

The Work of FAO*

Seminar For Forest Research Specialists

In accordance with desires expressed by the Asia-Pacific Forestry Commission, arrangements were made by FAO with the Government of India as host, to hold a seminar for Forest Research Workers of the region. Dr. K. R. Nair, statistician for the Forest Research Institute, Indian Forest Service, as representative of the Government of India, and Mr. J. G. Osborne, statistician for the United States Forest Service as FAO Representative, were appointed as Co-directors for the seminar. Mr. L. K. Strand, Professor of Forestry and Statistical Consultant from Norway was appointed as Monitor. The seminar was held at the Forest Research Institute at Dehra Dun, from 12 October to 10 December 1955. It was planned to deal primarily with the application of statistical methods in forest research, particularly in the field of silviculture.

The objective of the seminar was to make a thorough and systematic coverage of the design of experiments and the statistical theories basic to the analysis, interpretation, and presentation of results of experiments and sampling investigations. Treatment of the subject matter was from the point of view of the practicing forest research worker and the methods investigated were chosen specifically to meet the day-to-day needs of his work.

Forest research workers in this region have long been acutely aware of the place of statistical methods in sound experimentation. They have followed the work of their colleagues in agricultural research in the application of modern experimental designs but, at the same time, have recognized the intrinsic differences between agricultural and forest experimentation that make indis-

criminate adoption of the experimental designs used in agriculture unwise.

The forest research worker recognized that in order to go forward confidently in his application of statistical methods to his work he must, himself, become proficient in the fundamental principles upon which efficient and sound experimental designs are based. He could not depend upon either the agricultural statistician or the mathematical statistician to hand him designs tailored to meet his needs. The experimental material with which the forester works normally is much more variable than that with which the agricultural statistician works and therefore presents problems of experimental control not met by the latter. The forester must have a sound foundation in both statistical theory and forestry in order to develop his own experimental designs or to avail himself of the assistance of the mathematical statistician. It was for these reasons that the course of study adopted by the Co-directors was a fundamental one. Due to the remote locations of many of the participants, it was felt that they must be made largely self-reliant. At the minimum they should be able to resolve the bulk of their statistical problems from their own knowledge, and design experiments that can be analyzed directly and unambiguously. They must be able to recognize situations in which these requirements cannot be met and to avail themselves of the purely mathematical assistance of professional statisticians.

In all, nine countries were represented by participants in the seminar: Burma, Ceylon, Indonesia, Japan and Malaya each nominated two students; Pakistan, New Guinea (Australia) and New Guinea (Netherlands) one each; and India supplied five.

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In the invitation, it was pointed out that maximum benefit would be obtained from the seminar if the participants had had experience in forest research and some grounding in mathematics. It was emphasized also that it was clearly desirable that only those participants should be considered who, on their return from the seminar, would be engaged in forest research.

Evidence of the sincerity of interest of the participating countries is apparent in the high caliber and rank of the participants selected. Almost without exception the men are directing research or performing research at a responsible level.

This was important to the success of the seminar since, with representation at a high level the participants upon returning to their home countries will be in a position to influence the research programs and to foster immediate adoption of sounder and more efficient techniques.

Forest Working Technique and Training of Forest Workers

The technical work of FAO has two main aims: first, the quantitative increase in output of food and agricultural products—the growing and harvesting of two blades of grass where only one has grown before; secondly, the raising of the standard of living of the world's population. These aims are complementary and interdependent. An improvement in living standards can be achieved only through increased production accompanied by increased wages. Increased production with increased wages is only possible on the basis of a rise in productivity.

Productivity has two aspects—human and material. It is generally agreed that performance in any sphere can be improved by training, in other words there are “best methods” whereby maximum results may be attained for a given energy expenditure. Within the limits imposed by physiological factors, therefore, improved techniques and vocational training can raise production

standards. The question of working techniques is, however, closely bound up with the second aspect of productivity—that of tools and machinery. The utilization of suitably designed tools which facilitate the work and to contribute to the rationalization of working methods, and of machinery to take the place of human muscle power can multiply output many times over.

The rationalization and mechanization of industry is already a familiar story, dating from the nineteenth century. But that of agriculture and forestry has, in general, been lagging in both “developed” and “underdeveloped” countries. Thus, even in Europe, the mechanization of forest work has got underway in some countries only during the last ten years or so, and there exist many regions where powered equipment for such heavy and arduous work as felling and logging is the exception rather than the rule.

In view of the difficulties faced by the European forest industry, where irrational and old-fashioned methods of exploitation have kept production costs high and output low, and where existing wages and conditions have provided but little incentive for a largely unskilled and constantly diminishing labor force, FAO set up in 1952, as a subsidiary body of the European Forestry Commission, a Pilot Committee of Logging Techniques and Training of Forest Workers. Its terms of reference were to foster international collaboration in the field of felling, logging and timber transport, in order to support national efforts aimed at increasing productivity, including output of labor, reduction of waste, prevention of accidents, and the improvement in the standard of living of forest workers. The program of work of the Pilot Committee, which comprised experts from eight European countries, covered working techniques and performance, mechanization and vocational training (in co-operation with the International Labor Organization).

This work is now being continued on an all-European basis by the Joint Committee

on Forest Working Techniques and Training of Forest Workers, set up in 1954 by the European Forestry Commission and the Timber Committee of the Economic Commission of Europe. The first session of this committee, held in December 1955, on the invitation of the French Government, at Nogentsur-Marne, near Paris, was attended by sixty-five delegates from nineteen European countries, the United States and Soviet Russia, and by representatives of various international and non-governmental organizations.

The Committee's program of work covers: working techniques, mechanization, mountain logging, forest workers' training and safety, and terminology. This program is being implemented through specialized study groups, and individual experts and research stations are entrusted with the carrying out of various technical studies.

Working Methods and Techniques

With a view to increasing productivity in forest work, the Joint Committee is studying the question of working techniques and has set up a study group to deal with this problem. The considerable variations in performance which exist between different regions in the same country, call for research in this field. The comparison of working techniques, the scientific study of working processes and the assessment of "best methods" in such operations as felling and barking are occupying the attention of various experts.

An important contribution towards the popularization of rationalized working methods in Europe has been the holding of international training courses for forestry timekeepers. These courses, organized by the Federal Institute for Forest Research, Zurich, for the Pilot Committee and for the Joint Committee in 1953 and 1954, have been attended by about forty students from nine European countries. A further course is planned for 1956 in the same center.

The program of the Joint Committee in the field of mechanization is being implemented through two study groups on the Testing of Forest Machinery and on the Application of Machinery to Forest Work. Arising out of the work of these study groups, a recently published report on tractor requirements in European forestry gives a detailed specification of the characteristics of tractors and tractor equipment to be used in the forest, with a view to providing a guide for tractor users and manufacturers; a system for the costing of powered vehicles and machines has been worked out and will shortly be published; a system of standard tests for forest tractors, which has been proposed by the Study Group on the Testing of Forest Machinery, is to be finalized by a special *ad hoc* working party of experts from participating countries, which will subsequently sponsor trials at national tractor testing stations.

These two study groups are likewise concerned with, for instance, investigations on power saws, mechanical and chemical barking, loading, bundling of small timber and skidding. Studies on these questions are in preparation.

Since in many European countries the degree of mechanization in forest work is still small, the Joint Committee is an important forum for the exchange of information, in particular with regard to new techniques such as full-tree logging and chemical barking which are first adopted in the more advanced countries.

Mountain Logging

Logging under specifically mountain conditions has, in the past, been developed to any significant extent in only a few mountainous countries such as Austria and Switzerland, which have perfected for this work a completely specialized set of techniques such as the use of aerial cableways, slideways and chutes. In other countries, rich

in forests, this type of exploitation has so far been of marginal importance. But these countries are now interested in studying the economics of mountain logging with a view to expansion in this sector. Therefore, through its Study Group on the Handling and Transport of Timber in Mountainous Regions, the Joint Committee is conducting investigations on aerial cableways, ground line haulage, construction of forest roads, slides and slipways and the use of power saws under mountain conditions.

Forest Workers' Training and Safety

The Joint Committee has cooperated with the International Labor Organization (ILO) in these fields. A report on training facilities in Europe, drawn up by the ILO, brings out the relationship between measures taken to improve the professional quality of forest workers and the social and economic conditions prevailing in this occupation. The report also emphasizes the close dependence of vocational training schemes on the work of research institutes, which aim to improve the workers' productivity and raise safety standards. A survey on accidents and preventive measures in forest work is likewise being carried out by the ILO for the Joint Committee.

Much attention has been devoted to the training of teaching personnel, since this is regarded as one of the key problems in the raising of vocational training standards. Thus, the Joint Committee is organizing the exchange, between participating countries, of information on training courses, and the exchange and coordination of teaching materials, such as textbooks, pamphlets, slides and films. The ILO has co-operated in sponsoring scholarships for study tours for forestry instructors in various European countries. In 1955, 21 such scholarships were allocated and the scheme is expected to continue in 1956.

Terminology

The standardization of terminology constitutes a serious problem in all branches

of forestry. This is particularly acute in regard to forest work science, due to its comparatively recent and rapid development. New concepts and terms are constantly appearing in all languages and the problem of standardization has so far only been tackled in a piecemeal or *ad hoc* manner. The Joint Committee has therefore set up a special study group on this question which is charged with the compilation of a multilingual glossary of forest work science, the languages being English, French, Russian, German and Swedish.

Field study

Delegates to the First Session of the Joint Committee took part in a study trip organized by the French Government from 19 to 22 December, 1955. Visits were made along the route Paris-Nancy-Abreschwiller-Saverne, where manual and mechanized felling and haulage in coppice and high forest, under lowland and mountainous conditions, were inspected, and demonstrations of hauling and cutting machinery attended. An inspection was also made of the forest and workshops of the *Ecole de Bucherons* at Saverne.

FAO/ECE Joint Working Party on Forestry and Forest Products Statistics

This working party held a first session at Geneva in January 1956 when discussions were concentrated mainly on a minimum long-term program for forestry and forest products statistics and on the world forest inventory to be undertaken in 1958.

Minimum Long-term Program

The minimum long-term program is intended to provide an indication of the range of statistics which all countries should seek to develop progressively in the course of the coming years, with the object of furnishing themselves with all the basic data essential to the prosecution of sound forest and forest industry policies, whether in the public or private sector. Obviously there are

many advantages of having national statistics internationally comparable.

Agreement was reached on a skeleton of a minimum program comprising 14 chapters (and the principal categories of information with each chapter) under the following four main sections: forest statistics; statistics of forest industries; labor statistics; and forest products statistics. Details remain to be worked out at a subsequent session, but it was agreed that forest industry statistics should relate only to primary forest industries, e.g., industries using unprocessed wood as raw material and turning out commodities largely used as raw materials for secondary manufacture.

On the question of priorities, the inclusion of any chapter within the minimum program implied that, in that particular category, statistics were considered important to national needs. In singling out certain chapters for the immediate attention of all countries, the Working Party simply wished to draw attention to particular chapters that were either of first importance from the standpoint of an international program, lent themselves more readily to immediate implementation, or both. In this sense it was agreed that those statistics should receive first priority which deal with forest area, growing stock, growth, domestic roundwood supply, output of processed wood, external trade of all forest products and prices.

It was desirable that concepts and definitions in the field of forestry and timber statistics should not conflict with general statistical standards. Close co-operation between forestry and timber statisticians and central statistical offices or other general statistical services was required to ensure that, in drafting statistical programs, conceptual problems of duplication and overlapping could be satisfactorily resolved.

World Forest Inventory of 1958

The statistical forms relating to the 1958 world forest inventory, in so far as they concerned Europe and North America, were

thoroughly discussed. The questionnaire adopted for the 1953 inventory had on the whole proved satisfactory, admitting the fact that it is difficult to arrive at definitions that are universally acceptable. The information to be sought in the new inquiry should consist of a limited range of salient facts deemed essential to the formulation of national forest policies.

Other Statistical Requirements

The Working Party discussed the desirability and practicability of formulating medium-term forward estimates of fellings. It would be mutually advantageous if country felling forecasts were to be available internationally. All countries that were members of the European Forestry Commission or Economic Committee for Europe (ECE) Timber Committee should be requested to furnish forward estimates of annual fellings around the years 1960 and 1965, on the basis or bases appropriate to or practicable for the individual countries.

It was decided to abandon the current FAO questionnaire form dealing with fellings, removals and utilization of roundwood, but the possibility of obtaining utilization data through special periodic inquiries should be further explored. A new annual form should deal with removals, broken down into removals coming from the forest proper and from outside the forest area.

The Working Party also considered the question of statistics on investments in forestry which, although of considerable interest, present special difficulties and are liable to misinterpretation. It was claimed that, in the first instance, attention should be limited to investments in afforestation and plantations outside the forest.

As regards pulpwood statistics, existing statistics failed to reveal the rise in the utilization of materials other than coniferous woods. Data on this point were necessary for a proper appraisal of the pulpwood market, and specific proposals regarding defini-

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it would mean a yearly increase of planted trees. It would mean also that had we followed this practice years ago we should now be having over ten million trees. This can be further increased by the thousands more, if at every high school and college graduation, graduates are made to plant their respective trees to mark the "red letter" event. Of course, this is not all that there is to it. But to my mind, what counts more is the care of the trees after they are planted. As a growing child they should be tended at least for the first three years until they are able to take care of themselves. In this way we can rest assured that whatever effort we exert in tree-planting will not be wasted.

May I conclude by enjoining every citizen of the country during Arbor Week to zen of the country during Arbor Week celebrations to invest at least a part of their precious time and effort to planting trees and nursing them until they can take care of themselves. It would not be asking too much each civic-minded citizen to spend a part of his leisure throughout the year in tree planting. Whatever planting he does, whether in a big or a small scale, would surely contribute to the nation's wealth of trees. *Invest now by planting trees and the future reward for all your efforts will be enjoyed not only by you but also by your children and the other generations yet to come.* President Roosevelt in 1907 wrote in an Arbor Day letter to the American school children the following:

"A people without children would face a hopeless future; a country without trees is almost as hopeless; forests which are so used that they cannot renew themselves will soon vanish, and with them all their benefits. A true forest is not merely a storehouse of wood but, as it were, a factory of wood and a reservoir of water.

"When you help to preserve our forests or plant new ones you are

acting the part of good citizens. The value of forestry deserves, therefore, to be taught in the schools which aim to make good citizens of you. If your Arbor Day exercises help you to realize what benefits each one of you receives from the forests and how by your assistance these benefits may continue, they will serve a good end."

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tions in both the Standard International Trade Classification and national trade accounts would be made at the next session of the Working Party.

Participation

This first session was held under the Chairmanship of Mr. J. Keller (Switzerland). The following countries nominated representatives: Austria, Belgium, Germany, Finland, France, Italy, Netherlands, Norway, Sweden, Switzerland, United Kingdom, United States and the U.S.S.R. A representative of the Organization for European Economic Co-operation (OEEC) also participated. The Working Party decided to hold a second session in Geneva from 12-17 November 1956 when it would discuss statistics relating to manpower, forest fires, prices, end-use and investments.

All the strength and force of man comes from his faith in things unseen. He who believes is strong; he who doubts weak. Strong convictions precede great actions. The man strongly possessed of an idea is the master . . . Clear, deep, living convictions rule the world.

—James Freeman Clarke

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Apathy can only be overcome by enthusiasm, and enthusiasm can only be aroused by two things: first, an ideal which takes the imagination by storm, and, second, a definite intelligible plan for carrying that ideal into practice.

—Arnold Toynbee