BUONGIORNO JOSEPH, MICHIE BRUCE R. "A Matrix Model of Uneven-Aged Forest Management." Forest Science, Vol. 26, No. 4 (1980), pages 609-625. A matrix model of a selection forest is developed and used to predict long-term growth of undisturbed and managed stands. A linear programming method is used to determine sustained-yield management regimes which maximize net present value of periodic harvests. Method allows for joint determination of optimum harvest, residual stock, diameter distribution, and cutting cycle.

1361. 55 IIIE EISENMAN ERIC, WENSEL LEE C., THOR EDWARD C., STUART THOMAS W. Economic Data for Wildland Planning and Management in the Western United States: A Source Guide. USDA Forest Service General Technical Report PSW-42. (1980), 125 pages.

Data are categorized by six types of management activities: outdoor recreation and wilderness; wildlife and fish; range; timber; land and water; and minerals and energy. For each type of activity, data sources are identified as to costs; outputs and their monetary values; nonmonetary data and impacts; information for supply and demand analysis; and secondary and indirect effects.

1362. 55 IIIE HENNE AUGUST "Relations between Land Use and Forest Management Planning for Public or Private Management Units in Hessen - An Example of Middle European Practices." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 51-60 In forest planning in West Germany relatively new instruments, introduced during the last decade, compete with a tradition more than two hundred years old. Conservation of forest area, afforestation, and management of forests are the main objectives of forest planning. Procedures developed in Hessen show the first two tasks as part of comprehensive land use planning, while forest management is, and should be in the future, entirely the object of forest management planning.

1363. 55 IIIE HOPKINS E.R. Information and Services Required for Effective Forest Management. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 32 pages. Forestry and in particular multiple land use is as much about people as about the biological sciences. Decisions must take account of increasing economic and social change and resource management teams include social scientists as well as applied biologists.

1364. 55 IIIE KEUFFEL W. "Programmed Calculation of Coverage Shares as Decision Aids for Business Administration, Examples from the Lower-Saxony State Forest Service." Dissertation, University at Freiburg i. Br. (1980), 216 pages. In German. Accounting of forest enterprises must be improved to obtain better decision aids for business administration. It is proposed to develop long-term coverage share calculations for management units of tree species with stepwise coverage of overhead, and to apply similar annual calculations for organization units. The formation of different types of intensity for managing forest stands may be a sufficient basis for such calculations.

1365. 55 IIIE KOKKINIDIS G. "Revenue and Expenses of the Central Fund of Agriculture, Pasture and Forests, 1971-80." The Forest (Dasos), No. 88 (1980), pages 12-20. In Greek with Italian and English summaries.

1366. 55 IIIE NAVON DANIEL I. "Integrating Timber and Transportation Planning." In Proceedings of the International Union of Forestry Research Organizations (IUFRO) - Symposium on Forest Management Planning: Present Practice and Future Decisions. Publication FWS-1-81, School of Forestry and Wildlife Resources, Virginia Polytechnic Inst. and State Univ., Blacksburg, VA, USA. (1981), pages 94-106. A computerized model for solving simultaneously problems in timber management and transportation planning was field tested on the Lolo National Forest in Montana. Mixed integer linear programming was used to maximize present net benefit and timber harvesting plans designed to insure nondeclining cutting levels over two rotations. This approach may be practical and cost-effctive in a wide range of applications.

1367. 55 IIIE RÅDSTRÖM L. "Profitability in Forestry 1970-1990." Kungl. Skogs- och Lantbruksakademiens Tidskrift, Vol. 119, No. 3. (See Forestry Abstracts Vol. 41, No. 11.) (1980), pages 113-142. In Swedish with English summary. Revised version of "Profitability in Forestry, 1970-1987." by S. Andersson and O. Ericson, after a severe recession in Swedish forestry in the 1977-78 season. Forecasts are made for three cases in which costs increase by 0, 5 or 10 percent per annum.

1368. 55 IIIE SCHALLAU C.H., WIRTH M.E. "Reinvestment Rate and the Analysis of Forestry Enterprises." Journal of Forestry, Vol. 78, No. 12 (1980), pages 740-742. Two forestry investment situations are used to illustrate the importance of the reinvestment rate when the rate-of-return criterion is applied.

1369. 55 IIIE SCHWARZBART GIDEON "Recent Advances and Trends in the Design and Implementation of Management Information Systems." In, Proc. Int. Symp. IUFRO Subject Gp. 6.03 Information Systems and Terminology (May 15-18, 1979, Hamburg, Germany) (1979), pages 87-93. Management information systems are being critically reassessed because the original concept of a comprehensive system has had little success. Among the reasons for failure are unrealistic expectations, lack of managerial direction, and an inadequate technology. Examples of management information systems in the USDA Forest Service illustrate the

progress made and the complexities associated with a comprehensive system in a large and complex organization.

1370. 55 IIIE THIELGES BART A. "Changing Philosophies for Mid-South Upland Hardwood Management and Utilization." Proceedings, Mid-South Upland Hardwood Symposium for the Practicing Forester and Land Manager. Harrison, Arkansas. April 30-May 2, 1980. USDA Forest Service Technical Publication SA-TP12 (1980), pages 50-55. Over the next twenty years, utilization of hardwood resources in the area is expected to increase due primarily to expansion of traditional existing markets and development of new hardwood chip markets for pulp, reconstituted wood products and energy supplements. More intensive management practices on private non-industrial lands may be a spin-off of market expansion, improved stumpage prices and increased management incentives.

1371. 55 IIIE WEETMAN G.F. "The Job of Growing Trees in the '80's." Pulp and Paper Canada, Vol. 81, No. 11 (1980), pages 52-53. The Canadian provinces should be willing: (1) to seek industrial participation in forest management planning; and (2) to assign responsibility for forest management to industry. The industry should be willing to: (1) be cooperative, display initiative and build up its weak forest management capabilities; (2) start support for industrial silvicultural research and forestry graduate education.

1372. 55 IIIE YONG-CHI YANG, WEN-LIANG LIN, LIH-CHIN CHEN, DAR-HSIUNG WANG "Research on Long-term Management Planning of Forest Resources by Timber Resource Allocation Method (I), 1980." Quarterly Journal of Chinese Forestry, Vol. 13, No. 4 (1980), pages 1-24. In Chinese. The Mu-Kau National Forest was selected as a case study to demonstrate the applicability of Timber RAM forest management planning.

1373. 55 IVA1A LOHMANN U. "Wood Manual." DRW-Verlag, Stuttgart. (1980), 319 pages. In German. A manual for forestry and the timber industry: wood as raw material, roundwood, cutting and sawing of timber, drying and timber protection, sawn wood, and timber in international trade.

1374. 55 IVA1A NORDIN VIDAR J., BOLDUE PIERRE. "The Jari Project: Challenge for Canada?" Pulp and Paper Canada, Vol. 81, No. 12 (1980), pages 48-51. Canadian forestry industry faces future challenge

from a Brazilian project in the Amazon where 100,000 hectares of plantations of fast growing Gmelina and pine provide raw material for a kraft pulp mill.

1375. 55 IVA1B BILEK EDWARD M., ELLEFSON PAUL V. The Wood-Based Industry: Trends in Selected Structural and Economic Factors through 1977. Staff Paper Series No. 22, Dept. of Forest Resources, College of Forestry and the Agric. Exp. Sta., Univ. of Minnesota (1981), 40 pages. Lumber and wood products is the largest major group of the wood-based industry with respect to establishments and employees. Paper and allied products, composed of more capital intense industries, leads in terms of value added by manufacture, value of shipments, and new capital investment. Wood furniture and fixtures represent only a small portion of the total assets, employment, and output of the wood-based industry.

1376. 55 IVA1B BLYTH JAMES E., WHIPPLE JAMES H., BOELTER ALLEN H., WILHELM STEVEN Lake States Primary Forest Industry and Timber Use 1975. USDA Forest Service Resource Bulletin NC-49 (1980), 39 pages. Industrial roundwood production and forest industry trends in Michigan, Minnesota, and Wisconsin. Compares log and bolt species and discusses primary wood-using mill residue and its use.

1377. 55 IVA1B ELLEFSON PAUL V. Economic Structure of the U.S. Timber Industry: Special Focus on Primary Processing. Staff Paper Series No. 11, Dept. of Forest Resources, Univ. of Minnesota. (1979), 52 pages.

1378. 55 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, Fourth Quarter 1979. USDA Forest Service Pacific Northwest Forest and Range Experiment Station (1980), 55 pages. Current information on timber situation in Alaska, Washington, Oregon, California, Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

1379. 55 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, First Quarter 1980. USDA Forest Service Pacific Northwest Forest and Range Experiment Station (1980), 57 pages. Current information on timber situation in Alaska, Washington, Oregon, California,

Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

1380. 55 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, Second Quarter 1979. USDA Forest Service Pacific Northwest Forest and Range Experiment Station (1980), 71 pages. Current information on timber situation in Alaska, Washington, Oregon, California, Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

1381. 55 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, Second Quarter 1980. USDA Forest Service Pacific Northwest Forest and Range Experiment Station (1980), 71 pages. Current information on timber situation in Alaska, Washington, Oregon, California, Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

1382. 55 IVA1B WELCH RICHARD L., BELLAMY THOMAS R. Changes in Output of Industrial Timber Products in Virginia, 1976-1978. USDA Forest Service Resource Bulletin SE-54 (1980), 21 pages. Of the nearly 360 million cubic feet of industrial roundwood products harvested from Virginia's forest in 1978, 41 million cubic feet were shipped to plants outside the state, and Virginia plants received 65 million cubic feet of out-of-state wood. Through improved utilization, Virginia's total output of industrial timber products amounted to 424 million cubic feet, or 9 million cubic feet more than in 1976.

1383. 55 IVA1C LEE PHIL WOO "The Economic Development and Forest Products Industries in Korea." Bull. of the Seoul N. University Forests, No. 16 (1980), pages 116-127. In English with Korean summary. Economic development, forest industries, and demand and trade

of forest products in the country.

1384. 55 IVA1C Ministry of Industry. Innovation in the Wood Sector. La Documentation Francaise, Paris (1980), 72 pages. In French. First volume of a series about the possible impact of expected technological development on industry. Ten new techniques that may bring major changes in the wood transforming sector.

1385. 55 IVA1C Statistical Information on Forest Production in Franche-Comte. Dept. of Agric. Besancon (1979), 21 pages + graph. In French. Forest areas, logging and sawmilling production, structure of the industry in this region of east-central France.

1386. 55 IVA1E CUEVA GARCÍA L. DE LA "Analysis of Forest Production in Mexico 1971-1976." Ciencia Forestal, Vol. 12, No. 3 (1978), pages 22-39. In Spanish. Recent and future trends in production of timber and other forest products. Continuing steep rise in volume and value of forest products is emphasized.

1387. 55 IVA1E ORMAZABAL PAGLIOTTI C. Forestry Research and Development, Chile. FAO Working Document 26 (1979), 86 pages. In Spanish. (Cited in FAO Documentation, Oct. 1980). Critical analysis of market studies carried out for Pinus radiata products in Chile.

1388. 55 IVA1E PEH T.B., WONG W.C. The Role of Processing Industries in Developing the Fuller Utilization of the Forest. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 14 pages. Wood processing industries in Peninsular Malaysia are dominated by sawmills and plywood mills using a limited number of species. There must be technological changes and integration within the wood based industry so that mill wastes and all forest tree species can be used. A concerted effort by all foresters and wood technologists is required.

1389. 55 IVA1E SANDERMANN W. "The Wood and Paper Industry of Mexico." Holz als Roh- und Werkstoff, Vol. 37, No. 2 (1979), pages 41-51. In German with an English abstract. Forest industries in Mexico, with statistics on population, forest area, production of timber and other wood-based materials, timber usage, imports and exports, and pulp and paper production. Future prospects and the need for reforestation and greater numbers of technically trained personnel.

1390. 55 IVA3 FICKLE JAMES E. The New South and the "New Competition", Trade Association Development in the

Southern Pine Industry. Univ. of Illinois Press (1980), 435 pages. Corporate practices emerging from the "new competition," government-industry relations, labor-industry conflicts, antitrust attitudes and policies, National Administration, conservation, transportation, race relations, and mobilization for two world wars.

1391. 55 IVA4 MARTIN THOMAS T., WILSON ROBERT H. "Accounting Controls for a Forest Products Firm." Monograph in series: Studies in Management and Accounting for the Forest Products Industries. Oregon State University, School of Business. (1981), 11 pages.

1392. 55 IVA4 WEBB W.E. Factors Determining the Location and Structure of Large Scale Wood Processing Industries. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 14 pages. Any forest industrial development should benefit not only the organization owning it but should generate socio-economic benefits for the nation as a whole. Size, structure and location of mills, factors which are normally geared to markets and raw material supplies, may not be those most beneficial for the nation. Some part of the cost of achieving maximum national benefit may need to be borne by the state.

1393. 55 IVB1 PAPASTAVROU A. "Socio-Economic Implications of Technological Progress in Roundwood Harvesting in Greece: the Forest Statistics and Forest Policy Points of View." Chair of Forest Policy and Valuation, School of Agric. & Forestry, Thessaloniki. (1979), 57 pages. In Greek. The technological progress in the roundwood harvest in Greece is considered and valuated on the basis of the research results of Solow (1957), Massel (1962), and Robinson (1975). The economic benefit for each cubic meter of roundwood produced due to technological progress is accounted about 79.5 drachmas for the producers and 95.0 drachmas for the consumers.

1394. 55 IVB1 VACHULA PAVEL "Development of the Logging Process in the State Forests of Central Slovakia." Lesnicky Casopis, Vol. 26, No. 4 (1980), pages 347-355. In Czech with an English abstract. Production conditions, supply and relations between forest management and forest industries. Projection for logging development for State Forests of Central Slovakia until the years 1985 and 1990.

1395. 55 IVB3 HAEBERLE S. "The Influence of the Negative Correlation between Volume Per Tree and Harvesting

Time Consumption Per Volume Unit over the Stringency of Wood." Forstarchiv, Hannover, No. 10. (1980), pages 202-206. In German with an English summary. Considerable quantities of small timber remain in the forests. These quantities can be supplied to the market by independent loggers.

1396. 55 IVB4 KOGER JERRY L. Factors Affecting the Construction and Cost of Logging Roads. Technical Note, Div. of Forestry, Fisheries, and Wildlife Development, Tennessee Valley Authority, No. B-27. (1978), 95 pages.

1397. 55 IVC1A STIER JEFFREY C. "Technological Adaptation to Resource Scarcity in the U.S. Lumber Industry." Western Journal of Agric. Econ. Vol. 5, No. 2 (1980), pages 165-175. Econometric investigation of the role of a renewable natural resource, sawlogs, in the production of lumber over the period 1950-1974. Economic scarcity is confirmed. Within a given production technology, the potential for substitution among capital, labor and sawlog inputs is greatly restricted but not impossible. Technological change has been labor-saving but has had a negligible effect on wood requirements. Consequently the real price of lumber has risen, stimulating development of substitute wood products. Continued decline of the industry is anticipated.

1398. 55 IVC2A COLLETTI JOE P., BUONGIORNO JOSEPH "Forecasts of Wastepaper Supply and Consumption in the United States to 1985." Wood and Fiber, Vol. 12, No. 4 (1980), pages 233-243. Model of the paper and board industry inclusive of wastepaper recycling was constructed and used to show that wastepaper supply and consumption can vary widely depending on the future recovery rates and utilization levels of wastepaper by the paper industry. By assuming the most optimistic wastepaper recovery and utilization increases by 1985, a domestic wastepaper supply shortfall is forecast. However, the most likely future wastepaper utilization will involve a surplus of wastepaper by 1985 given average recovery rates. Model can be used to consider a broad range of wastepaper recovery and utilization situations and alternative economic growth rates.

1399. 55 IVC2A MARDON JASPER, BRANION RICHARD "The Recruitment, Retention and Training of Technical Personnel by the Pulp and Paper Industry, Part 2 Training of Technical Personnel." Appita, Vol. 34, No. 3 (1980), pages 228-230.

1400. 55 IVC2A MIES WILL, IRONS PAULA, ALLEN DAVID, BALTHAZARD MARK "81 Outlook." Pulp and Paper, Vol. 55, No. 1 (1981), pages 68-87. U.S. industry: gradual pickup in domestic demand, mostly in second half, should lift output, despite export drop. Canadian industry: sluggish consumption and new capacity will put pressure on newsprint, but pulp market should be stronger. Labor: bargaining in both U.S. and Canada will focus on West. Transportation: deregulation will impact industry freight rates. Fiber: pulpwood, wastepaper supplies should be plentiful in 81. Regulatory: environmental issues facing Reagon administration.

1401. 55 IVC2A PARK MYEONG KYU "Analysis of Paper Demand and Supply in Korea." Journal of Korean Forestry Society, No. 50 (1980), pages 16-24. In Korean with English summary.

1402. 55 IVC2A YASU KINJI "Stability of Supply is Japan's Top Priority." Pulp and Paper International, Vol. 23, No. 2 (1981), pages 51-54, 76. Continued demand growth for paper products will necessitate a more international approach by the conservative Japanese industry. Imports of raw materials and finished products will rise while exhaustion of surpluses in North America will entail investments in other regions.

1403. 55 IVC2A "Paper '79 - Report from the Pulp, Paper and Paperboard Industry." Verband Deutscher Papierfabriken e.V., Bonn. (1980), 48 pages. In German. Status and development of the German pulp and paper industry, statistical data and periodic synopses.

1404. 55 IVC2B POLLITZER STEPHANIE "Capitol Spending." Pulp and Paper, Vol. 55, No. 1 (1981), pages 101-108. Survey lists over fifty new machines, many modification projects, larger dollar outlays planned by U.S. and Canadian mills.

1405. 55 IVC2C BLYTH JAMES E., SMITH W. BRAD Pulpwood Production in the North Central Region by County 1978. USDA Forest Service Resource Bulletin NC-50 (1980), 23 pages. Michigan, Minnesota, and Wisconsin production by species for each county and 1978 production and receipts data for Illinois, Indiana, Iowa, and Missouri as well as four production classes by county.

1406. 55 IVC2C BONES JAMES T. Time Series Analysis of Monthly Pulpwood Use in the Northeast. USDA Forest Service Research Note NE-288 (1980), 4 pages.

Time seriea analyais waa used to develop a model that depicta pulpwood uae in the Northeaat. Model is useful in forecasting future pulpwood requirementa (short term) or monitoring pulpwood-use activity in relation to paat uae patterna.

1407. 55 IVC2C NEVEL ROBERT L. JR., BONES JAMES T. Northeaatern Pulpwood, 1978: An Annual Aaaessment of Regional Timber Output. USDA Foreat Service Reaource bulletin NE-62 (1980), 27 pagea. Discusaion and tabular data on roundwood and chips from plant residues produced in and received by 14 northeastern states in 1978. From 1977 to 1978 pulpwood production increased by three percent, roundwood productin roae by seven percent, and chipped reaidue production declined by eight percent.

1408. 55 IVC3A SMYTH J.H., BROWN A. Veneer and Plywood Induatry Ontario. Environment Canada, Forestry Service. (1980), 2 pages. Veneer and plywood plants, 1979; principal statistics, 1970-1978; shipmenta of veneer and plywood, 1970-1978; veneer and plywood exporta, 1978.

1409. 55 IVC3A Wood-Baaed Panels in the 1980's. Proceedings of the Sympoaium Organized by the Timber Committee of the United Nations Economic Commisaion for Europe. Helainki, Finland. 12-16 May 1980. (1980), 271 pages.

1410. 55 IVC3B KOENIGSHOF GERALD A. Economic Feasibility of Manufacturing Com-Ply Panela in the South. USDA Forest Service Reaearch Paper SE-201 (1979), 28 pages. Inveatmenta, production costa, and probable retarna. It ia poaible to obtain a 20 percent or greater after-tax internal rate of return on an investment in manufacturng Com-Ply panels. A manufacturing ayatem that aaaemblea the panels in two stages is more economic than aingle stage aasembly.

1411. 55 IVC5 HOOVER WILIAM L:, JOKERST RONALD W., ECKELMAN CARL A., YOUNGQUIST JOHN A. "Economic Feasibility of Red Oak Preaa-Lam for Upholatered Furniture Framestock." Foreat Producta Journal, Vol. 29, No. 11 (1979), pagea 21-25. Market analysia indicates that the upholstered furniture industry is highly coat conscious regarding lumber and willing to consider alternatives. Investment analysis indicates that oak Preaa-Lam can be produced at a profit and that the margin is aufficient to warrant consideration of alternative product designs to provide higher strength properties.

1412. 55 IVC6 DEPRE H.J. "Utilization of Foreat Biomaaa in

Wood Using Industry." Forstarchiv, Hannover, No. 10. (1980), pages 195-201. Rising timber prices and increased demand may cause particle and fiber board industry to utilize forest biomass in the near future. Production problems caused by sand and a large amount of fine material from needles can be overcome with technology.

1413. 55 IVC6 MCKEEVER DAVID B. Hardboard and Insulation Board Plants in the United States - Capacity, Production, and Raw Material Requirements, 1955-1978. USDA Forest Service Resource Bulletin FPL 7 (1979), 12 pages. Estimates of plant capacities in 1978; location, type, and estimated capacity of each plant; industry capacity and production for specific years; imports and exports from 1955 and raw material requirements in 1976.

1414. 55 IVC8 BENNETT CHARLES F. "Some Social and Economic Consequences and Constraints to the Use of Forests for Energy and Organics in Canada, the United States of America and Los Estados Unidos de Mexico." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 53-58.

1415. 55 IVC8 BONES JAMES T. Forest-land Clearing and Wood Recovery in Maryland. USDA Forest Service Research Note NE-290 (1980), 6 pages. An estimated 107 million cubic feet of growing stock were destroyed on 164,000 acres of commercial forest land cleared between 1961 and 1972. This represents a gross energy loss of 24.1 trillion BTUs.

1416. 55 IVC8 BOYCE STEPHEN G. "The Environmental Consequences of Intensive Forestry and the Removal of Whole Trees from Forests." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 27-29. Intensive forestry and the removal of whole trees for energy pose dangers of soil erosion, nutrient and organic matter depletion, and a reduction in scenic and recreation values. An effective solution is to schedule rates of biomass removal and sizes of areas harvested to bring the forest to a state of organization that biologically provides the most desirable combinations of benefits and the least number of consequences.

1417. 55 IVC8 BROWN JANE B. The Charcoal Industry in Zambia. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 8 pages. The charcoal industry is important to Zambian society for energy production and employment. Its value increases as alternative fuels become prohibitively expensive but it is primarily based on indigenous hardwoods whose rate of natural regeneration is slow and sometimes nonexistent. Forest destruction is worst near major population centers where the planting program for fast growing fuelwood plantations falls far short of what is needed.

1418. 55 IVC8 BUSE BERND "Energy from Bark." Holz-Zentralblatt, Stuttgart, No's. 22, 23. (1981), pages 351-352, 371-373. In German. Fuel value of bark, necessary measures and preparations for bark-burning, burning systems and economy of burning.

1419. 55 IVC8 CARPENTER EUGENE M. Wood Fuel Potential from Harvested Areas in the Eastern United States. USDA Forest Service Resource Bulletin NC-51 (1980), 14 pages. Estimated amount of wood fiber that could be available for fuel from forest residues on harvested areas in the Eastern US. Key to resource data published by the USDA Forest Service and factors for estimating amounts of cull, bark, tops, and limbs from inventory and product output tabulations.

1420. 55 IVC8 CURTIS A.B. JR. "Southern Hardwoods as an Energy Source." Proceedings, Mid-South Upland Hardwood Symposium for the Practicing Forester and Land Manager. Harrison, Arkansas. April 30-May 2, 1980. USDA Forest Service Technical Publication SA-TP12 (1980), pages 18-26. Use of southern hardwoods as an energy source will depend upon (1) technologies involved in the harvest, delivery and use of wood for energy (2) demand/price situation created by users of wood energy and (3) availability of the resource.

1421. 55 IVC8 DROSTE BERND VON "Forest Biomass for Energy." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 17-20. Recommendation to launch a network of demonstration sites for high energy-yield forestry under the MAB Program in order to demonstrate application of existing knowledge, serve the study of ecological and social effects of forest energy plantations, and provide training for scientific and technical personnel from developing

countries for which biomass continues to be a key fuel resource.

1422. 55 IVC8 FEGE ANNE S. "Wood Energy in Sweden." Journal of Forestry, Vol. 79, No. 1 (1981), pages 36 & 46. Because of rising costs of imported oil and public support for eliminating nuclear energy, Sweden's use of wood for energy seems certain to increase from its 8 percent share of energy consumed in 1977. Since 21 percent of the value of the country's exports comes from wood products, competition from energy uses may affect the forest industry and the national economy. Sweden has established a biomass research program with emphasis on forest energy (residues) and energy forests.

1423. 55 IVC8 GAC A. "Use of Agricultural Waste as an Energy Source." Comptes Rendus des Séances de l'Académie d'Agriculture de France, Vol. 65, No. 10 (1979), pages 800-807. In French. Report on the research carried out in France by the Scientific and Technical Research Delegation. Economic aspects of energy production from the three most abundant sources of agricultural waste (manure, straw, wood). Wood production from French forests could be doubled. Possible energy crops include short-rotation poplars, reeds and cane.

1424. 55 IVC8 GHOSH R.C. "The Socio-Economic Consequences and Constraints to Use of Land and Forest for Energy and Organics in India." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 36-47. "Social Forestry" is the possible answer to the utilization of unconventional land resources to meet the energy needs of India where wood is the principal source of energy for the masses.

1425. 55 IVC8 HAMZA HECHMI "Biological and Sociological Use Basis for National Use of Forest Resources for Energy and Organics in Arid and Semi-Arid Areas in Tunisia, North Africa." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 180-182. Since 1959 Tunisia has had a program of afforestation research. Rural tree planting could improve fuelwood production in

agricultural areas but a good extension program is needed to help resolve social and jurisdictional problems.

1426. 55 IVC8 JENNINGS PENELOPE "Dry Forests of the Dominican Republc and their Energy Production Capacity." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 149-163. The country is growing more wood than it is using with some forestlands going untouched while others are over exploited. Charcoal and firewood are not necessarily damaging to the forest ecosystem: the important variable is how much biomass per year can safely be removed.

1427. 55 IVC8 KARTAWINATA KUSWATA "An Overview of the Environmental Consequences of Tree Removal from the Forest in Indonesia." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 129-140. Logging of primary rainforest results in damage of residual trees and soils, genetic erosion and losa, and soil erosion increase. It also changes the regeneration pattern, behavioral patterns of animals, chemical and physical properties of soils, and water quality and yield. Better control, improved logging techniques and research are needed.

1428. 55 IVC8 LANCASTER KENNETH F. Managing Young Stands for Firewood. For sale by Supt. of Docs., US Govt. Print. Office, Washington, D.C. 20402. (1980), 20 pages.

1429. 55 IVC8 MARGARIS N.S. "Can We Harvest Mediterranean Type Ecosystems to Obtain Energy and Organics?" In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 121-128. Lack of both energy and organics in Mediterranean climate areas can be confronted by harvesting mediterranean type ecosystems every ten years. Since these ecosystems normally burn at the rate of about 15,000 ha. per year if not used, their harvest seems a reasonable use of

biomass.

1430. 55 IVC8 MASSEY JOSEPH G., MCCOLLUM MICHAEL P., ANDERSON WALTER C. "Cost of Whole-Tree Chips for Energy - Louisiana Case Study." Forest Products Journal, Vol. 31, No. 2 (1981), pages 34-38. In addition to reducing the timber industry's dependence on oil, harvesting hardwood residue from pine-hardwood stands for fuel utilizes an otherwise unused forest resource while reducing subsequent site preparation costs.

1431. 55 IVC8 MURPHEY W.K., MASSEY J.G., BLANKENTHORN P.R., BOWERSOX T.W. "Some Implications of Using Wood as Fuel." Southern Journal of Applied Forestry, Vol. 5, No. 1 (1981), pages 16-19. Issues: (1) effects of moisture content on available heat, (2) effect of diverting wood from nonfuel markets, and (3) economics of using logging or manufacturing residues for fuel.

1432. 55 IVC8 NILES J.J. "Utilization of Forest Resources in Guyana and Research Needs." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 168-174. Outline of the modes of utilization and conversion of forest resources in Guyana which draws attention to the increasing human impact to which forests will be subjected in the thrust for development, and emphasizes the need for research and data collection to ensure rational procedures.

1433. 55 IVC8 OJO G.J. AFOLABI "Some Socio-Economic Determinants of the Use of Forest Resources for Energy and Organics: A Nigerian Situational Overview." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 175-179. No particular factor can constitute a favorable or positive determinant of the use of forest resources for energy and organics for all time, unless the factor is properly understood, controlled, and managed. It is necessary to be guided towards future action by the interest and welfare of those to be affected by the outcome of the policies being formulated. Innovative devices for energy use must not only be appropriate, simple, and relatively cheap, but must be designed

and produced within the framework of the socio-economic and cultural environments of the prospective users.

1434. 55 IVC8 OVEREND R.P., REED F.L.C., SILVERSIDES C.R. Energy and Forestry in Canada. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 23 pages. Canada's paper and lumber industries are subject to wild swings in export demand. If forest biomass is harvested for energy it will have a stable market. This could permit forests to be managed on a sound silvicultural basis. A large forest biomass inventory research program has been set up for although low cost hydrocarbon resources will be available in Canada for some time, economic comparisons show that liquid fuels may be produced from low cost residues in competition with offshore oil.

1435. 55 IVC8 OVINGTON J. DERRICK "Some Considerations of Forest Use and Energy Flow." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages Effects of politics, resource perspectives, and environmental factors of forest productivity; aspects of energy balance sheets and their relevance to energy forests as an answer to the energy crisis. It is suggested that energy forests may help alleviate the effects of energy shortages but they are not the long-term answer.

1436. 55 IVC8 PHILLIPS DOUGLAS R. "Forest Residue: A Significant Source of Energy." Southern Lumberman. (Dec. 15, 1979), pages 101-103. If all of the 145 million dry tons of forest residues in the United States were utilized for fuel they would contribute only 3.3 percent of the nation's energy needs. This amount is not of major significance on a national basis, but on a regional and local basis, forest residues for energy can make a measurable difference.

1437. 55 IVC8 RIEDACKER A. "Biological and Sociological Reflections for a Better Use of the French Forest for Energy production." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 165-167. Managing forests for a more efficient use of their resources should include prevention of ecosystem

degradation. Improving the forest for a higher production of wood for energy seems to need a determined policy, mainly on the human and legislative level.

1438. 55 IVC8 SETH V.K. Trends and Prospects for the Use of Fuelwood in a Developing Country. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 44 pages. Developing countries pay dearly for the shortage of fuelwood. In India the annual loss due to importing oil, burning cow dung, silting reservoirs, floods, drought and erosion is Rs 60,000 M (1$US=8 Rupees). This paper reviews the dependence on wood of rural populations in developing countries, both for fuel and employment.

1439. 55 IVC8 SMITH NIGEL Wood: An Ancient Fuel with a New Future. Worldwatch Paper 42 (1981), 48 pages.

1440. 55 IVC8 STEELE R.C. "Some Social and Economic Consequences and Constraints to the Use of Forests for Energy and Organics in Great Britain." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 30-35. There are no immediate prospects for the major use of forests for fuel and organics due to the huge imbalance between wood production and consumption in Britain. Such uses may become necessary in the future.

1441. 55 IVC8 WISE PETER K. "Forests for Methanol Production." Australian Forestry, Vol. 43, No. 1 (1980), pages 44-51.

1442. 55 IVC8 YADAV RAM P. "The Socio-Economic Consequences and Constraints to the Use of land and Forests for Energy and Organics." In, Biological and Sociological Basis for a Rational Use of Forest Resources for Energy and Organics. Proc. Int. Workshop for the Man and the Biosphere Program, May 1979, Mich. State Univ. USDA Forest Service, Southeast For. Exp. Sta., Ashville, NC, USA. (1979), pages 48-52. The deterioration of the ecological environment for the production of food, fuel, and housing is related to the inefficient use of labor. The most important challenge for the use of the land and forests for energy and organics is to find a way to mobilize and use labor for production purposes in a nonexploitive manner.

1443. 55 IVC8 Energy and Wood from Intensively Cultured

Plantations: Research and Development program. USDA Forest Service General Technical Report NC-58. For sale ($2.25) by Supt. of Docs., US Govt. Print. Office, Washington, D.C. 20402. (1980), 28 pages.

1444. 55 IVC8 "Wood and Energy - Forest Biomass - Heating with Wood." Allgemeine Forstzeitschrift, Munich, No. 48. (1980), pages 1335-1359. In German. Special issue with articles about energy from wood, its availability, energy forests, and practical applications of heating systems.

1445. 55 IVC8 "Wood as a Source of Energy." Holz-Zentralblatt, Stuttgart, No. 19. (1981), pages 287-322. In German. Special issue discussing the utilization of wood and wood residues for heating. Practical applications in private homes and industrial enterprises are presented and statistical data on utilization costs and fuel economy are given.

1446. 55 IVD2 SMITH KENNETH E. "World Naval Stores Production Is Up, but Fails to Meet Demand." Pulp and Paper, Vol. 54, No. 13 (1980), pages 114-117.

1447. 55 IVD4 HEVIN H. "Edible Forest Fungi; Economic Aspects." Revue Forestière, Vol. 32, No. 3 (1980), pages 305-315. In French.

1448. 55 IVD4 JOSEPH D.K. Development of Secondary Forest Products in India. Commonwealth Forestry Aasociation, South Parks Road, Oxford, England. (1980), 22 pages. Secondary forest products such as essential oils, tannins, resins, drugs, dyes and edible products have gained in value because of the socio-economic improvements they can bring to backwoods areas. Forest management for these products has been accepted by foresters and demand is growing and the potential is high.

1449. 55 VA1 KIM JANG SOO "Long-Term Timber Demand Projections in Korea." Journal of Korean Forestry Society, No. 50 (1980), pages 29-35. In Korean with English summary. Forecasting the long-term domestic and export timber demand by econometric analysis using time series data.

1450. 55 VA2 JONES PAUL H. "World Wood and Paper Perspectives." In, Forest Management Outputs: Who Needs Them and Why? Proceedings of a Technical Session of the Working Groups on Economics and Policy, Forest Management, and Land Use Planning. Canadian Forestry Service/Pacific Forest Research

Center, Victoria, B.C., BC-X-206. (1980), pages 5-7. Abstracts in English and French. There is a tendency for forecasts of growth to be high in good times and low in bad times. In either case, foresters should look beyond forecasts based on present economic conditions to ascertain the impacts of future demands on the forest resource.

1451. 55 VA2 KEMP R.H. Increasing the Supply of Forest Products. Commonwealth Forestry Association, South Parks Road, Oxford, England. (1980), 22 pages. The energy crisis has brought a new era of increased opportunity to forest products but total demand may exceed supply by the end of the century. There is urgent need for capital investment to ensure a sufficient number of properly motivated skilled staff capable of managing the world's forests as highly profitable though intricate production systems.

1452. 55 VB1 BUONGIORNO JOSEPH Forestry and Forest Products Development, Indonesia. Economic Location of Ports for Forest Product Exports from Indonesia. Forestry and Forest Products Development Project of FAO, Bogor. Working Paper 5 (1979), 63 pages. Revised version of a forest sector development planning model for Indonesia aimed at determining economic locations for ports exporting to Japan. As an example of application, six alternative strategies are analyzed and the consequences of each alternative in terms of meeting domestic demand and export targets, as well as forest resources utilization, industrial capacity expansion and inter-island shipments are presented. The model can also be used to take into account social objectives and political constraints.

1453. 55 VB1 BYRON R.N. An Economic Assessment of the Export Potential of Autralian Forest Products. Industry Economics Monograph No. 20, Bureau of Agricultural Economics. Australian Govt. Publishing Service, Canberra. (1979), 71 pages.

1454. 55 VB1 HANSON A.G. "Should Australia Plan to Export Forest Products?" Australian Forestry, Vol. 43, No. 2 (1980), pages 70-74. Considerations made to date in the history of Australian national forestry planning have not involved planning for export markets. Because of substantial reductions in various estimates of Australia's future consumption of forest products, planners are being compelled to consider whether Australia should curtail plantation establishement activities or grow for export. Optimistic view of Australia's ability to find export markets in the future.

1455. 55 VB1 LEE PHIL WOO "Timber Demand and Forest Products Trade." Forest Products Journal, Vol. 31, No. 1 (1981), pages 12-13. Export of forest products from Korea has continuously increased under steady government support. Total export value of forest products, including plywood, reached US$ 679 million in 1977.

1456. 55 VB1 LUSCOMBE K. "The Influence of Marketing in the Business Environment during the 1980's." Appita, Vol. 34, No. 2 (1980), pages 103-105. Marketing will have a large influence on business strategy in the 1980's and a marketing approach is needed if the pulp and paper industry is to realize its projected potential.

1457. 55 VB1 SPEER JULIUS, BARTELHEIMER PETER "The Wood Market, 1976 to 1979." Allgemeine Forstzeitschrift, No. 7. (1981), pages 129-138. In German. Retrospective market information for the Federal Republic of Germany including statistical surveys over time and an input-output balance for wood products.

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1459. 55 VB1 "Annual Forest Products Market Review, Referring to 1979 and Early Months of 1980." FAO, Suppl. 1 to Vol. 33 of the Timber Bulletin for Europe, Geneva. (1980), 72 pages. Statistical information, supplemented with a commentary on the forest products market in the ECE region.

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1461. 55 VB3 SEDJO ROGER A., WISEMAN A. CLARK "Log Export Restrictions: Some Findings." Journal of Foreatry, Vol. 78, No. 12 (1980), pages 738-740. Log

export restrictions will lead to lower log prices and a decreased cut. Lumber prices may rise or they may fall. Restrictions favor log processors at the expense of log producers; their effects on lumber consumers are small.

1462. 55 VB4 RICH STUART U. "Demand Trends in Wood Products' Export Market." Forest Products Journal, Vol. 30, No. 12 (1980), pages 10-11. Japan and Western Europe will become increasingly dependent on North America as a source of supply for solid wood products with Canada accounting for most of the increase in exports.

1463. 55 VB4 "Medium Term Survey of the Wood-Based Panels Sector." FAO, Suppl. 10 to Vol. 32 of the Timber Bulletin for Europe, Geneva. (1980), 75 pages. Survey of consumption and market trends in the ECE region and comparison with projections as forecast in the study, "European Timber Trends and Prospects, 1950-2000."

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1467. 55 VB6 O'BRIEN DAVID, SINCLAIR STEVEN A. "Can the Marketing of Wood Manufacturing Residue be Improved?" Forest Products Journal, Vol. 31, No. 3 (1981), pages 30-32. Survey of 139 of the larger wood products firms in Minnesota to determine residue production, utilization, and marketing practices. Seventy-one percent of residue is utilized but not necessarily at its highest value use. Wood residue market is poorly organized with few long-term contracts.

1468. 55 VC1 GROSHEV V.L. "The Role of Prices in the Rational Utilization of Forest Resources." Lesnoe Khozyaĭstvo, No. 10 (See Forestry Abstracts Vol. 41, No. 12) (1979), pages 13-17. In Russian. Role of stumpage prices and wholesale forest products prices in the socio-economic context of the USSR. Measures are proposed to improve the pricing system for forest products to promote more efficient management and utilization of forest resources, especially waste materials.

## SUBJECT INDEX

This index is best used in conjunction with the Subject-matter Classification Scheme at the front of this issue. For example, if the user enters the index at Administration, forest, he is referred to Section III of the bibliography, because to be more specific would require subdividing the topic essentially as the Classification Scheme does. The user's next step is to turn to the Scheme, where he finds that forest administration in general is IIIA1, administration pertaining to forest roads is IIIC, and so on.

# AUTHOR INDEX

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