

Report of the third session of the

COMMITTEE ON FORESTRY

Rome, 22-27 November 1976



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

PREVIOUS SESSIONS

- First session — Rome, 8-13 May 1972
- Second session — Rome, 22-29 May 1974

REPORT
OF THE
THIRD SESSION OF THE COMMITTEE ON FORESTRY (COFO)

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Food and Agriculture Organization of the United Nations
Rome, 1977

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MATTERS REQUIRING ATTENTION BY THE COUNCIL

A. MATTERS REQUIRING DECISION

None.

B. MATTERS FOR INFORMATION

Amendments of Rules of Procedure

The Committee adopted the amended Rules of Procedure as set out in Appendix E to this report (para. 14).

Forestry for local community development

The Committee strongly supported the efforts now being made by FAO to ensure that forestry development could contribute significantly to the enhancement of the lives of the rural poor. It recommended that forestry for community development be given high priority in FAO's programme of work. (para. 16).

Recognizing that the problems involved were not so much technical as institutional and political, the Committee recommended that national forest policies incorporate appropriate provisions supporting the establishment and management of forests for local community development. The Committee also stressed the need to influence the political will of decision-makers and to secure adequate financial resources for such development. It further recognized that other major constraints were lack of knowledge of public attitudes, scarce managerial skills, and inadequate infrastructure for mobilizing human resources to bring about and sustain community action (para. 17).

The Committee recognized that education, training and extension work should form the main components of any programme on forestry for community development and stressed that it was essential to ensure the continuity of such programme through appropriate administrative and legislative measures. It recommended that FAO organize seminars, provide training and issue practical guidelines on how to cope with the educational, organizational, legal and technical aspects of forestry for community development (para. 18).

In order to assist member countries in their endeavours to initiate action plans for community development, the Committee recommended that FAO collect and collate information relevant to the role of forestry in this development process and disseminate such information as widely as possible, indicating at the same time priorities for action. In this connection the importance of the publication of guides on the approach was stressed (para. 19).

Development of pulp and paper industries

The Committee expressed its full support for the Pulp and Paper Industries Development Programme and emphasized the need for a continuation of the Programme, at the same time stressing the urgency of the work and the need for results to be released at the earliest possible date (para. 26).

The Committee recommended that high priority be given to the development of small pulp and paper mills which had the particular advantages of relatively low overall capital cost and small market and raw material requirements. It was considered that the availability of such small mills could put investment in the industry within the reach of many developing countries, though raising the capital would remain a great problem for some countries (para. 28).

France, Japan and the United States advised the Committee of their research work into the use of mixed tropical hardwoods and gave an assurance that their research results would be available to FAO and to any interested country. The Committee stressed the importance of the transfer of technology and training to the development of this sector in developing countries and requested that particular emphasis to recommendations in these areas should be included in the reports of the Pulp and Paper Industries Development Programme (para. 32).

The importance of logging and transport operations in the forest economy of developing countries

The Committee supported the need for increased training at all levels to transmit the technology of forestry operations and transport from developed to developing countries and to adapt these systems to the socio-economic conditions prevailing in the developing countries concerned. It expressed appreciation of the seminars and training courses which had been held for training in forest operations and transport, and manuals that had been produced, and urged FAO to continue these activities in the future. It regretted that the logging courses which had previously been a joint FAO/ILO activity had not continued, and appealed to FAO and ILO to take new initiative to finance and reinstate this work (para. 35).

The Committee requested that FAO continue its efforts to establish or strengthen national or regional institutes in the field of forest operations and techniques in developing countries, in order to initiate, guide and control a continued improvement in work procedures, including the use of proper tools and equipment, in forest road planning and in the choice of transport systems (para. 36).

Marketing of tropical forest products

Tropical woods and their products play an increasingly important role in domestic and, particularly, in foreign markets. Before the last world-wide economic recession, exports reached the level of US\$ 3 500 million. While expressing its satisfaction at the high level attained in tropical wood exports, the Committee expressed its concern that (a) fluctuations in market demand were particularly accentuated for tropical timbers, (b) only a relatively few wood species were entering trade in commercial quantities, and (c) unprocessed wood in the form of logs still dominated the trade flow. The Committee also considered that consumption of tropical wood products could play a more important role in the future in socio-economic development within the producing regions themselves (para. 41).

Interrelationship between the Regional Forestry Commissions and COFO, and between the Commissions and the FAO Regional Conferences

The Committee underlined the importance of ensuring that the views of the Regional Forestry Commissions be taken into account in the course of the process of formulating FAO's Programme of Work in the field of forestry. This could only be effectively achieved if these views were available and were considered at the sessions of the respective FAO Regional Conferences, as well as at the sessions of the Committee on Forestry. The Committee took note of a proposal of the Near East Forestry Commission that Member Governments be encouraged either to include foresters in their national delegations to the Regional Conference or to ensure that forestry administrations brief their delegations on forestry issues. The Committee commended this initiative, and recommended that the Member Governments in all regions be encouraged to strengthen the presentation and consideration of forestry issues at Regional Conferences in a similar manner. Some delegates pointed out that it was desirable that Member Governments be encouraged to include foresters in their delegations to the Biennial Sessions of the FAO Conference as well (para. 45).

Periodicity and timing of the Commission Sessions

The Committee noted that if the views of the Regional Forestry Commissions were to be taken into account at the sessions of the Committee it would be necessary for the Commissions to meet in advance of the sessions of the Committee. The Committee further noted the desirability of the Commissions being able to hold sessions at the same periodicity as the Committee, namely every two years. The Committee recognized, however, the point made by the Latin American Forestry Commission that this might not be practical in all instances because several countries found it difficult to send delegations to sessions at such frequent intervals. The Committee also recognized that the holding of sessions of the Commissions had to be subject to the availability of the necessary Secretariat resources. The Committee recommended that, within these limitations, every effort be made to hold Commission sessions at regular intervals, and with a timing which would permit the Commission to transmit their views on FAO's proposed programmes of work to the Committee and to their respective Regional Conferences (para. 46).

Review of FAO's Programme of Work for the forestry sector

- General considerations

The Committee appreciated the reasons which prevented the Secretariat from presenting its programme proposals in the same analytical format adopted at its previous sessions and recommended that at future sessions information be provided in the form in which FAO's medium-term programme had been presented in 1972 to show precise figures for expenditure in the current biennium and a clear indication of future trends set out under detailed sub-heads. The Committee felt strongly that the provision of such information was necessary if it was to perform any constructive function in advising FAO on its programme of work and the priorities to be followed (para. 52).

The Committee recommended the concentration of limited resources on fewer priority areas, as proposed in Document COFO-76/9. The comments by delegates in the review of the suggested "possible actions" under the six areas of concentration revealed, however, the difficulty of arriving at a consensus on the relative priorities to be accorded to various activities. Recognizing that priorities differed at the country and regional levels, some delegates suggested that FAO should establish areas of action on a regional or sub-regional basis and spread its resources as equitably as possible to cover as wide a geographical range as resources permitted, and then establish priorities within these regional activities. Other delegates emphasized inter-regional activities and the formulation of integrated projects (para. 55).

Many delegates emphasized the importance of vocational training, particularly of forest workers. The Committee noted with satisfaction the close cooperation between FAO and ILO in this area and the fact that the criteria for FAO's Technical Cooperation Programme provided for forest workers' training, and recommended that FAO, in cooperation with ILO and other UN Agencies concerned, continue and strengthen its programmes in forest workers' training and employment in forestry (para. 57).

- Scrutiny of major areas of concentration

The Committee endorsed all six areas of concentrations set out in document COFO-76/9. The following were some considerations put forward by delegates as they reviewed each major area.

FO 1: Tropical forestry development

The Committee emphasized that high priority should be given to an action programme of forest resource surveys which would provide for the continuous qualitative and quantitative assessment of forest resources. It considered such work to be a fundamental prerequisite to good forest management and a source of data for programmes in the promotion of trade in tropical timber, forest policy analyses, planning and statistics and forest industries (para. 61).

The Committee also recognized the important role that forestry can play in food production and stressed that agri-silviculture should be regarded as an area of major concern in view of the fact that successfully executed programmes in agri-silviculture not only contributed substantially to food production but also reduced resource wastage caused by shifting cultivation (para. 62).

FO 2: Conservation

Stress was laid on the importance of training at all levels and on the need for the exchange of information in the field of conservation. The need for regional cooperation and exchange of information in connection with watershed management and torrent and avalanche control was emphasized (para. 65).

The Committee strongly supported the proposed activities under arid zone forestry, particularly the important contribution forestry could make to the rehabilitation of such disaster areas as the Sahel, and emphasized the importance of those forestry activities which were connected with the stabilization of sand dunes, protection of agricultural lands and fuelwood production. The Committee also stressed the need for land-use planning (para. 67).

FO 3: Forest industries development

The Committee endorsed FAO's proposed action in respect of forest industries and, in particular, the activities related to: expanding industrial utilization of mixed tropical wood species; studies on the feasibility of pulp and paper operations in developing countries; development of designs for small-scale mechanical wood processing industries, suitable for specific conditions of developing countries. The Committee supported FAO's orientation to go beyond the stage of industrial studies and to devote a considerable proportion of its efforts to the promotion of the actual establishment of forest-based industries in developing countries (para. 70).

The Committee felt that special emphasis should be given to medium and small-scale pulp and paper and wood-based panel industries serving domestic needs of developing countries. Wherever opportunities existed, large-scale, export-oriented industries based on indigenous resources should be promoted. FAO should also continue its work related to use of wood as a source of energy in the form of charcoal, domestic and industrial fuel (para. 71).

FO 4: Promotion of trade in tropical timber

The Committee emphasized the advantages of international collaboration in the tropical timber field. The similar technical and botanical characteristics of the products of the tropical regions allowed a common approach to marketing and there was a need to develop a common understanding of consumer requirements with the aim of developing and diversifying trade on a world-wide scale. It was recognized that FAO was playing an important role in these areas and in particular that it had established contact and planned to forge closer collaboration with the newly established Inter-African Organization on Forest Economy and the Trade of Wood (ATO) (para. 76).

Attention was drawn to the exploratory meeting of the International Trade Centre, held in order to study the feasibility of establishing an international tropical timber bureau. The need for close collaboration and cooperation between ITC and FAO in this matter was emphasized (para. 77).

FO 5: Forestry institutions

The Committee recognized that forestry education and training were important activities concerned with all areas of concentration and stressed that the main thrust of FAO's work should be in this sector, with particular emphasis on vocational training and the creation of better employment opportunities. In this context, the Committee suggested that regional surveys should be conducted to appraise education and training needs in forestry and forest industries in cooperation with national institutions and that the results of these surveys should form the basis of FAO's future programmes in this area (para. 79).

The Committee emphasized that training activities in public relations and extension should be continued and strengthened, especially within the framework of forestry for rural development. In respect to training programmes, the Committee suggested that FAO should follow up its past training courses more closely for impact assessment and for obtaining feedback necessary for improving future education and training activities (para. 80).

While recognizing that fundamental research was outside the scope of FAO, the Committee stressed the need for more practical and development-oriented research and welcomed the growing and closer cooperation between FAO and IUFRO and with national research institutions in the design and implementation of appropriate research programmes and in the training of research workers from developing countries (para. 82).

FO 6: Forest policy analysis, planning and statistics

The Committee emphasized the importance of statistics, analysis and planning, particularly as this area of activities was basic to most other activities within forestry (para. 83).

The Committee drew attention to the essential role of analysis and planning in developing priority activities such as forestry projects for community development and emphasized the importance of information and its analysis in identifying, evaluating and planning investment in forestry and forest industries. The importance of this area of activities was stressed in the context of the new orientation of FAO's programmes, namely assistance to member countries, on request, to analyse national development plans and potentials and the nature of the investment and assistance needed to implement them (para. 84).

The Committee recognized that past FAO studies on regional and world forest products trends and outlook had proved very valuable to industrial enterprises, governments and international agencies and that it was desirable to continue and even intensify this work (para. 85).

Review of forestry field programmes

Requests for forestry field projects had, during the past decade, always been above the level of funds available from UNDP and other sources. The Committee expressed great concern over the fact that this situation had become more serious as a result of the UNDP financial crisis (para. 92).

The Committee welcomed the fact that two donor governments, Belgium and the Netherlands had broadened their Associate Expert scheme by accepting candidates not only from their own countries but also from developing countries. It recommended that other governments participating in the Associate Expert scheme make similar arrangements which would constitute a most valuable improvement to this scheme (para. 94).

The Committee stressed that it was the role of the authorities of the recipient country to define project objectives. Annual reviews of projects had proved useful in ensuring that projects progressed along programmed lines so that the international component could be terminated on schedule and the work continued with local expertise. The key role in this process was performed by the project personnel, both national and international. For the latter, experience, goodwill, character and ability to pass on technical know-how were decisive. The recruiting agency had to ensure that international experts had these qualities and did not enter into assignments with ready-made concepts but applied their knowledge and experience in the light of local conditions and in close collaboration with the national counterparts. International experts had to be prepared to share not only the ambitions of the counterpart agency but also the difficulties of the host country (para 98).

The Committee agreed that forests could, and should, play an essential role in overall economic and social development as well as in environmental conservation. In the new economic order recommended by the UN General Assembly, forests and their products were important elements for the promotion of industrialization and trade. In order to equip the forestry sector to make an appropriate contribution to the desired development, its substantial strengthening was required and to this end, international aid of sufficient duration and at a continued high level was regarded as indispensable. (para. 99).

Eighth World Forestry Congress

The Committee considered the Government of Indonesia's generous offer to hold the Eighth World Forestry Congress in Jakarta in 1978, the dates of which would most likely be from 16 - 28 October. There was general support for the principal theme, which had been provisionally chosen: 'Forests for People' and for the sub-themes which had been suggested. It was agreed that forest education for the public be included in the programme. Appreciation was expressed of the Indonesian Government's intention to organize study tours to forest areas in Central Java, Kalimantan and Bali. The importance was stressed that the proceedings of the Congress should be made ready for printing and distribution to participants within a reasonably short time (para. 100).

INTRODUCTION

1. The Third Session of the Committee on Forestry of the FAO Council was held at FAO Headquarters, Rome, Italy, from 22 to 27 November 1976.
2. The Session was attended by delegations from 55 Members of the Committee, by observers from 5 other FAO Member Nations, Angola (applicant for FAO membership) and from the Holy See, by representatives of the United Nations, the Economic Commission for Europe, the International Labour Organization, the World Bank and the European Economic Community, as well as by observers from 7 other organizations. A full list of the participants is given in Appendix B.
3. The Session was opened by Chairman A.M. Oseni (Nigeria), who welcomed the delegates to the Session.
4. FAO was represented by E. Saouma, Director-General. He was assisted by R. Jackson, Deputy Director-General, and by K.F.S. King, Assistant Director-General, head of the Forestry Department. The opening statement by the Director-General is presented in Appendix D.

Inaugural Lecture

5. The inaugural lecture on the theme "Forestry and Agriculture - Competition or Cooperation" was given by Nils A. Osara, Senior Adviser of Jaakko Pöyry & Co. of Finland. A full text of this lecture is given in Appendix F.

Adoption of the Agenda

6. The Agenda was adopted. The Agenda is set out in Appendix A to this report. The List of Documents is given in Appendix C.

Election of Officers and Designation of Drafting Committee

7. The Committee elected unanimously as

Chairman:	S.K. Seth (India)
First Vice-Chairman:	M.A. Al-Jabouri (Iraq)

8. As Vice-Chairmen representing the remaining FAO Regions (Africa, Europe, Latin America, North America and Southwest Pacific), the following were elected:

D. Baba (Chad)
M. J. Conway (New Zealand)
M. Flores-Rodas (Honduras)
J. A. Mistrík (Czechoslovakia)
J.S. Stokes (Canada)

9. The Chairman, in consultation with the Vice-Chairmen, appointed the following to the Drafting Committee:

D. U. Antonio (Philippines)
R. E. Buckman (USA)
M. Daghfous (Tunisia)
D.F. Davidson (UK)
J.R. Gomez Ricaño (Cuba)
K. Soundele (Ivory Coast)

M. Daghfous was elected Chairman of the Drafting Committee.

Legal Issues: Amendment of Rules of Procedure

10. The Committee noted that the FAO Conference, at its 18th session (November 1975), had adopted several amendments to the provisions of the General Rules of the Organization (GRO) relating to the acquisition of membership in the "open" committees of the FAO Council and to the convening of sessions of such committees. This made it necessary to amend the Rules of Procedure of the Committee in order to bring them into line with the amendments introduced by the FAO Conference.

11. Consequently, the Committee adopted the following amendments to its Rules of Procedure:

- (a) In paragraph 1 of Rule I, the words "after the appointment of its members by the Council, pursuant to Rule XXXI.1 of the General Rules of the Organization" are replaced by the words "in each biennium".
- (b) In paragraph 1 of Rule II, the references to the General Rules of the Organization are amended to read "Rule XXXI.4 and 5".
- (c) Paragraphs 2 and 3 of Rule II are deleted and the remaining paragraphs of Rule II are renumbered accordingly.

12. In order to bring its Rules of Procedure into line with Rule XXXI.9 GRO as amended by Conference Resolution 10/73, the Committee decided to insert, at the end of Rule VII paragraph 1 of its Rules of Procedure the words "any of its Specialized Agencies or the International Atomic Energy Agency".

13. The Committee also adopted the following amendments, designed to improve the text of its Rules:

- (a) Replacement of the term "non-member Nation" by "non-member State", to conform with FAO terminology (Rule III.2 and 3(b); IV.1; VI.2 and 3; VII.3). 1/
- (b) Use of the term "Members" throughout the Rules when referring to the Members of the Committee (Rules I.1; II.5 and 6; V.1 and 2; VI.3; VII.1; VIII).
- (c) Deletion from the footnote to Rule III.1 of the reference to "Principles and Procedures which should govern conventions and agreements concluded under Articles XIV and XV of the Constitution and Commissions and Committees established under Article VI of the Constitution", since the Committee on Forestry was established under Article V of the Constitution.

14. The amendments specified in the foregoing paragraphs were adopted unanimously by the Committee and are incorporated in the consolidated version of the Rules of Procedure as reproduced in Appendix E to this report.

1/ This amendment applies to the English text only; the French and Spanish versions conform with the FAO terminology.

FOREST POLICY ISSUES

Forestry for Local Community Development

15. In introducing the Secretariat Note, COFO-76/3, on this subject, the Assistant Director-General, K.F.S. King voiced FAO's concern about the plight of the rural poor in the developing countries and said that their misery could be alleviated through a basic change in FAO's forestry development philosophy. He noted that forest policies which were extant in the developing countries could make a significant contribution to the overall development of national economies. He stressed, however, that a new dimension of forestry was needed, a dimension which was able to contribute to food production and to arrest, and in some cases reverse, the impoverishment of rural areas. He stressed that forest policies should be so formulated and forest administrative services so structured that the management of much of the forests of the developing countries should be for the production of goods and services which were intended to improve the living conditions of rural communities to raise their levels of employment and income and to make wise use of available renewable natural resources. In particular, the widespread adoption of agri-silvicultural techniques which would involve the combined production of food crops, livestock and tree crops was most important. He emphasized that what was being advocated was not the abandonment of forestry production to serve forest industries but the total utilization of the ecosystem - rather than the partial utilization which occurred currently. Another objective was to enhance the flow of benefits from forestry activity to the rural poor rather than mainly to the urban dweller. Forestry for community development, a type of forestry which was practised for, by and on behalf of local communities, could contribute to this goal.

16. The Committee strongly supported the efforts now being made by FAO to ensure that forestry development could contribute significantly to the enhancement of the lives of the rural poor. It recommended that forestry for community development be given high priority in FAO's programme of work.

17. Recognizing that the problems involved were not so much technical as institutional and political, the Committee recommended that national forest policies incorporate appropriate provisions supporting the establishment and management of forests for local community development. The Committee also stressed the need to influence the political will of decision-makers and to secure adequate financial resources for such development. It further recognized that other major constraints were lack of knowledge of public attitudes, scarce managerial skills, and inadequate infrastructure for mobilizing human resources to bring about and sustain community action.

18. The Committee recognized that education, training and extension work should form the main components of any programme on forestry for community development and stressed that it was essential to ensure the continuity of such programme through appropriate administrative and legislative measures. It recommended that FAO organize seminars, provide training and issue practical guidelines on how to cope with the educational, organizational, legal and technical aspects of forestry for community development.

19. In order to assist member countries in their endeavours to initiate action plans for community development, the Committee recommended that FAO collect and collate information relevant to the role of forestry in this development process and disseminate such information as widely as possible, indicating at the same time priorities for action. In this connection the importance of the publication of guides on the approach was stressed.

20. The Committee noted with interest the excellent examples cited by several delegates of integrated agro-silvo-pastoral land use practices, and of the establishment and management of farm wood-lots in their countries. It agreed on the usefulness of establishing focal points of development within forests, of considering the watershed as a management unit, and that the production of marketable goods would be an important benefit of forestry for community development.

21. The Committee noted with appreciation that the Swedish International Development Authority (SIDA), the International Development Research Centre and the CIDA of Canada were actively engaged in projects in the area of "Forestry for Community Development" and that FAO had indicated support for a coordinated and comprehensive effort in this field.

22. The Committee noted that forestry for community development was not an alternative to conventional forestry practice but rather a complement to it. In recognizing certain past failures in attempts to establish community forests on poor sites, the Committee recommended that care should be taken to ensure that the presentation of proposals to rural communities should not be over-optimistic. The success of such programmes was primarily dependent on the active involvement of the local communities.

Development of Pulp and Paper Industries

23. K. Sargent, Coordinator of the FAO/UNDP Pulp and Paper Industries Development Programme, introduced this topic presenting "A Review of the International Pulp and Paper Sector with Particular Reference to Development Trends" (COFO-76/4). He emphasized the recent trend throughout the world pulp and paper industry for the installation of new capacity to be restricted thus causing supply to fall behind continuing expansion of requirements. Paper was recognized as being vital to the attainment of development goals in education, the eradication of illiteracy and the more effective storage and distribution of food. However, as paper supply was likely to become increasingly difficult and expensive, developing countries should take steps to ensure their supplies through self-sufficiency, particularly in cultural and packaging papers.

24. The concept of strategically located and economically viable small pulp and paper mills, in the capacity range of 100 to 200 tons per day, appeared technically feasible. Based on local fibre resources, such mills could meet the quality requirements of the domestic market. It was suggested, therefore, that priority should be given to the installation of mills of this type as they would provide growth points for future development.

25. He outlined the main areas of work of the Pulp and Paper Industries Development Programme, indicating that the project team was working in close collaboration with the FAO Pulp and Paper Branch and through a Review Committee, worked with other interested United Nations Agencies and especially the World Bank, as well as representatives from the pulp and paper industry.

26. The Committee expressed its full support for the Pulp and Paper Industries Development Programme and emphasized the need for a continuation of the Programme, at the same time stressing the urgency of the work and the need for results to be released at the earliest possible date.

27. The Committee endorsed the proposals made for the development of the domestic 'self-sufficiency' concept, pointing out various advantages, the major one being the use of logging and mill residues and presently unutilized species which would result in a better use of all forest resources.

28. The Committee recommended that high priority be given to the development of small pulp and paper mills which had the particular advantages of relatively low overall capital cost and small market and raw material requirements. It was considered that the availability of such small mills could put investment in the industry within the reach of many developing countries, though raising the capital would remain a great problem for some countries.

29. The small mill concept, which was a reversal of the trend toward super-large mills, could play an important role in stimulating the use of scattered forests for which the logistical transport problems were too great for the needs of large mills. The small mill, if properly located, could utilize forest resources which were now being wasted in some countries. It was suggested that pulp and paper mills should be located as close as possible

to sawmills and other wood-based industries in order to take advantage of potentially lower priced fibre, the existence of infrastructure and skilled, or at least semi-skilled, personnel. It was further stressed that the mill should be sited near lands which were suitable for plantation species, presuming that plantations were to follow clearfelling of the indigenous forest, and not sited only to take advantage of the existing hardwoods.

30. The Committee stressed the importance of environmental control ensuring a high standard of pollution abatement. Those standards should not be sacrificed in the search for minimum capital or operating costs.

31. It was considered that the small mill should be seen as an important means of bringing economic development to rural communities. At the same time it had to be borne in mind that considerations for the supply of fuelwood and other wood for rural purposes might be paramount. The approach to investment in the pulp and paper sector should be integrated with other objectives of community development.

32. France, Japan and the United States advised the Committee of their research work into the use of mixed tropical hardwoods and gave an assurance that their research results would be available to FAO and to any interested country. The Committee stressed the importance of the transfer of technology and training to the development of this sector in developing countries and requested that particular emphasis to recommendations in these areas should be included in the reports of the Pulp and Paper Industries Development Programme.

The Importance of Logging and Transport Operations in the Forest Economy of Developing Countries

33. In introducing this item H. Chauvin, Chief, FAO Logging Branch, emphasized the importance of logging and transport as vital links in the forestry production chain. Efficiency in these operations was not only essential for sound management and the control of the utilization of natural resources but would contribute to improved earnings and higher employment in the sector as well as to the sound development of forest industries. Indeed, improvement in logging and transport was an essential component in the contribution of the forestry sector to economic and social development.

34. The Committee recognized the employment potentials of forestry and underlined the role which the promotion of employment played in the context of forestry for community development. In this connection it was underlined that methods calling for only small capital investment and little mechanization could achieve good economic results. As the fields of harvesting and transport were the most labour-consuming areas of forestry work, the Committee considered that emphasis should be given to continuation of the information and training activities carried out at present. Particular attention was drawn to the need to stabilize forest work and for that reason the artificial border between forest operations and techniques and silviculture should be eliminated.

35. The Committee supported the need for increased training at all levels to transmit the technology of forestry operations and transport from developed to developing countries and to adapt these systems to the socio-economic conditions prevailing in the developing countries concerned. It expressed appreciation of the seminars and training courses which had been held for training in forest operations and transport, and manuals that had been produced, and urged FAO to continue these activities in the future. It regretted that the logging courses which had previously been a joint FAO/ILO activity had not continued, and appealed to FAO and ILO to take new initiative to finance and reinstate this work.

36. The Committee requested that FAO continue its efforts to establish or strengthen national or regional institutes in the field of forest operations and techniques in developing countries, in order to initiate, guide and control a continued improvement in work procedures, including the use of proper tools and equipment, in forest road planning and in the choice of transport systems.

37. Stress was laid on the importance of the collection and compilation of transport and harvesting data from countries with the forest resources to provide a basis for studies necessary for investment in new or expanding forest industries. The work being carried out on extending inventory methodology to include assessment of accessibility of forest resources as the link between the inventory work and the harvesting and transport activities was supported.

38. The Committee considered that organization and management of forest production, logging and silviculture should be closely integrated. Currently existing systems of production should not automatically be accepted, but improved to fit the developing needs and circumstances of forestry production. Cost aspects of logging and transport were often of paramount importance. Forest authorities ought to assume much of the responsibility for adopting forms of production which allowed reduction of cost and promotion of employment. Forestry agencies had to be adequately equipped to execute, control and monitor the work in the field of logging and transport.

39. The Committee noted that much more raw material could be utilized if better logging and transport methods were used, and urged FAO to work towards better utilization of forest resources.

Marketing of Tropical Forest Products

40. The Committee considered Secretariat Note COFO-76/6, introduced by T. Erfuth, which reviewed recent trends in tropical forest products trade and the development of market potential of tropical forests through international collaboration.

41. Tropical woods and their products play an increasingly important role in domestic and, particularly, in foreign markets. Before the last world-wide economic recession, exports reached the level of US\$ 3 500 million. While expressing its satisfaction at the high level attained in tropical wood exports, the Committee expressed its concern that (a) fluctuations in market demand were particularly accentuated for tropical timbers, (b) only a relatively few wood species were entering trade in commercial quantities, and (c) unprocessed wood in the form of logs still dominated the trade flow. The Committee also considered that consumption of tropical wood products could play a more important role in the future in socio-economic development within the producing regions themselves.

42. The Committee emphasized the direct relationship between marketing and the development of wood-based industries and the management of the tropical forest resource. The planning and performance of the latter two operations should be closely related to markets. The advantages of the integrated industrial use of wood and its residues, with a view to obtaining maximum value from individual species and groups of species, should be fully recognized.

43. The Committee recognized the fact that tariffs frequently hampered the expansion of trade in tropical wood, particularly in its various processed forms. It was emphasized that other types of barrier to trade were often of major significance, and in this context attention was drawn to the importance of harmonization of grading rules, of product inspection and control and treatment, proper labelling in different languages and the assurance of steady supplies to the user.

MATTERS REFERRED TO THE ATTENTION OF THE COMMITTEE BY THE REGIONAL FORESTRY COMMISSIONS AND NOT RELATED TO OTHER ITEMS OF THE AGENDA

44. In compliance with the request made by the Committee at its Second Session, the Committee was informed of the outcome of discussions at sessions of the Regional Forestry Commissions on matters concerning the Programme of Work and on matters of a multi-regional nature. The relevant discussions of the five Regional Forestry Commissions which had met since the Second Session of the Committee were reported on in Secretariat Note COFO-76/7. The Committee noted that three of the five subjects reported upon were taken up elsewhere in its agenda and its discussion under this agenda item was therefore confined to the two remaining subjects.

(a) Interrelationship between the Regional Forestry Commissions and COFO, and between the Commissions and the FAO Regional Conferences

45. The Committee underlined the importance of ensuring that the views of the Regional Forestry Commissions be taken into account in the course of the process of formulating FAO's Programme of Work in the field of forestry. This could only be effectively achieved if these views were available and were considered at the sessions of the respective FAO Regional Conferences, as well as at the sessions of the Committee on Forestry. The Committee took note of a proposal of the Near East Forestry Commission that member governments be encouraged either to include foresters in their national delegations to the Regional Conference or to ensure that forestry administrations brief their delegations on forestry issues. The Committee commended this initiative, and recommended that the member governments in all regions be encouraged to strengthen the presentation and consideration of forestry issues at Regional Conferences in a similar manner. Some delegates pointed out that it was desirable that member governments be encouraged to include foresters in their delegations to the Biennial Sessions of the FAO Conference as well.

(b) Periodicity and Timing of the Commissions' Sessions

46. The Committee noted that if the views of the Regional Forestry Commissions were to be taken into account at the sessions of the Committee it would be necessary for the Commissions to meet in advance of the sessions of the Committee. The Committee further noted the desirability of the Commissions being able to hold sessions at the same periodicity as the Committee, namely every two years. The Committee recognized, however, the point made by the Latin American Forestry Commission that this might not be practical in all instances because several countries found it difficult to send delegations to sessions at such frequent intervals. The Committee also recognized that the holding of sessions of the Commissions had to be subject to the availability of the necessary Secretariat resources. The Committee recommended that, within these limitations, every effort be made to hold Commission sessions at regular intervals, and with a timing which would permit the Commissions to transmit their views on FAO's proposed programmes of work to the Committee and to their respective Regional Conferences.

47. Many delegates drew attention to the lengthy interval that had elapsed since the last meeting of the AFC/EFC/NEFC Committee on Mediterranean Forestry Questions "Silva Mediterranea". The importance of the work carried out under the auspices of this Committee, not only to countries of the Mediterranean region but also to other parts of the world with similar conditions, was recalled and the desirability of reactivating this work was stressed. The attention of the Committee was drawn to the fact that a number of other agencies and bodies including UNEP, Unesco and the Council of Europe, were giving increasing attention to Mediterranean problems, including problems previously dealt with by the "Silva Mediterranea", and that FAO was now pursuing its work in this area in cooperation with them. The Committee, recognizing the need to avoid duplication, recommended that, subject to the availability of sufficient resources, "Silva Mediterranea" continue to play its role in this joint effort in the future.

REVIEW OF FAO'S PROGRAMME OF WORK FOR THE FORESTRY SECTOR

48. The Committee considered Item 9 (Revision of the Forestry Department's Programme of Work for 1976-77) together with Item 11 (Future Programmes of Work of the Forestry Department).

49. In introducing Item 9, the Assistant Director-General, K.F.S. King, drew attention to the fact that decisions on the programme of work for the current biennium were outlined in a general review (Doc. CL 69/2) and approved by the Conference and thus had already been accepted as FAO policy. The Secretariat, nevertheless, deemed it important to inform the Committee about major changes in the programme of work and budget of the Forestry Department for 1976-77. The main implications for the Department were (1) reduction in the number of meetings and publications programmed, (2) the cancellation of all new posts and (3) a reduction in budget. The Committee was assured, however, that through a number of internal adjustments, the Department had already been able to accommodate to the new policies and was able to launch a number of major activities even as the Organization's policies, programmes and structures were being reviewed.

50. In introducing Item 11 of the Agenda, K.F.S. King emphasized that Secretariat Note COFO-76/9 was not an "advance version of the Department's proposals for its programme of work for the coming biennium" for the reasons stated in the Note. He pointed out that the FAO Council would be considering, at its Seventieth Session, the "structure of FAO's Programme of Work and Budget for 1978-79" and that soon after, the Department expected to receive the Director-General's decisions and directives on overall priorities.

51. The Secretariat Note COFO-76/9 was based on advice given by the last FAO Conference, past sessions of the Committee on Forestry and by the Regional Forestry Commissions and was meant to assist the Committee to define its own preferences and priorities. He emphasized that it was for the Committee to determine and advise the Director-General on both the programmes to be undertaken and on the method of their implementation within the context of the new policies and orientations adopted by the FAO Council in respect of FAO's future programmes.

- General Considerations

52. The Committee appreciated the reasons which prevented the Secretariat from presenting its programme proposals in the same analytical format adopted at its previous sessions and recommended that at future sessions information be provided in the form in which FAO's medium-term programme had been presented in 1972 to show precise figures for expenditure in the current biennium and a clear indication of future trends set out under detailed sub-heads. The Committee felt strongly that the provision of such information was necessary if it was to perform any constructive function in advising FAO on its programme of work and the priorities to be followed.

53. The Committee stated its support of the new programme orientations established by the FAO Governing Bodies. The Committee, however, expressed its deep concern at the steadily declining share of forestry in the total FAO budget in recent biennia.

54. Many delegates pointed out that whereas foresters recognized the need for priority attention to be given to programmes concerned with food production, they regretted the fact that forestry's potential role in this sector, particularly in the context of wood for fuel, agri-silviculture, soil and water conservation, climatic amelioration and control of desertification, was not equally recognized by all decision makers. In this respect, the Delegate of Austria drew the attention of the Committee to the need to promote the use of forests in the conservation of natural resources, particularly in mountainous regions, and stressed that laws in themselves, though important, were not enough and that people needed to be better informed on the problems of watershed management and the rational utilization

of mountainous areas. He offered to share the experiences of his country in this field with others. Other delegates pointed out the dangers of the accelerating degradation of natural resources which was proceeding, particularly desertification, and wondered whether the International Fund for Agricultural Development (IFAD) could help in this matter.

55. The Committee commended the concentration of limited resources on fewer priority areas, as proposed in Document COFO-76/9. The comments by delegates in the review of the suggested 'possible actions' under the six areas of concentration revealed, however, the difficulty of arriving at a consensus on the relative priorities to be accorded to various activities. Recognizing that priorities differed at the country and regional levels, some delegates suggested that FAO should establish areas of action on a regional or sub-regional basis and spread its resources as equitably as possible to cover as wide a geographical range as resources permitted, and then establish priorities within these regional activities. Other delegates emphasized inter-regional activities and the formulation of integrated projects.

56. A number of delegates raised the need for strengthening forestry in the FAO regional offices and drew particular attention to the very limited resources available in the African Regional Office in relation to the large number of countries it was expected to serve. Concern was also expressed that the resources of the Regional Office for Europe be maintained at a level sufficient to permit continuation of ongoing activities which were of value both to Europe and to the other regions. The Committee, however, decided that in view of the fact that the regional structure of FAO was under review, the matters concerned with regional offices raised in the Committee could not be dealt with until the outcome of this review was known.

57. Many delegates emphasized the importance of vocational training, particularly of forest workers. The Committee noted with satisfaction the close cooperation between FAO and ILO in this area and the fact that the criteria for FAO's Technical Cooperation Programme provided for forest workers' training, and recommended that FAO, in cooperation with ILO and other UN Agencies concerned, continue and strengthen its programmes in forest workers' training and employment in forestry.

58. Whereas 'Forestry for Local Community Development' did not constitute a separate area of concentration in Document COFO-76/9, the Committee was informed that this dimension of FAO's work was considered as being concerned with all the suggested areas and the Committee noted with satisfaction that FAO Departments concerned were cooperating fully with the Forestry Department in developing a fairly broad and comprehensive programme with support from the Swedish International Development Authority (SIDA).

- Scrutiny of Major Areas of Concentration

59. The Committee endorsed all six areas of concentration set out in Document COFO-76/9. The following were some considerations put forward by delegates as they reviewed each major area.

- FO.1: Tropical Forestry Development

60. The Committee was unanimous in its support of this area of concentration. Recognizing that the managerial problems and low productivity inherent in natural tropical forests were a consequence of a highly heterogeneous species composition, the Committee agreed that the future programme of work should focus on the transformation of these forests into more homogeneous entities by encouraging the evolution of new methods of silvicultural management and, especially, the establishment of plantations. In particular, the Committee noted that successful plantation programmes required adequate supplies of high quality seed and, therefore, strongly supported the continuation and expansion of activities in forest genetic resources and tree improvement.

61. The Committee emphasized that high priority should be given to an action programme of forest resource surveys which would provide for the continuous qualitative and quantitative assessment of forest resources. It considered such work to be a fundamental prerequisite to good forest management and a source of data for programmes in the promotion of trade in tropical timber, forest policy analyses, planning and statistics and forest industries.

62. The Committee also recognized the important role that forestry can play in food production and stressed that agri-silviculture should be regarded as an area of major concern in view of the fact that successfully executed programmes in agri-silviculture not only contributed substantially to food production but also reduced resource wastage caused by shifting cultivation.

63. The Committee emphasized that the development needs of sub-tropical and arid zones merited equal attention to that given to dense high forests.

64. The Committee heard with interest a proposal from the representative of IUFRO for the organization jointly by FAO and IUFRO of a technical consultation on fast-growing hardwoods during the 1978-79 biennium. The hope was expressed that the necessary resources would be made available.

- FO.2: Conservation

65. Most delegations gave high priority to conservation in their remarks on the proposed FAO programme in this area, particularly those whose countries lie within the arid and semi-arid regions of the tropics. Stress was laid on the importance of training at all levels and on the need for the exchange of information in the field of conservation. The need for regional cooperation and exchange of information in connection with watershed management and torrent and avalanche control was emphasized.

66. The role of forest conservation in relation to the environment, particularly with respect to soil and the management of water resources, was stressed by delegates and emphasis was given to the need to conserve vegetative cover in the context of preventing erosion, particularly in mountainous areas.

67. The Committee strongly supported the proposed activities under arid zone forestry, particularly the important contribution forestry could make to the rehabilitation of such disaster areas as the Sahel, and emphasized the importance of those forestry activities which were connected with the stabilization of sand dunes, protection of agricultural lands and fuelwood production. The Committee also stressed the need for land-use planning.

68. One delegation considered that there was a need to separate the conservation activities connected with vegetation from those pertaining to wildlife. Some delegations felt that national park management should not be given high priority.

69. Some delegations pointed out that in view of differing ecological conditions and development needs in the different regions, a treatment of priorities on a regional basis would present a more realistic approach in respect of this priority area.

- FO.3: Forest Industries Development

70. The Committee endorsed FAO's proposed action in respect of forest industries and, in particular, the activities related to: expanding industrial utilization of mixed tropical wood species; studies on the feasibility of pulp and paper operations in developing countries; development of designs for small-scale mechanical wood processing industries, suitable for specific conditions of developing countries. The Committee supported FAO's orientation to go beyond the stage of industrial studies and to devote a considerable proportion of its efforts to the promotion of the actual establishment of forest-based industries in developing countries.

71. The Committee felt that special emphasis should be given to medium and small-scale pulp and paper and wood-based panel industries serving domestic needs of developing countries. Wherever opportunities existed, large-scale, export-oriented industries based on indigenous resources should be promoted. FAO should also continue its work related to use of wood as a source of energy in the form of charcoal, domestic and industrial fuel.

72. The Committee stressed that in the field of logging and forest operations increased activity should be undertaken in vocational training, which was a stabilizing factor in forest work.

73. The Committee felt that more research should be undertaken in various fields of logging and transportation and that FAO should strengthen its cooperation with research institutes covering this subject and promote the establishment of new research and training organizations which could help solve the logging and transportation problems specific to developing countries.

74. The Committee also felt that FAO should provide guidelines to the developing countries concerning simple tools and equipment which could be used for labour-intensive logging operations.

- FO.5: Promotion of Trade in Tropical Timber

75. The Committee stressed the need for world-wide information on markets and products and considered that this was an important link between tropical timber producing countries and consuming countries and commended, in this context, the work done by FAO in monitoring the tropical timber trade and welcomed the publication of the Monthly Bulletin and its Quarterly Supplement on Tropical Forest Products in World Timber Trade. The Committee considered the speedy issue of the Monthly Bulletin of paramount importance and was pleased to note that major importing countries and a considerable number of exporting countries were cooperating in providing, timely, the necessary data. The Committee suggested that data on coniferous products from the tropics should be included in the Monthly Bulletin when available. The Committee further felt that data on imports by tropical countries should also be included.

76. The Committee emphasized the advantages of international collaboration in the tropical timber field. The similar technical and botanical characteristics of the products of the tropical regions allowed a common approach to marketing and there was a need to develop a common understanding of consumer requirements with the aim of developing and diversifying trade on a world-wide scale. It was recognized that FAO was playing an important role in these areas and in particular that it had established contact and planned to forge closer collaboration with the newly established Inter-African Organization on Forest Economy and the Trade of Wood (ATO).

77. Attention was drawn to the exploratory meeting of the International Trade Centre, held in order to study the feasibility of establishing an international tropical timber bureau. The need for close collaboration and cooperation between ITC and FAO in this matter was emphasized.

78. The Committee noted with appreciation the existing close collaboration between the UNCTAD Secretariat and FAO with regard to following up action resulting from the resolution of UNCTAD IV on the Integrated Programme of Commodities and the arrangements for a Preparatory Meeting on Tropical Timber in June 1977.

- FO.5: Forestry Institutions

79. The Committee recognized that forestry education and training were important activities concerned with all areas of concentration and stressed that the main thrust of FAO's work should be in this sector, with particular emphasis on vocational training and the creation of better employment opportunities. In this context, the Committee suggested that regional surveys should be conducted to appraise education and training needs in forestry and forest industries in cooperation with national institutions and that the results of these surveys should form the basis of FAO's future programmes in this area.

80. The Committee emphasized that training activities in public relations and extension should be continued and strengthened, especially within the framework of forestry for rural development. In respect to training programmes, the Committee suggested that FAO should follow up its past training courses more closely for impact assessment and for obtaining feedback necessary for improving future education and training activities.

81. The Committee underlined the need to evolve new administrative structures, to strengthen managerial capabilities and to adopt appropriate legislative measures to give effect to changing national objectives regarding forest resource utilization and establishment of forests for local community development and recognized FAO's work, particularly in the field of forest legislation.

82. While recognizing that fundamental research was outside the scope of FAO, the Committee stressed the need for more practical and development-oriented research and welcomed the growing and closer cooperation between FAO and IUFRO and with national research institutions in the design and implementation of appropriate research programmes and in the training of research workers from developing countries.

FO.6: Forest Policy Analysis, Planning and Statistics

83. The Committee emphasized the importance of statistics, analysis and planning, particularly as this area of activities was basic to most other activities within forestry.

84. The Committee drew attention to the essential role of analysis and planning in developing priority activities such as forestry projects for community development and emphasized the importance of information and its analysis in identifying, evaluating and planning investment in forestry and forest industries. The importance of this area of activities was stressed in the context of the new orientation of FAO's programmes, namely assistance to member countries, on request, to analyse national development plans and potentials and the nature of the investment and assistance needed to implement them.

85. The Committee recognized that past FAO studies on regional and world forest products trends and outlook had proved very valuable to industrial enterprises, governments and international agencies and that it was desirable to continue and even intensify this work.

86. The Committee expressed its satisfaction with the new series of the journal *Unasylva*. The view was expressed that it now stood in the front rank of professional forestry journals.

Review of Forestry Field Programmes

87. The field programmes of the FAO Forestry Department were considered by the Committee on the basis of the Secretariat Note COFO-76/8 presented by L. Huguet, Director of the Department's Operations Service. The Committee's deliberations were focussed on (1) a critical review of the programme of the last two years; (2) UNDP's financial crisis and its effects on the forestry field programme; (3) the main recommendations and decisions of the last meetings of the FAO Conference and Council covering the field programme, especially the decision to set up a Technical Cooperation Programme within FAO.

88. The total value of international aid to FAO's forestry field programme was expected to reach, in 1976, the level of about US\$ 19 million of which no less than US\$ 16 million or some 85 percent was provided by UNDP. However, the value of the forestry programmes financed from trust funds was steadily growing; from US\$ 2.4 million in 1974 to US\$ 2.8 million in 1975 and US\$ 3.5 million in 1976.

89. Because of delays in the implementation of activities UNDP adopted in 1974 a speedier procedure in the approval of projects. The effect of this was felt almost immediately and resulted in an increase of more than 5 percent during 1974 in the volume of forestry field operations over 1973 and in an increase of 22 percent in 1975 over 1974 expressed in constant US\$. Thus UNDP forestry activities reached, in 1975, a record high with US\$ 16.5 million.

90. While FAO's 1975 commitment with UNDP increased, together with that of other executing agencies, the costs of field activities were rising due to world-wide inflation. At the same time, some countries were slow in paying their contribution to UNDP which held a rather large quantity of currency that was difficult to convert. These factors contributed to the serious financial crisis of UNDP. The measures taken by UNDP to tackle its financial problems were drastic and took almost immediate effect resulting in a decrease of forestry field activities from US\$ 16.5 million in 1975 to about US\$ 14 million in 1976 (in constant dollars), i.e., by about 15 percent.

91. The Committee noted with regret that, in spite of the strenuous joint efforts of national cooperating agencies and FAO, many forestry projects in which cooperating governments had invested substantial effort and money, had to be drastically curtailed during the last 12 months. Some of them even had to be abruptly terminated, resulting in waste, making proper programming impossible and producing insecurity and lack of confidence instead of steady progress. The Committee noted with serious concern the prospect of a continued decrease in UNDP aid to forestry.

92. Requests for forestry field projects had, during the past decade, always been above the level of funds available from UNDP and other sources. The Committee expressed great concern over the fact that this situation had become more serious as a result of the UNDP financial crisis.

93. In contrast to UNDP finance, multi-bilateral aid (aid from national donors channelled through international agencies) to forestry had continued to increase though its total amount was yet relatively small: about US\$ 3.5 million in 1976 or about 15 percent of the total of the FAO Forestry Department's field activities.

94. The only component of trust fund activities in the forestry sector which had experienced some decline in recent years was that concerning Associate Experts: the number of associate experts had decreased from 67 in 1974 to 56 at present. The Committee welcomed the fact that two donor governments, Belgium and the Netherlands, had broadened their Associate Expert scheme by accepting candidates not only from their own countries but also from developing countries. It recommended that other governments participating in the Associate Expert scheme make similar arrangements which would constitute a most valuable improvement to this scheme.

95. The chief sources of multi-bilateral aid to forestry were Sweden (about 1/2 of the total), Switzerland and Finland (about 15 percent each), Norway and Iraq (about 5 percent each) and Denmark (3 percent).

96. Unlike other specialized agencies of the UN, FAO did not have a budget of its own for direct action in the field, and depended on the UNDP and multi-bilateral aid. The Committee noted that the Council, acting on the suggestion of the Director-General of FAO, had approved in July 1976 the establishment of a Technical Cooperation Programme (TCP), allocating US\$ 18.5 million to this Programme for 1976-77.

97. The funds available through this programme would allow FAO to respond directly to some urgent development needs of Member States. Funds under the TCP could be used for small-scale (up to US\$ 250 000 per project), short-term (up to one year) projects, for investment preparation and follow-up, training (largely at the grass-root level), emergencies (e.g. outbreak of pests and diseases, fires, disasters) and other unforeseen requirements.

98. The Committee stressed that it was the role of the authorities of the recipient country to define project objectives. Annual reviews of projects had proved useful in ensuring that projects progressed along programmed lines so that the international component could be terminated on schedule and the work continued with local expertise. The key role in this process was performed by the project personnel, both national and international. For the latter, experience, goodwill, character and ability to pass on technical know-how were

decisive. The recruiting agency had to ensure that international experts had these qualities and did not enter into assignments with ready-made concepts but applied their knowledge and experience in the light of local conditions and in close collaboration with the national counterparts. International experts had to be prepared to share not only the ambitions of the counterpart agency but also the difficulties of the host country.

99. The Committee agreed that forests could, and should, play an essential role in overall economic and social development as well as in environmental conservation. In the new economic order recommended by the UN General Assembly, forests and their products were important elements for the promotion of industrialization and trade. In order to equip the forestry sector to make an appropriate contribution to the desired development, its substantial strengthening was required and to this end, international aid of sufficient duration and at a continued high level was regarded as indispensable.

OTHER MATTERS

Eighth World Forestry Congress

100. The Committee considered the Government of Indonesia's generous offer to hold the Eighth World Forestry Congress in Jakarta in 1978, the dates of which would most likely be from 16 - 28 October. There was general support for the principal theme, which had been provisionally chosen: "Forests for People" and for the sub-themes which had been suggested. It was agreed that forest education for the public be included in the programme. Appreciation was expressed of the Indonesian Government's intention to organize study tours to forest areas in Central Java, Kalimantan and Bali. The importance was stressed that the proceedings of the WFC should be made ready for printing and distribution to participants within a reasonably short time.

101. A proposal was made to the Committee that one of the objectives of the Eighth World Forestry Congress might be to encourage the creation of an International Research Centre for Tropical Forestry to be set up in one of the countries of South-East Asia. It was further suggested that it would be useful if such a proposal be studied in detail before the World Forestry Congress with a view to submitting detailed suggestions as to its establishment on that occasion.

102. Attention was drawn to the fact that time had been allotted for satellite or ancillary meetings on specialized subjects outside the Agenda for the World Forestry Congress.

Conclusions and Follow-up to 4th Session of Committee on Forest Development in the Tropics

103. The Committee noted the findings and recommendations emerging from the 4th Session of the Committee on Forest Development in the Tropics, held in Rome from 15 - 20 November 1976 and expressed its satisfaction with the work carried out within the field of tropical moist forestry. It was urged that the next meeting of the Committee, probably to be held in 1980, due to the intervening World Forestry Congress, should have as its basic theme arid zone forestry. It was suggested that this point be drawn to the attention of the ad hoc meeting of the Committee, which it was planned to hold amongst the ancillary activities on the occasion of the World Forestry Congress.

AGRIS Forestry

104. The Committee was informed of progress in AGRIS Forestry since its Second Session in 1974. It noted that the initial concept of AGRIS Forestry - that of a monolithic centralized data base - had been transformed in the light of the information needs of different categories of users and the possibilities of cooperation between the existing documentation centres.

105. The Committee supported the goals of AGRIS and recommended that FAO should pursue them within the limits of its possibilities.

106. It agreed with going ahead with the preparatory stage of Level II in the forestry field but stressed that a decision on the operational stage would need to await the outcome of the review of the AGRIS programme by the FAO Conference in 1977. If the Conference approved AGRIS II, the Committee encouraged prompt implementation using existing programmes wherever possible to improve the quality of the information.

Earthquake Disaster in Turkey

107. The tragic news of the earthquake disaster in Anatolia reached the Committee towards the end of its Session. The Committee expressed its sympathy to the victims of the earthquake and its condolences to those bereaved. The Delegate of Turkey expressed his gratitude and stated that he would convey the Committee's feelings to his Government.

'HABITAT' Conference

108. The delegate of Spain drew attention to the UN Conference on Human Settlements (HABITAT) held in Vancouver, Canada, in May/June 1976 and to the impact of massive urbanization on vegetation cover. The Committee suggested that the implications of the Habitat Conference, particularly in respect of "green zones" be considered by forestry agencies and FAO.

'INTERFORST 78'

109. The Committee was informed by the delegate of the Federal Republic of Germany that, in parallel with the 3rd International Exposition of the Technology of Forestry and Forest Industries, "INTERFORST 78", a Seminar on the "Problems of Wood Supply in the World", would be held in Munich between 25 and 31 May 1978, and invited delegates to the Committee to participate.

Date and Place of Next Session

110. In accordance with Rule No. XXXI of the General Rules of the Organization (GRO), the Committee agreed that its next session be held in Rome early in 1978, the exact date to be established by the Director-General in consultation with the Chairman of the Committee.

AGENDA
FOR THE THIRD SESSION
OF THE COMMITTEE ON FORESTRY

1. Adoption of Agenda
2. Election of Officers and designation of Drafting Committee
3. Legal issues: amendment of Rules of Procedure

FOREST POLICY ISSUES

4. Forestry for local community development
5. Development of pulp and paper industries
6. The importance of logging and transport operations in the forest economy of developing countries
7. Marketing of tropical forest products

MATTERS REFERRED TO THE ATTENTION OF THE COMMITTEE BY THE REGIONAL FORESTRY COMMISSIONS AND NOT RELATED TO OTHER ITEMS OF THIS AGENDA

8. (a) Interrelationship between the Regional Forestry Commissions and COFO, and between the Commissions and the FAO Regional Conferences
- (b) Periodicity and timing of the Commissions' sessions

REVIEW OF FAO'S PROGRAMME OF WORK FOR THE FORESTRY SECTOR

9. Revision of the Forestry Department's Programme of Work for 1976-77
10. Review of forestry field programmes
11. Future programmes of work of the Forestry Department

OTHER MATTERS

12. Eighth World Forestry Congress
13. Conclusions and follow-up to 4th Session of Committee on Forest Development in the Tropics
14. AGRIS Forestry
15. Other business
16. Date and place of next session
17. Adoption of report

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First Vice-Chairman
Premier Vice-Président
Primer Vicepresidente - AL-JABOURI, M.A. (Iraq)

Vice-Chairmen
Vice-Présidents
Vicepresidentes - BABA, D. (Chad)
- CONWAY, M.J. (New Zealand)
- FLORES-RODAS, M. (Honduras)
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LIST OF DOCUMENTS

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4	COFO-76/3	Forestry for local community development - Secretariat Note
5	COFO-76/4	A review of the international pulp and paper sector with particular reference to development trends - Secretariat Note
6	COFO-76/5	The importance of exploitation and transport in the forest economy of developing countries - Secretariat Note
7	COFO-76/6	Marketing of tropical forest products - Secretariat Note
8	COFO-76/7	Matters referred to the attention of the Committee by the Regional Forestry Commissions - Secretariat Note
10	COFO-76/8	Review of forestry field programmes - Secretariat Note
11	COFO-76/9	Future programmes of work of the Forestry Department - Secretariat Note
14	COFO-76/10	Towards an international information network on forestry: AGRIS Forestry - Secretariat Note

Information Documents

COFO-76/Inf. 1	General Information for Participants
COFO-76/Inf. 2	Annotated Provisional Agenda
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OPENING STATEMENT

by

E. SACUMA, DIRECTOR-GENERAL OF FAO

Mr Chairman,

I am pleased to welcome you all to this Third Session of the Committee on Forestry.

The presence here today of so many distinguished forestry leaders is an indication of the important place that forestry and forest industry problems occupy in FAO's activities.

Whereas the objectives which the Quebec Conference in 1945 established for FAO in forestry may not have changed, the world and its needs have changed significantly in the meantime.

The sharp rise in world population has not only brought about a corresponding increase in, but also a diversification of, human needs for forest goods and services. The elimination of colonialism from most parts of the world has brought about a new situation in that the control and management of national forest resources is now vested in the rightful owners of these resources. But this has also created a new set of problems regarding the more equitable distribution of the benefits from forests between the industrialized and developing countries, particularly of the value added from the processing and trade of forest products. Whereas developing countries own more than half of the world's forest resources, they contribute less than 20 percent of industrial wood consumed. Moreover, they process only two-thirds of this volume and their exports of processed products amount to a mere 4 percent of the world's trade in forest products.

Within the Third World itself, growing needs for food and aspirations for faster economic and social growth necessitate the mobilization of all resources. This, in turn, accentuates competition among alternative uses, particularly of land resources, for the production of food, or of raw materials for industrialization and export earnings. And, whereas foresters are, in principle, correct to emphasize the long-term benefits of forest resources, they no doubt fully recognize that the hungry and the under-nourished must be fed and that dire needs for capital and foreign exchange for fundamental and vital investments have to be secured often through what appears to be short-term sacrifice of long-term benefits.

In the developing world, industrialization and urbanization, higher per capita incomes, greater mobility and more leisure time, are creating growing demands on the forest for sport and recreation which often, again, have to be met at the expense of forest production.

Thus, in a world of growing disparity and contradictions, FAO's objectives and work in forestry cannot remain static. FAO's programmes in forestry cannot adhere to traditional patterns of academic and theoretical studies and the familiar frame of reference developed over the past decades. The challenge of change, with the consequent risks of having to struggle with increased complexity of new assignments, re-ranking of priorities, modification of practices, questioning of hitherto accepted methods of approach, must be faced.

The paramount consideration, however, in any new approach to FAO's work in forestry must be how best the work and programmes of the Organization could assist the forest managers, the technicians and the workers of member countries to cope with the practical realities and problems they face at the forest enterprise level.

It is for these reasons that I recommended, and I am happy to be able to say that the FAO Council and member countries were virtually unanimous in their support, that a new direction be given to FAO: to make its programmes more development oriented; to provide timely assistance to member countries, on request, in the identification of investment needs and funding sources; to design training programmes and prepare manuals and practical guidelines for those operating at the working level; to reduce the number of general studies and analyses with a view to achieving a better balance between speculative, long-term approaches and the immediate practical needs of member countries; to strengthen cooperation with and make greater use of national institutions in the implementation of FAO's programmes. To give practical effect to these new orientations in the work of the Organization, the Council adopted my proposals on the establishment of a Technical Cooperation Programme which, within limits, will enable FAO to respond more promptly and with greater flexibility to urgent and short-term needs of member nations. The Council also agreed to place emphasis on decentralization at the country level by the gradual appointment of full FAO representatives in countries desiring them.

At this session, the Committee will concern itself with many of the policy issues to which I have briefly referred.

Thus, your deliberations and decisions on the contribution of forestry to local community development are not only pertinent to the establishment of the new economic order, but could create the basis for a new orientation of forest policies or even a new form of forestry per se.

Whereas the production, harvesting, processing and marketing of forest products have been among the traditional areas of concern in FAO's programmes for many biennia, I note with satisfaction that the Committee will examine these issues at its present session with special reference to the tropics. You are well aware of the unsatisfactory situation as regards the utilization of tropical forests and there is no need for me to bring it to your attention. This does not alter the fact, nevertheless, that in spite of the ever-increasing volume of technical literature and academic studies devoted to the problem, tropical forest management in many parts of the world is rudimentary. Yet tropical forests remain the most important reserve of forest wealth in the world and one which lies, moreover, in regions where the need to tap new resources of employment and revenue is most acute and urgent.

Your advice on these issues assumes greater importance for two reasons: first, the topics are relevant to the many implications for FAO arising from the recommendations of a number of important recent world conferences: the World Food Conference and the role of forestry in increasing food crop yields, the Lima Conference and the role of wood in industrialization, the Fourth Session of UNCTAD and the role of wood and timber products in international trade.

The second reason, Mr Chairman, is that your Committee is meeting at a time when FAO is going through a transitional state, a period of change. Your discussions and deliberations will assist me in deciding our future forestry programmes and will no doubt make a vital contribution to my endeavours to re-shape this Organization and make it more responsive to the pragmatic and practical needs of its member countries.

FAO can help governments to achieve the goals set for themselves. But it is governments that have the immediate and ultimate responsibility over their national forest resources. And it is precisely these considerations that make the role of this Committee so important. I would welcome your advice on how FAO's future programmes in forestry could be designed to comply with the new policies, orientations and directives which I have recently established. More important, I shall be grateful to learn of your expectations from this Organization - it will be my continuing concern to gear FAO towards this end.

Mr Chairman and distinguished delegates, I thank you.

RULES OF PROCEDURE

of the

COMMITTEE ON FORESTRY

as amended at the 3rd Session of the Committee

Rule I

Officers

1. At the first session in each biennium, the Committee shall elect a Chairman, a First Vice-Chairman and five other Vice-Chairmen from among the representatives of its Members, who shall remain in office until the election of a new Chairman and new Vice-Chairmen and who will act as a Steering Committee during sessions.
2. The Chairman, or in his absence the First Vice-Chairman, shall preside at meetings of the Committee and exercise such other functions as may be required to facilitate its work. In the event of the Chairman and the First Vice-Chairman not being able to preside a meeting, the Committee shall appoint one of the Vice-Chairmen or, failing these, a representative of one of its Members to take the chair.
3. The Director-General of the Organization shall appoint a Secretary, who shall perform such duties as the work of the Committee may require.

Rule II

Sessions

1. The Committee shall hold sessions as provided in Rule XXXI.4 and 5 of the General Rules of the Organization.
2. Sessions of the Committee shall normally be held once in each biennium, preferably early in non-Conference years. Sessions shall be convened by the Director-General in consultation with the Chairman of the Committee, taking into account any proposals made by the Committee.
3. Notice of the date and place of each session shall normally be communicated at least three months in advance of the session to all Member Nations and Associate Members of the Organization, and to such non-member States and international organizations as may have been invited to attend the session.
4. Each Member of the Committee may appoint alternates and advisers to its representative on the Committee.
5. Presence of representatives of a majority of the Members of the Committee shall constitute a quorum for any formal action by the Committee.

Rule III

Attendance

1. Participation of international organizations in an observer capacity in the work of the Committee shall be governed by the relevant provisions of the Constitution and the General Rules of the Organization^{1/}, as well as by the General Rules of the Organization on relations with international organizations.
2. Attendance by non-member States of the Organization at sessions of the Committee shall be governed by the principles relating to the granting of observer status to nations adopted by the Conference.
3. (a) Meetings of the Committee shall be held in public, unless the Committee decides to meet in private for discussion of any items on its agenda.

(b) Subject to the provisions of subparagraph (c) below, any Member Nation not represented on the Committee, any Associate Member or any non-member State invited to attend in an observer capacity a session of the Committee, may submit memoranda and participate without vote in any discussion at a public or private meeting of the Committee.

(c) In exceptional circumstances, the Committee may decide to restrict attendance at private meetings to the representative or observer of each Member Nation of the Organization.

Rule IV

Agenda and Documents

1. The Director-General, in consultation with the Chairman of the Committee, shall prepare a provisional agenda and shall normally circulate it at least two months in advance of the session to all Member Nations and Associate Members of the Organization and to all non-member States and international organizations invited to attend the session.
2. All Member Nations and Associate Members of the Organization may request the Director-General, normally not less than 30 days before the proposed date of the session, to insert an item on the provisional agenda. The Director-General shall thereupon circulate the proposed item to all Members of the Committee, together with any necessary papers.
3. The Committee in session may by general consent amend the agenda by the deletion, addition or modification of any item, provided that no matter referred to it by the Council or on the request of the Conference be omitted from the agenda.
4. Documents not already circulated shall be dispatched with the provisional agenda, or as soon as possible thereafter.

^{1/} It is understood that in this context the terms "Constitution" and "the General Rules of the Organization" are to be taken to include all general rules and policy statements formally adopted by the Conference and intended to supplement the Constitution and the Rules, such as the "Statement of principles relating to the granting of observer status to nations" and the general rules regarding relationships between the Organization and governmental and non-governmental organizations.

Rule V

Voting

1. Each Member of the Committee shall have one vote.
2. The decisions of the Committee shall be ascertained by the Chairman, who shall resort, upon the request of one or more Members, to a vote, in which case the pertinent provisions of Rule XII of the General Rules of the Organization shall apply mutatis mutandis.

Rule VI

Records and Reports

1. At each session, the Committee shall approve a report to the Council embodying its views, recommendations and decisions, including when requested a statement of minority views. Any recommendation adopted by the Committee which affects the programme or finances of the Organization or concerning legal or constitutional matters shall be reported to the Council with the comments of the appropriate subsidiary committees of the Council.
2. Reports of sessions shall be circulated to all Member Nations and Associate Members of the Organization and to non-member States invited to attend the session, as well as to interested international organizations entitled to be represented at the session.
3. The comments of the Committee on the report of any of its subsidiary bodies and, if one or more Members of the Committee so request, the views of those Members, shall be incorporated into the Committee's report. If any Member so requests, this part of the Committee's report shall be circulated as soon as possible by the Director-General to the States or international organizations which normally receive the reports of the subsidiary body in question. The Committee may also request the Director-General, in transmitting the report and records of its proceedings to Members, to call particular attention to its views and comments on the report of any of its subsidiary bodies.
4. The Committee shall determine the procedures in regard to press communiqués concerning its activities.

Rule VII

Subsidiary Bodies

1. In accordance with the provisions of Rule XXXI.9 of the General Rules of the Organization, the Committee may, when necessary, establish subcommittees, subsidiary working parties or study groups, subject to the necessary funds being available in the relevant chapter of the approved budget of the Organization, and may include in the membership of such subcommittees, subsidiary working parties or study groups Member Nations and Associate Members that are not Members of the Committee. The Council may admit to membership of subcommittees, subsidiary working parties and study groups established by the Committee States which, while not Member Nations of the Organization, are Member States of the United Nations, any of its Specialized Agencies or the International Atomic Energy Agency.
2. Before taking any decision involving expenditure in connection with the establishment of subsidiary bodies, the Committee shall have before it a report from the Director-General on the administrative and financial implications thereof.

3. The Committee shall determine the terms of reference of its subsidiary bodies, who shall report to the Committee. The reports of the subsidiary bodies shall be made available for information to all members of the subsidiary bodies concerned, all Member Nations and Associate Members of the Organization, non-member States invited to the sessions of the subsidiary bodies, and interested international organizations entitled to attend such sessions.

Rule VIII

Suspension of Rules

The Committee may decide to suspend any of the foregoing Rules of Procedure, provided that 24 hours' notice of the proposal for the suspension has been given and that the action contemplated is consistent with the Constitution and the General Rules of the Organization ^{1/}. Such notice may be waived if no Member objects.

Rule IX

Amendment of Rules

The Committee may, by a two-thirds majority of the votes cast, amend its Rules of Procedure, provided that such amendment is consistent with the Constitution and the General Rules of the Organization. No proposal for the amendment of these Rules shall be included in the agenda of any session of the Committee, unless notice thereof has been dispatched by the Director-General to Members of the Committee at least 30 days before the opening of the session.

^{1/} See footnote to Rule III, paragraph 1.

INAUGURAL LECTURE:

FORESTRY AND AGRICULTURE -- COMPETITION OR CO-OPERATION

by

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Alternative Land Uses

Modern silviculture is in many ways developing along similar lines to those of agriculture. Planting and harvesting at the proper time, cultivating selected species and breeds, controlling diseases and pests, managing the venture according to sound commercial principles - these are all features of modern forestry closely resembling the norms of a good farmer. Just as farming has to adhere to the goals and limits set by an approved agricultural policy, so forest management has to respect national policies and regulations.

Despite these similarities, agriculture and forestry have, in many ways, been treated separately, and often in conflict with each other. The reasons for this separation are easily stated: the main products and their use are different - food and clothing as against building materials and paper; the rhythm of harvesting is different - annual crops as against long rotations; and the geographical distribution is different. In many instances a policy issue is also involved: there is a competition for land.

However, the administrations for agriculture and forestry are commonly brought together in the same ministry or department. An explanation for this is that in most countries forestry and forest industries are late arrivals compared to agriculture. Growing populations have long put great pressure on settlement and food production. So it has been natural, for overwhelming political interests, to keep forests, which are often the only land reserve, in the same domain as agriculture proper. Quite often forestry has been something of a Cinderella in this context.

A somewhat theoretical reason for the association of forestry and agriculture is the concept that agriculture and forestry are alternative land uses. This is true. But seen in a historical perspective, there has been only one alternative for the forests: clearance for agriculture or pasture. If land has ever been abandoned by the farmer or cattleman, it has been left on its own without any conscious effort to restore a cover of trees. To speak of forestry as an alternative way of using land sounds, in this context, a bit hypocritical, I suggest.

Land Competition

It is true that in certain countries the long-standing conflict of how to allocate land to agriculture and forestry has now lost much of its edge. In Europe, for example, where the diminishing agrarian population accounts for hardly one sixth of the total work force, and where agricultural surpluses rather than shortages pose problems, very large areas of cropland are about to be offered for afforestation.

Another factor is the growing deficit in the forest products sector. In 1974 the world paid a total import bill of 31.7 billion dollars for wood and wood-based products, and of this Europe paid 17.5 billion, Japan 4.9 billion and the developing countries

3.2 billion dollars. No wonder the economists and politicians in charge of national trade balances are worried and looking for possibilities for increased home production of these products. In many cases, forestry seems to have won powerful advocates.

The transfer of land on the scale foreseen in Europe is a remarkable phenomenon in a world of explosive population growth, hunger and malnutrition. It is impossible for me to go into this subject in depth. But I would like to say that the areas of cropland in Europe which are being considered for afforestation are, in most cases, marginal in one way or another. It is claimed that the inherent productivity of such land could probably be better used through a growing stock of trees than an agricultural crop, which would require high inputs of fertilizer, pest control, machinery, etc. World hunger could perhaps be more effectively alleviated if these inputs were used instead in the undernourished countries. In addition, fertilizers are easier to transport and store than foodstuffs.

There is no question that the competition for land is still very strong, particularly in the developing world, and that forestry is often on the losing side. Pressures created by population growth tend to direct themselves towards areas where little resistance is felt and forests frequently present such an opportunity. This happens even in countries with well-established forest administrations, but where political considerations play a powerful role. An example illustrating this situation is that foresters are sometimes hesitant to build new forest roads, which would be essential to management, because such roads might attract families wanting to find opportunities for new settlement. Furthermore, many large projects aimed at producing foodstuffs or commodities such as rubber, vegetable oils or textile fibres, begin by clearing fully stocked forest land. It is sad to notice that many a venture of this type still proves a failure and ends in land deterioration.

In some countries there is no competition simply because land with a tree cover is not available. In such cases foresters are more and more often called upon to study the possibility of afforestation to control erosion and water balance, to control desertification or simply to make the countryside more pleasant. This can be the beginning of organized forest management.

Shifting Cultivation

Transient agriculture, which includes shifting cultivation and nomadic or semi-nomadic animal husbandry, is a special case. When land was abundant, this form of use did not necessarily result in serious loss of productivity. Burnt over areas often offered favourable conditions for natural regeneration and modest grazing did not cause erosion. Thus, a sort of harmony between man and nature persisted. There might be some regions where such a nice picture can still be painted.

With population growth the situation has changed. Now shifting cultivation usually means that burning is repeated at shorter and shorter intervals and the intensity of grazing and, consequently, soil deterioration are increasing. In many regions of the world the situation has reached an alarming and tragic stage.

This story has been reported again and again by various observers. There are, for example, hardly any FAO papers on rural problems in the developing world in which this adverse trend is not dealt with.

At present, shifting cultivation is one of the most complicated problems in the joint sector of agriculture, forestry and social policy. No universal solution is really within reach. The transition to permanent agriculture, family planning, better housing and industrial expansion are some of the issues mentioned and tried. Conservation of what is still left and the restoration of what has been denuded should have highest priority. However, many questions are still left unanswered, particularly in the social and human fields.

There is a widespread feeling that the voice of forestry has not been properly listened to in this context. Destruction need not have gone so far if the advice of foresters had been accepted earlier. They are often called upon only when the need for restorative action has become really pressing.

This might sound like hindsight, but it should also serve as a guide: given a fair chance, forestry should be able to play a major role in the solution of this worldwide dilemma.

The concept of agri-silviculture could, in particular, open up ways for alleviating the dilemma. Agri-silviculture means a production system that combines a crop from trees with some traditional agricultural crop. There are encouraging examples of success along such lines. Better known is, no doubt, the simultaneous cultivation of poplars and cereals or vegetables. It is encouraging that these ideas now attract greater attention.

Inventory of Resources

Where do we really stand these days? Our weakness is that only a limited amount of factual information is available.

It is impossible to estimate how much land has ever been transferred from forest to cropland or pasture. Nor can we say how much land has, through varying stages of agricultural use, been denuded to wasteland. On top of this, there is the destruction caused by improper logging methods. What we know is that these areas are enormous and that deterioration goes on all the time.

There are, it is true, extensive areas of land which did not have any significant tree cover before conversion to agriculture. But the areas that lost a cover of luxurious forest for this purpose might be even larger. Considering that this changeover still goes on, what is the impact on world forestry?

On the other hand, we have quite a lot of information on that part of the world which is subject to organized forest management. Will progress in this better part outweigh the losses elsewhere? With the steady growth of wood consumption, the transfer of potential away from the forestry sector is a serious problem which should be thoroughly examined and evaluated.

This problem was discussed both by Mr. Paul-Marc Henry and Dr. Robert N. Colwell in their inaugural lectures at the 1st and 2nd Sessions of this Committee. Paul-Marc Henry stressed the paramount importance of worldwide resource inventories, and Robert Colwell demonstrated the highly improved potential for carrying out such inventories with the help of remote sensing techniques.

Forest resource inventories are now conducted in a number of countries as a matter of routine. A wealth of experience is at hand from inventories in almost all conceivable conditions, and the methodology of sampling and surveying is continuously refined. The number of countries which have completed a full national forest inventory is increasing; a few have carried out this task several times. These countries have at their disposal an unequalled source of information helping them to become aware of what is really going on in, among other things, the critical sector of land use, and giving them a firm basis for planning.

Against the global background the progress of forest inventories is, however, slow. The areas involved are enormous, and even with a low percentage of sampling the cost is considerable. Furthermore, there is only a limited need for data concerning resources which are not due for utilization in the near future. Finally, many areas, which as far

as land use is concerned are in a critical stage, are not covered by forest inventories because they do not have or have already lost the type of growing stock that would warrant such a measure. Therefore, special efforts are needed in this area.

Monitoring Changes in Land Use

Remote sensing techniques now offer new opportunities. Their application should assist in the collection of national, regional or even global information not only on changes in land use, the clearing of forests, on land deterioration and erosion, but also on progress in the restoration of productivity, including afforestation.

These new technologies have been recognized in many quarters and serious attempts to develop their practical application are under consideration or have been started. Foremost to be mentioned here is the UNEP/FAO Tropical Forest Cover Monitoring Project, formulated in 1974 and at present starting on a pilot scale with the participation of four countries of west and central Africa. Further examples are Brazil's RADAM project in the Amazon basin and the LACIE project ("Large Area Crop Inventory Experiment"). Several other studies are concerned with man's relationship with the resources of the earth.

The FAO Committee on Forestry, which consists of world leaders in forestry, should feel very strongly on this issue. A world that can afford an annual import bill for timber and wood-based products of the order of 30 billion dollars, should be able to supply the necessary funds to get this fundamental work well under way.

Apart from the fact that better information is needed to serve as a basis for planning, it is also needed, and this may be even more important, to alert world opinion and convince responsible bodies of the urgency of the problem.

Manpower

A field where forestry and agriculture have much in common is labour.

The manpower required in forestry has, traditionally, been drawn from the agricultural sector. In conditions where agriculture and forestry operate as close neighbours, this is a natural arrangement. The activities of agriculture, and frequently of forestry, are seasonal and often complementary. The farmer is only too pleased to earn money from forestry in his spare time.

For forestry, this has been a very useful interaction because the local farmers have helped to keep down the costs of forestry. To bring in workers from outside is always an expensive alternative.

Farms have also provided horses and oxen for extraction and transport, and in some countries this practice still continues. Later on, conventional farm tractors equipped with simple auxiliaries, proved to be quite practical under certain conditions. Now the trend is towards increasingly specialized equipment.

However, conditions in various parts of the world may differ radically. There are forest lands with no farms or population in the vicinity. There are forests consisting of such huge trees that mechanized handling is the only approach. There are regions where terrain conditions and the seasons determine the logging methods.

With silvicultural activities expanding, the employment of women in jobs such as nursery work, planting, weeding, etc., in many countries is giving additional impetus to the interaction between the local population and forestry. The human input in this sector is likely to remain comparatively high.

New jobs emerge as silviculture and harvesting are complemented by industrial activities. Some of them can be located in the vicinity of the forest and do not require special skills. There are, for example, innumerable small sawmills often working on a seasonal basis, which can well be manned by the local population without interfering too much with farming.

When the forest industry develops into large-scale operations, however, the manpower will generally have to be specialized. High training and skill are required and shift work is prevalent. Consequently, it is hardly possible to hire people who would still be farmers part of their time. However, members of the farmer's family might be able to enter industrial work if the mill is not too far away, and still go on living on the farm.

Mechanization in Forestry

The degree of mechanization of forestry is a much debated question in regions with abundant manpower, low wage levels and a shortage of capital for machine purchases. Frequently, the first conclusion is that this degree must be low, to allow as large a use of human resources as possible.

With increasing experience, these policies have often had to be revised. Despite the low daily wages of workers, operations may prove to be quite expensive when seen against an international cost/price perspective. Accordingly, in many current projects fully mechanized logging is adopted right from the beginning, whether the subject is fast-growing plantations or virgin forests.

Such a development underlines the importance of professional skills. Vocational training, from the viewpoint of progress in forestry and forest industries, should certainly be supported actively. For example, when using logging equipment in remote forest regions, sufficient competence in maintenance must be available to ensure that expensive machinery will not be idle, and that the mills get a steady supply of raw material. In plants where sophisticated processes are running 24 hours a day, the need for skilled manpower is self-evident.

The general improvement in skills, which well-developed forestry inevitably involves, will also be beneficial to agriculture and many other rural activities.

Mixed Farming in Developed Countries

The relationship between agriculture and forestry has been particularly close in countries where both are practised side by side within mixed farming. This type of farming probably has the longest tradition in Scandinavia, where appropriate legislation, effective guidance and training, and strong cooperation have brought about remarkable results. Many mixed farms have for centuries been handed down from father to son and have great sentimental value for the family. The forest with its long rotation links generations together and is expected to yield a rich harvest also for those to come. Of course, an important asset has been the early emergence of a vigorous forest industry, making wood a commodity of trade in great demand.

This symbiosis of agriculture and forestry is a major reason for the flourishing not only of single farms but of the entire countryside. Agriculture alone would hardly have made this possible in areas where climate is severe and soil meagre.

Naturally, there has been a period of major transition which is still continuing. People have moved to the cities and many small farms have been abandoned. At one time it even seemed as if there would be no forest manpower left at all, as the old men stepped aside with their methods, tools and horses.

Fortunately, modern machinery, in combination with vocational training, has revived the recruitment of forest manpower. Young people are again prepared to work in the bush, provided that this is an occupation as good as any other. Small green villages and towns flourish and offer every kind of amenity to countryside dwellers. People think twice now before they decide to move to the big cities.

In the farming community, however, the ideal farmer is still one who is capable of managing every facet of his farm. As a result of his personal efforts, forest yields are raised to near the maximum, in the way that has been traditional in the agricultural sector. And yet it is not considered contradictory that some farm work is carried out by outside professionals with specialized equipment.

In contrast to this Scandinavian picture, take the vast unpopulated forest lands on the same latitudes in North America and the Soviet Union, or even the tropics. The tapping of these resources requires costly preparations, the building of forest roads, the construction of logging camps and the recruitment of manpower in other regions, to mention just a few items. The logging operations are carried out with high efficiency, but then peace returns to the wilderness. This type of approach seldom brings any permanent settlers or creates flourishing rural communities.

Private Forestry in Developing Countries

Positive examples of private forestry similar to that described above can be found in several countries around the world. But could this experience be repeated in the developing countries too?

In many of these, private land ownership dominates, and some prerequisites of forestry are comparatively good. In particular, the short rotations possible in warm regions should attract the private farmer to enter forestry. Additional earnings would certainly be just as welcome in the developing countries as in, for example, Scandinavia.

Certain signs of such development can be seen even though they are still on a limited scale. The reasons for this slow development might be the following:

- The structure of land tenure. Private forest land is in many cases jointly owned or controlled by the tribe or some other system. Reluctance to plant trees, for example, is not difficult to understand if the planter does not know for sure that he will be entitled to the land at the time of harvest. Land division might also have gone so far that holdings are too small as meaningful forestry units. Co-operation could be the answer, but in forestry this has proved to be a difficult issue even in old countries.
- Lack of capital. Forestry is always a long-term proposition, also when the rotation is "short". Capital is necessary not only for planting, but also for building up and managing the basic growing stock. Ownership without title prevents land from being used as collateral for credit.
- The undeveloped roundwood market. To be prepared to make inputs the landowner needs to be convinced of the forthcoming profit. The simplest indicator of this is a reasonably high stumpage. In many countries only precious hardwoods fetch such prices.
- Lack of professional and vocational skills. In many regions organized forest management is a novelty in which the farmers have had very little instruction or experience.

- Insufficient government action. Legislation supporting private forestry is lacking or not properly enforced. Various incentives which many governments have introduced to promote afforestation and organized management, have not been designed so that small land owners would benefit from them.

In a number of developing countries farm forestry does not have a high priority at present. This is understandable. The constraints just mentioned cannot be eliminated at once. In countries where forests have been nationalized, private forestry may sound an odd proposition. Many a government body in charge of forestry considers it more appropriate to direct its limited resources towards conservation and management of state forests or the establishment of new industrial plantations.

The potential of private forestry should not, however, be underestimated. The very substance of agriculture and forestry will always remain the same: using land for cultivating plants. The difference is not so great if a farmer is harvesting a crop from a growth which is planted every year or every tenth year. The situation is different, it is true, if it takes generations before a harvest is due. It goes without saying that a farm would be the right environment for agri-silviculture.

A serious problem is the shortage of fuel in many regions of the world and, in particular, the use of dung for heating and cooking instead of taking advantage of it as manure. It would be a valuable improvement if tree plantations could change this wasteful practice.

One of the great difficulties is to find viable cash crops for small farms. The possibilities of forestry offering an answer to this problem deserve serious study. If a farmer sells his wood cut and delivered, he will be paid in cash also for the logging work involved. Particularly when forest industries are being established which are based on new plantations, opportunities should be at hand to secure a part of the roundwood supply through some type of tree farm contracts.

Take as an example Chile, where a great deal of the highly successful pine plantations belong to small holdings. Or Italy, where several million cubic metres of industrial wood are collected annually from poplar plantations established in close cooperation with agriculture. It is said that 3 percent of the forest area of Italy yields more than 50 percent of all the industrial wood produced in that country. In addition, many an Italian farmer claims that his usual agricultural crop has increased through the sheltering effect of the trees. Another outstanding example of small forest farming is Japan.

The necessity to look after the forests in private ownership is underlined by the fact that in many cases these comprise the most fertile lands, located in the most accessible districts. This has, of course, been the reason for them becoming the first targets of settlement. Remote districts and poor ground have mostly remained in public ownership.

It is therefore understandable, from the point of view of a strict cost-benefit evaluation, that inputs in private forestry are often likely to present opportunities which exceed those possible in state forests. The loss to the national economy is correspondingly greater when lands and forests of high productivity and easy access are not kept in full production.

Forestry as a Guard of the Rural Community

Accelerating urbanization is one of the most serious problems of today. The question is whether forestry and forest-based industries can counteract this development by creating permanent jobs and decent living conditions in the countryside to keep people from moving. If this could take place on a large scale, it would support the restoration of sound social conditions. And this applies equally to both developed and developing countries.

Regrettably the pressures behind rural exodus are often so strong that forestry and forest industries alone can hardly be expected to stop this social transition completely. But even if only a part of the population can be prevented from moving, the effort will be justified. This would also be in the interest of the forestry sector.

This social outlook is a most important aspect which forestry representatives should emphasize even more in their struggle.

Wood as a Nutritive Substance

A subject that should not be overlooked in this context is the nutritive potential of the forest in satisfying the growing needs of mankind.

This is not a new concept. When hunting was the only means of livelihood, many of the game animals fed on tree shoots, twigs and leaves. These still comprise the main diet of many meat-producing species.

Several attempts have been made to introduce systematic feeding with fodder obtained from wood. In the Soviet Union a substance called "muka" is successfully used as a component of cattle and chicken fodder. This is an industrial product made of pine needles. Its vitamin and mineral contents are high and so it is very wholesome. In Northern Europe hardwood leaves were once gathered for feeding sheep in the long winter season. A more advanced example is the use of conventional paper pulp as cattle fodder. This was widely practised in Finland during the second world war.

Extensive research work is going on in laboratories all over the world to find chemical or biochemical processes that could be used industrially to convert carbohydrates directly or indirectly into protein, of which there is a serious global shortage. These methods are based on either chemical or enzymatic hydrolysis, and several of them are known to be technically, but rarely yet economically, viable.

The utilization of fungi has created a particularly promising outlook. There is a group of fungi that feeds on carbohydrates and is very rich in protein. Such fungi have long been used not only as baker's yeast but also in making a special fodder yeast from the sugar contained in the waste liquor of sulphite pulp mills. We also know of the Japanese custom of cultivating edible mushrooms on decaying wood.

In the light of our present knowledge, wood-based fodder can hardly compete in price with more conventional agricultural foodstuffs. The amounts now being processed from roundwood or industrial wastes are merely a fraction of the global requirements. It is also worth remembering that huge amounts of carbohydrates, in the form of residues of annual agricultural and forest crops, still remain unutilized.

The world's population continues to grow, however, and the food problem will hardly diminish. Wood and its derivatives are among the only renewable raw materials we have. So, let us not dismiss the thought that mankind, perhaps before we know it, may turn to the forests for nourishment.

New Wood-Based Products, Energy

The reserves of non-renewable resources such as fossil fuels are limited and yet their utilization grows all the time. Much has been written and spoken on this subject. In this context, it is surprising how little emphasis has been given to the potential of the renewable resources, and wood in particular. In its two main reports the Club of Rome, for example, hardly mentions forests or wood even by name.

Through a number of processes wood can today be converted into an ever-widening range of materials, many of which can be used as substitutes for something which up to now was made out of non-renewable materials. Research goes on in laboratories around the world. The Coming Age of Wood in the sense of Egon Glesinger's famous book of 1947 is materializing.

There are many misconceptions, however. The most common is that world forest resources are about to be depleted. Therefore, wood should be saved and even replaced by non-renewable materials. A typical case was the idea of producing paper out of plastics which, as we know, are made of gas or oil. After the oil price jump, the prospects are rather that plastics can be profitably produced from wood.

Recent calculations indicate that wood is about to become a competitive commercial fuel even when produced or collected exclusively for this purpose. Forest industries have always been sizable consumers of wood fuel in the form of process residues, and some of the industries are even net producers of energy. An expansion of wood-based energy production would not, therefore, involve any technical problems in the industry.

Short Rotation Forests, Integration, FAO

Such outlooks - the potential use of wood for nutrition, as a raw material for various products, or as industrial fuel - are particularly interesting when speaking of cooperation between forestry and agriculture. It is possible that wood for such purposes can be produced most effectively by using specially selected species and breeds, and very short rotations. In addition, the feasibility of a system of this type seems to be mainly dependent on factors such as mechanized management and harvesting, and a location near the processing plant. But quality aspects, such as fibre length, bark percentage, etc., seem at least in some cases to be matters of secondary importance.

It remains to be seen what will come of these ideas, which still probably contain a good proportion of fantasy. This much can be said, that the outlook is highly interesting, not least from FAO's point of view.

How would the traditional forest industry react to such a trend? This industry would hardly be prepared to concentrate exclusively on the remaining wildernesses of the world, leaving to newcomers the promises of short rotation-type ventures. If foodstuffs, new materials, or energy become major forest-based issues, there is little doubt that the old industries will resolutely enter these sectors too.

Leaving aside forecasts and fantasies, we can already see convincing evidence that this type of wood production is about to become a major factor in world forestry, and indeed already is. This is happening long before nearly all the virgin forest resources are opened up for utilization and trade. Investment activity in the forestry sector is at present strong in ventures where large plantations of short-rotation trees are fully integrated with huge new mills. In several countries lacking forest reserves this kind of planting, or some variety of agri-silviculture, may be the only way to produce wood or fibre.

Agriculture and forestry have been brought together in the same international organization - FAO. A reason for this was no doubt the concern FAO's enlightened founding fathers felt, knowing how much was lacking in forest management and how powerful were the destructive forces in this field. There was no international body concerned with these issues and so FAO was the obvious choice to meet the challenge. This has proved to be a very fortunate arrangement.

It is particularly important, however, that wood-based industries have also been brought within the same range of responsibility. Convincing experience from all over the world shows that a close integration between forestry and industry is necessary. If, for example, the supply of raw material is not secured, investments in forest industries

can hardly be justified, and on the other hand, if a proper utilization of a forthcoming timber crop is not within sight, the primary incentive for conserving and expanding wood production is missing.

Viable short-rotation forestry, in particular, can hardly be visualized without it being closely linked to the industry which is supposed to utilize the raw material produced. This interrelationship is the same as that existing between a sugar beet or cane plantation and a sugar factory.

Mentioning sugar leads us to bagasse, which is perhaps the foremost of the annual agricultural crops (or their residues) now used for paper making. In aggregate, non-wood raw materials, including bamboo and reed, constitute at present 5 to 6 percent of the world production of primary pulp. In a global context this is perhaps not a very high figure, but in a number of countries lacking forest resources this type of pulp plays a great role which advancing technology will no doubt enhance.

This outlook is another valid justification for the integration and cooperation of forestry, agriculture and industry as established within FAO.

Concluding Remarks

It is often said that humanity has reached a turning point. The finite nature of the earth's resources, ecological imperatives, population growth and the shifts in social preferences are some of the factors setting the stage for the future.

In the long run, the subsistence of man is dependent on the way in which he treats the productivity of the land, ultimately the most precious of all resources. Here agriculture and forestry, side by side, must carry the responsibility. However, because of its close link with nutrition, agriculture is bound to remain the issue of first priority.

The manifold possibilities offered by forestry and forest-based industries have been widely understood only recently. There is still a long way to go, but properly developed forestry will offer substantial help in solving some of the most serious problems of mankind. This has to happen, not in competition, but in cooperation with agriculture.

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