

Consultative Group on International Agricultural Research

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From: The Secretariat

October 26, 1992
ICW/92/18

International Centers' Week
October 26 - 30, 1992
Washington, D.C.

Agenda Item 13

Establishment of CIFOR--Status Report

The attached documents serve as background to the status report on the establishment of CIFOR that will be presented to the Group:

- (i) a progress report from ACIAR covering the period May through September 1992, and
- (ii) a Program of Work and Budget for 1993, proposed by the Program Committee, CIFOR Board of Trustees.

In addition, recommendations concerning CIFOR's headquarters site from the CIFOR Board's Host Country Committee will be made available during ICW.

The Group will be required to decide on a headquarters site for CIFOR and to comment on the proposed Program of Work and Budget.

Attachments

Distribution

CGIAR Members
Center Board Chairmen
Center Directors
TAC Chairman
TAC Members
TAC Secretariat
Observers

CENTER FOR INTERNATIONAL FORESTRY RESEARCH (CIFOR)

ACIAR: PROGRESS REPORT - MAY - SEPTEMBER 1992

Agenda paper for CGIAR ICW92 November 1992

PURPOSE

1. To present for the information of CGIAR an account of progress in establishing CIFOR.

BACKGROUND

2. ACIAR, appointed by CGIAR in May 1991 to establish CIFOR, presented an 'Outline for a draft Strategic Plan' dated March 1992 to TAC in Aleppo in March 1992, and a further version dated May 1992 to the CGIAR MTM on 22 May 1992.
3. The CIFOR Board concluded in July 1992 that rather than present a further (necessarily still draft) version of the Plan to TAC and CGIAR in October 1992, the Program Committee and ACIAR should prepare a 'Program of Work and Budget for 1993' which would provide a basis for operations in 1993 within the broad framework of the May version of the Plan and decisions of the Board in July.
4. The Board also encouraged the Program Committee and ACIAR to prepare for ICW92 a discussion document which would lead later to the full Strategic Plan. This report represents the first iteration of the discussion document.
5. The possibility of work on a medium-term plan was also considered by the Board.
6. The speed with which medium and long-term plans can be developed is contained by the need to permit input by the stakeholders, by the as-yet-unappointed Director General and possibly other staff, and by the time required for members of the Board to contribute fully to the critical process of selecting the small number of research activities which it will be feasible to undertake from among the many thoughtful suggestions which have been put forward over several years.

CONSIDERATION

7. The most significant step which has occurred since CGIAR's MTM92 was the inaugural meeting of the Board of Trustees for CIFOR at Wallingford, UK 26-30 July 1992. The meeting was attended by all 15 Board members, by 5 observers from donor countries, 2 CGIAR representatives and 3 members of the ACIAR team. The Board selected a Chairman for the meeting, and subsequently as on-going Chairman, Dr. Bo Bengtsson. Other members of the Board and appointments of Board members to other positions are listed in Annex A.
8. Three key items of business considered by the Board were the choice of host country, the appointment of a Director-General and the choice of strategic directions for CIFOR.

9. ACIAR provided the Board with a detailed account of actions taken to locate potential host countries from among the developing countries of Asia as requested by CGIAR. Expressions of interest were received from six of the eleven countries approached. ACIAR staff visited each of the six countries over the period 13 April - 7 July 1992 to gather information on facilities and likely ease of operation. The Board appointed a committee (Annex A) with specific terms of reference to visit and further appraise three of the six countries during August with the intention of preparing recommendations to the next meeting of the Board in November 1992. The Committee visited Indonesia and Sri Lanka, Malaysia having subsequently withdrawn its proposal.
10. The position of Director-General of CIFOR was widely advertised by ACIAR by direct mailing and in print media, with a target date for applications of 31 May 1992. Donor organizations were asked directly provide nominations. The Board had the benefit of an account of the process which ICRAF had followed in selecting a Director-General. A Selection Committee (Annex A) was appointed with specific terms of reference to identify three candidates who would be interviewed by the full Board of CIFOR in November 1992. As part of the process of choosing the three candidates the Committee met in London early in September and again in Washington in October.
11. Sponsorship of CIFOR by three countries as an international organization is becoming a matter of urgency, as all formal arrangements, and especially those relating to host country and Director-General, are dependent on this step. The Board encouraged ACIAR to continue negotiations with the objective of securing the minimum necessary number of sponsors (3) by the end of 1992.
12. The Board noted the wide range of activities already undertaken to provide input to the initiatives of CGIAR in forestry, and particularly those of CIFOR. The activities have included numerous seminars under various auspices, including IFPRI, FAO, IUFRO and ACIAR. Proceedings and conclusions of some seminars are, or will be, available as published documents (eg the Forest Policy Workshops, and the Latin America planning seminar); in other cases reports of discussions, and sometimes extensive subsequent correspondence, are held by ACIAR in Canberra and/or Oxford. Invited written contributions and subsequent correspondence on 13 themes likely to be of interest to CIFOR have been brought together in a booklet and drawn on by ACIAR in preparing the Outline Draft Strategic Plan. They are being expanded through further relevant meetings, eg. in Japan (TARC), Botswana (SADCC), Kenya (IFPRI/ICRAF) and Italy (FAO).
13. The Board proposed that in the next major document discussing CIFOR strategy the following matters should be addressed:
 - The planning process
 - Criteria for selection of program areas and of potential topics for strategic research and other activities of CIFOR
 - Systems for setting priorities among the problem areas, research topics and other relevant domains such as agro-ecological zones (AEZ)

- The use of planning materials to suggest managerially-feasible programs of decentralized strategic research and related activities.
14. Several suggestions were made that the Board might wish to support various ad hoc activities. The Board concluded that decisions on these should be deferred until the Programme Committee has discussed policy and strategy.
 15. Although the principal activity for 1992 and 1993 has been and will be the establishment, per se, of the Centre, a small technical program has been initiated by ACIAR to ensure that larger-scale work can start towards the end of 1993 with minimum delay. These technical activities in part address the issues listed under item 16 below.
 16. CIFOR provides CGIAR and supporting donors with a pathway through which a significant number of 1992 UNCED Agenda 21 recommendations may be pursued. This opportunity was recognized by the Board, which has agreed on the need for a strategy to give effect to relevant recommendations from UNCED. CIFOR's draft Strategic Plan and several current activities accommodate these objectives:
 - Consolidating and synthesizing knowledge on the management and conservation of forest genetic resources; on improvement of forest productivity; and on tolerance to environmental stress. Action will be especially related to genetic improvement and the application of new biotechnology. Areas of research will include tree breeding, clonal propagation, seed procurement networks, germplasm banks, in vitro techniques and in situ and ex situ conservations. A joint project is already running with IBPGR on forest tree germplasm conservation and improvement.
 - Promoting management for wood and non-wood forest products in closed and open natural forests. Products from management for multiple objectives will include timber, medicinal plants, dyes, cultural products, nuts, bamboo, rattan, ecological and environmental services, tourism. Research will include the determination of the potential productivity of the resources together with studies on biological, technological, socioeconomic and policy issues related to organization, attitudes, incentives, utilization, biology, silviculture and management. Discussions have been held with the IDRC-sponsored bamboo and rattan research association and a proposal is in an advanced stage of preparation.
 - Compiling and analyzing research data on species/site interaction in planted and natural forests and assessing the potential impact on forest and climate change as well as the effects of forests on climate. A feasibility study for an information network has been initiated with the Australian Bureau of Rural Resources.
 - Contributing to improved policy environments for sustainable management of land use systems and natural resources through socioeconomic and policy research aimed at improved understanding of the underlying causes of forest and land degradation, and the development of remedial policies."

17. The importance of socioeconomic policy research aimed at improved understanding of underlying causes of forest degradation and remedial policies is highlighted throughout all of the sections of Agenda 21 dealing with sustainable landuse management and resource conservation. A series of regional forest policy workshops, sponsored by IFPRI, CIFOR, ICRAF and FAO is already in progress; the Board will take the outcome of these workshops into account in decisions on macro and sectoral policy issues.
18. Members of the Board considered the mission statement for CIFOR as at p. 10 of the May 1992 Draft Strategic Plan, and want to ensure that the statement in its final form emphasizes participatory development, as well as sustainability and equity in parallel with that in the revised CGIAR Mission Statement (Agenda Item 5, CGIAR MTM 1992).
19. Extensions were also proposed to the statement of Guiding Principles in the Draft Strategic Plan, to:
 - Provide a focal point within the CGIAR for leadership in forestry research world-wide by defining and updating a global approach with strong ecoregional emphasis e.g. ecoregionally located programs with active national participation aimed at general results suitable for regional application.
 - Address these problems primarily by assessing the comparative advantage of existing (including non-traditional) institutions, and fostering and facilitating research by institutions on a selected basis by hands-on research on problems where CIFOR has a unique mission and/or a distinct comparative advantage. CIFOR will also develop collaborative and complementary research agreements with the Centers of the CGIAR system according to their advantages and strengths.
 - Emphasize commitment to strategic, process-oriented research adopting an ecosystem approach to forest systems, an holistic view in policy and socioeconomic studies, and an integrated approach in management, silviculture and utilization research.
 - Marshall a sufficient critical mass of scientific expertise and resources, operating in an interdisciplinary context, to ensure efficient and effective implementation of activities to meet clearly defined programme objectives.
 - Recognize that research must remain relevant to and serve the needs of developing countries in their efforts to achieve sustainable landuse practices. It should minimize further degradation of forest lands and must promote social equity.

20. The Board considered frameworks within which research activities to be undertaken by CIFOR might be related and managed. As an initial step, a matrix approach was considered to be most appropriate, incorporating the following dimensions:
 - Geographic region
 - Ecological Zones
 - Forest Resources System
 - Research approach
 - Discipline/field
 - People organization system.
21. Within the matrix a number of potential research projects can be identified; some extend across two or more geographic regions. Members of the Board now have before them a draft document which tabulates these topics within the matrix.
22. A separate document outlining CIFOR's Proposed Programme of Work and Budget for 1993 drafted by ACIAR and revised by the Chair of CIFOR's Programme Committee will be discussed at TAC 59. It is attached to this Progress Report.
23. Criteria which might be used in prioritizing projects were considered, drawing on the May 1992 Draft Strategic Plan and CGIAR Priorities and Strategies as set out for MTM 1992 Agenda Item 5. Final decisions on project activity must take into account:
 - The desirability of improving a situation or practice
 - The susceptibility of the problem to a research-based solution or improvement
 - National/regional/international research capacity to address the problem. CIFOR may have to establish capacity to address priority issues in which CIFOR has a distinct role and comparative advantage
 - The feasibility of implementing research results
 - The extent to which the problem is being, or should or could, be addressed by others (and especially other CGIAR Centers), whilst recognizing that CIFOR must seek to assume leadership in appropriate, chosen areas.

CONCLUSIONS

24. Arrangements are proceeding to complete the establishment of CIFOR -

- Members have been appointed to the Board of Trustees.
- The Board has held an inaugural meeting at which a Chairman and other officers were appointed.
- The Board has encouraged ACIAR to pursue negotiations with potential sponsoring nations with the objective of securing the necessary minimum of three supporters by the end of 1992.
- Countries on the shortlist of potential host nations have been visited by a committee of the Board; the Board anticipates being able to place a recommendation before the CGIAR at ICW92.
- Following advertisement for a Director-General a committee is selecting candidates who will be interviewed by the full Board in Washington in November.
- Planning is continuing, taking into account -
 - CGIAR Priorities and Strategies as reviewed at MTM92.
 - The strong emphasis which recommendations of Agenda 21 of the 1992 UNCED placed on poverty alleviation and sustainable resource management.
 - The view of Board Members that activities should encompass humid, sub-humid and semi-arid ecozones
 - The suggestions of TAC and CGIAR and of a much broader range of agencies and people who have contributed and are continuing to contribute, through diverse conferences and workshop, papers and correspondence; many of these suggestions had been brought together in the 'Outline for a Draft Strategic Plan' and in the 'Thematic Papers'.
- A draft Programme of Work for 1993 was prepared for by CIFOR's Programme Committee for review by TAC and ICW92.
- The Board has agreed to ACIAR continuing its administrative role. ACIAR will continue as the implementing agency of the CGIAR for the establishment of CIFOR until such time as CIFOR is formally constituted, and will be responsible for financial arrangements until CIFOR is in a position to assume administrative arrangements on its own behalf.

RECOMMENDATIONS

25. Members of CGIAR:

- Note the progress described in this paper.
- Advise the Chairman of the CIFOR Board of any particular suggestions or concerns which they may wish to see taken into account in the activities, including planning, anticipated in 1993.

Annex A: Members, officers, and committees of the CIFOR Board of Trustees.

28 September 1992

Centre for International Forestry Research

The Board of Trustees of CIFOR

Chairman	Prof. Dr Bo Bengtsson
Vice Chairman	Dr Ronnie de Camino Velozo
Members	Dr Suree Bhumibhamon
	Dr Yves Birot
	Mr Alan Brown
	Dr Louise Fortmann
	Dr Antonio Galvao
	Dr Stanley Heckadon Moreno
	Mr George Holmes CB
	Professor Uma Lele
	Dr Jeff Odera
	Dr Hj Salleh bin Mohd Nor
	Professor Satohiko Sasaki
	El Hadji Sene
	Dr Cornelis Baron van Tuyll van Serooskerken

Host Country Selection Committee

Chairman	Dr de Camino
Members	Dr Heckadon
	Dr Odera
	Prof Sasaki

Director General Selection Committee

Chairman	Prof Bengtsson
Members	Dr Birot
	Dr Galvao
	Professor Lele

Program Committee

Chairman	Dr de Camino
Vice Chairman	Mr Brown
Members	Dr Bhumibhamon
	Dr Fortmann
	Mr Holmes
	Dr Hj Salleh
	El Hj Sene
	Dr van Tuyll

...plus others as the work of the two short-term committees concludes.

INFORESEARCH

Number 4
August 1992

A news sheet to inform the international forestry community about the development of forestry research within the Consultative Group on International Agricultural Research (CGIAR) system.

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Appointed by the Consultative Group on International Agricultural Research to implement establishment of an international entity for forestry research.

ACIAR welcomes communications from interested parties in response to this news sheet. Responses should be addressed to the coordinator, Ian Bevege, at:

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This issue of INFORESEARCH marks the end of ACIAR's first year as the CGIAR's agent for the establishment of the Center for International Forestry Research (CIFOR). It has been a year of intense activity, characterised by extensive consultation with the international forestry community and debate within the CGIAR on the possible nature of CIFOR, its programme structure and level of interaction with the National Forest Research Systems (NFRS) in both developing and industrialised countries.

INFORESEARCH serves as a communication link between CIFOR and its stakeholders. Current distribution is over 1600 globally but access is somewhat restricted because production to date has been in English only. An important decision of CIFOR's Board at its first meeting (more of that later) was to print the newsletter in French and Spanish as well, thus opening the dialogue more readily to the large number of researchers in Francophone Africa and Latin America. Hence this edition of INFORESEARCH is available in English, French and Spanish - spread the word!

Inaugural Board of Trustees

At its midterm meeting in Istanbul in May, the CGIAR endorsed the nominees to the CIFOR Board and the Board met for the first time in Wallingford, England in July. This meeting was an important milestone: CIFOR is now an entity with a recognisable group responsible for steering the center into waters partly charted for it by efforts initiated by the International Task Force with its seminal report in 1988, culminating in the draft outline of the strategic plan prepared by ACIAR with the help of the Contact Group and others this year. ACIAR will continue its establishment role, working in support of the Board until such time as CIFOR is formally constituted and has sufficient staff to function effectively in its own right.

The Board presently comprises 15 members and will increase to 17 with the appointment of the Director General and the nominee from the host country. The members are drawn from the broad constituency of international forestry and represent a balance of regional and disciplinary interests tempered with extensive experience of tropical forestry research and development, and its management. The Board is chaired by Bo Bengtsson and vice chairman is Ronnie de Camino Velozo. Board committees are now actively working on the appointment of a Director General, selection of the host country for CIFOR's headquarters and the programme and budget for 1993. Below are digests of the board members:

Bo Bengtsson (Chairman), from Sweden recently retired as Senior Research Officer with the Agriculture and Rural Development Department of the Swedish Agency for Research Cooperation with Developing Countries (SAREC). He is now Professor in the Department of Crop Production Science, Swedish University of Agricultural Services, Uppsala. Dr

Bengtsson's specialisation is in agronomy and rural Development Research Planning and Management, and he has had extensive experience with the CGIAR.

Suree Bhumibhamon, from Thailand is an Associate Professor in the Department of Silviculture, Faculty of Forestry at Kasetsart University, Bangkok. Dr Bhumibhamon's many interests cover germplasm conservation, environment, data interpretation, technology transfer, research and development, community forestry and tree farming.

Yves Birot, from France is the Head of the INRA Forestry Research Department, Avignon and Chairman of the CTFT scientific council. Dr Birot's specialisation is in genetics and tropical forestry research.

Alan Brown, from Australia is the Chief Research Scientist with the Division of Forestry, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Canberra. His specialisations are silviculture and tree improvement.

Ronnie de Camino Velozo (Vice Chairman) is from Chile and currently holds the position of Invited Professor of the Technological Institute of Costa Rica, San Jose. He is a member of the Scientific Tropical Center, and Professor of the Master Programme Ecology and Peace of the University of Peace. Areas of specialisation are forest management and economics.

Louise Fortmann, from the United States of America is currently Professor in the Department of Forestry and Resource Management at the University of California, Berkley. Dr Fortmann is a sociologist specialising in natural resource management.

Paulo Galvao from Brazil is currently with EMBRAPA'S National Center for Genetic Resources and Biotechnology. Dr Galvao's specialist areas are silviculture and plant pathology.

Stanley Heckadon-Moreno from Panama is a Research Associate with the Smithsonian Tropical Research Institute in Balboa, specialising in anthropology and rural sociology, previously Director General of the Institute of Natural Renewable Resources, Panama.

George Holmes, from the United Kingdom is the Chairman of the Board of Management of the International Centre for Research in Agroforestry (ICRAF); ICRAF and CIFOR will share cross membership of their Boards at Chairman level. Dr Holmes specialises in research planning and management.

Uma Lele is from India and specialises in development studies and resource economics. She has extensive experience in the World Bank and currently holds the position of Graduate Research Professor in the Department of Food and Resource Economics at the University of Florida.

Jeff Odera from Kenya is the Director and Chief Scientist of the Kenya Forestry Research Institute, and specialises in silviculture and entomology.

INFORESEARCH

Salleh Nor is the Director General of the Forest Research Institute Malaysia (FRIM), and President of IUFRO. His specialisations are remote sensing, the ecology of natural forests, and conservation.

Satohiko Sasaki, from Japan, specialises in silviculture and tree physiology. Dr Sasaki is the Professor of Silviculture in the Faculty of Agriculture at the University of Tokyo, and a member of the IUFRO Board.

Hadj Sene from Senegal is the Chief of the Forest Conservation and Wildlands Branch in the Forestry Department of FAO in Rome. Dr Sene's specialisation is in forestry development and research planning administration and management with special reference to dry zone problems.

Cornelis Van Tuyl is from the Netherlands and specialises in planning, management and administration. Dr Van Tuyl is the Senior Advisor of Division, forest management, forest products and conservation of nature at GTZ in Frankfurt/Main Germany.

Strategic Planning and 1993 Programme

The outline of the draft strategic plan gained general acceptance by the CGIAR midterm meeting following revision of an earlier draft presented to the CGIAR-TAC. This paper formed the basis of intensive discussion at the CIFOR Board meeting and it was agreed that it provided a suitable framework for preparation of CIFOR's strategic plan. The Thematic Papers mentioned in INFORESEARCH No 3 have been completed and provide resource material for this planning activity; these are available from ACIAR (set printed bound, limited numbers, English only).

Further detailed work on the strategic plan must of necessity await the appointment of the Director General. The Programme Committee is currently preparing a programme and budget for 1993 within the frame work of the draft plan for presentation to the CGIAR Centers' Week meeting in October, at which funding support for the programme will be sought from donors.

Latin America Regional Seminar

A regional seminar was held at CIAT in Colombia in July, attended by 36 forestry-related people from the region. The purpose of the meeting was to inform foresters in the region of CIFOR developments, to involve them in the planning of CIFOR's programme and to explore the potential for collaboration between CIFOR, the NFRS and Latin American institutions, including CATIE, CIAT, IICA/PROCITROPICOS, INFORANDES and ICRAF. The output sought included (a) identification of priority themes for strategic, applied and adaptive research for the region (b) clarification of the role of CIFOR in strategic research on these themes and (c) identification of possible institutional mechanisms and operational modes for the organisation and maintenance of a regional system for forestry research.

While there was considerable interest in possible partnerships between institutions in the region and CIFOR, it was apparent that at the current stage of forestry research and development, most interest centred on applied and adaptive research allied to existing programmes of NFRS with little appreciation of the needs for strategic planning of research or of the role of CIFOR in providing strategic research support to national and regional programmes. This situation reinforced the observation at the meeting that CIFOR's collaboration with Latin America, at least initially, might need to be of the enabling type: one possible starting point could be institutional strengthening through training in research planning and management.

Proceedings of the seminar are currently in preparation in Spanish; there will be English and French executive summaries. ACIAR would like to acknowledge the sterling efforts of John Palmer and Filemon Torres (CIAT) in orchestrating this successful exercise. One possible follow-up step may be to conduct sub-regional meetings by ecological zone on planning of strategic forestry research for each zone. This will be considered by the Board for the 1993 programme.

Institutional Strengthening of National Forest Research Systems

An important component of CIFOR's programme will be the strengthening of NFRS. These are very weak in many developing countries, even where there is a well developed industrial forestry sector; the position is worse for community-based forestry or where forestry itself is institutionally weak.

CIFOR's approach may be threefold; through active participation of NFRS staff in CIFOR research projects, through the training of young NFRS scientists through both the project mode and through in-service activities (and even perhaps some formal post graduate training), and through the communication and information programme.

The general call for the CGIAR system to move upstream and be more involved in strategic rather than applied and adaptive research, creates difficulties in developing effective programmes with NFRSs whose capacities for strategic research may be minimal. While there are exceptions, NFRSs are weaker in this regard than their agricultural counterparts. This makes the planning and execution of an effective programme which meets the expectations of developing countries and at the same time satisfies the strictures of the CGIAR, quite a challenge.

In this environment, technology transfer activities become at least as important as the research task itself. It also calls for a re-definition of strategic research to re-emphasise its "outcomes orientation" wherever it be pursued across the spectrum from basic through applied to adaptive research, with technology transfer operative at all steps involving linkages between

scientist-scientist, scientist-extension worker or extension worker-forest manager/land holder.

Over the next few months, CIFOR will need to grapple with these issues in our strategic planning of the Center and its programmes of research and information. The proposed information project Forest Research Networks Information System (FORNIS) will be a key resource in this planning as it will allow assessment of capabilities of NFRSs in both the developing and industrialised worlds and assist the identification of research and information strategies CIFOR might adopt operationally for strengthening of developing country NFRSs.

Networking Data Bases on Tree Growth Potential

ACIAR has commissioned the Australian Bureau of Rural Resources to prepare a draft project design for TROPIS, the Tree Growth Potential Information System. It is planned that TROPIS will become a key element in the information systems programme of CIFOR.

TROPIS will be designed to meet the need of researchers working on tree introduction and growth potential for plantations and agroforestry in developing countries, giving ready access to both published and unpublished information on species characteristics growth and climatic and site requirements. The potential of individual species for particular climatic zones and site types (soil and moisture regimes) may be assessed.

Several research groups have developed are developing systems to meet their specific circumstances. These systems vary from essentially bibliographic data bases to interrogative systems based upon field data and the matching of species to site capabilities. Systems with potential to contribute to TROPIS include PLANTGRO, BIOLCIM, MULBU, TROPIS, WORLD (CSIRO/ANU), TREDAS (QFS), SESAME (CIRAD), MPTSys and MTPGro (F/FRED), MIRA (CATIE), INSP (OFI), AEZ (FAO), TREE-CD (CABI), PROSEA (LIPI, Wageningen AU), and MPdb (ICRAF).

The purpose of TROPIS is to link these various systems, enabling researchers to access various combinations of these databases to their own conditions. It will also encourage further development of each system as an integral component of the TROPIS network.

Following an informal meeting of Australian interest groups to assess their interest in TROPIS a wider interest group of key international organisations (including those above), has been invited to comment on the concept and objectives of the project and to assist in its development workshop is planned for November.

Further information or comment to: Dr Fryer, Bureau of Rural Resources, Department of Primary Industries and Energy, PO Box E1 Queen Victoria Terrace, Parkes ACT 2600 AUSTRALIA.

Center for International Forestry Research

C I F O R

Programme of Work and Budget for 1993

draft prepared by Chairman of the Programme Committee
of the Board of Trustees
7 October, based on
work by ACIAR, 2 October 1992

Agenda Paper for TAC 59 19-24 October 1992

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EXECUTIVE SUMMARY

Ten activities are proposed for 1993:

Regional seminars, case studies and syntheses on forestry policy research

Community participation in policy development

Germplasm database, compilation of ideotype profiles and identification of ideotypic species

Community-based non-wood forest products (NWFPs)

Alternatives to slash-and-burn agriculture; forestry's contribution to integrated land use by subsistence farmers

Community management of dry woodlands

Rehabilitation of degraded lands

Biodiversity

Tree and forest growth potential integration system (TROPIS)

Global forestry research information system

The proposed budget for 1993 is

	1000 US\$
Research	2955
Information systems	300
Administration	1650
total	4905

INTRODUCTION

1. In 1991, the CGIAR system decided to establish a new entity to cater for forestry, the Center for International Forestry Research, CIFOR. For the implementation of the decision, CGIAR appointed ACIAR in May 1991.
2. In July 1992 the first meeting of CIFOR Board of Trustees took place. The Board appointed a DG Selection Committee and a Host Country Selection Committee with precise terms of reference and deadlines for its activities. A Programme Committee was also appointed to make progress on the Strategic Plan together with ACIAR.
3. CIFOR is developing its Strategic Plan for Research. Major background documents include the ACIAR outline for a Draft Strategic Plan, the CGIAR objectives and priorities, the derivations from UNCED's Agenda 21 including the Global Forest Principles, and its own guiding principles. The activities of CIFOR will be orientated towards:
 - 3.1 poverty alleviation and income generation through socio-economic and policy research on better land use; through the development of techniques for the better management of forests, trees and degraded lands; and through more efficient management for the utilization of wood and non-wood products, including a shift in emphasis from exclusive timber to multiple end use management.
 - 3.2 improvement and sustainability of rural livelihoods, through research on the biological bases, management techniques, and social and communal forestry in degraded areas, buffer zones and closed forests of priority eco-regions in Asia, Africa and Latin America.
 - 3.3 making early and significant contributions to knowledge which could be used to contain the rate of deforestation, provide sustainable livelihood for forest dwellers and the people encroached into closed forests, and preserve biodiversity.
 - 3.4 strengthening national forestry and forestry-related research institutions to adopt the research outputs of CIFOR and to undertake adaptive and applied research for transference and dissemination of appropriate technologies to the poor farmers.
4. CIFOR will operate via:
 - o hands-on research by its own staff,
 - o collaborative and contract research with research institutions in developing and developed countries (including collaboration and complementation with the CGIAR Centers), and
 - o by establishing new or supporting existing information, research and research project networks.
5. CIFOR will undertake, organize and contribute to research and research-strengthening through:
 - 5.1 consolidating and synthesizing knowledge on the management and conservation of forest genetic resources; on improvement of forest productivity; and on tolerance to environmental stress. Increased action will be related to genetic improvement and the application of new biotechnology. Areas of research will include tree breeding, clonal propagation, seed procurement networks, germplasm banks, *in vitro* techniques and *in situ* and *ex situ* conservation.

- 5.2 promoting management for wood and non-wood forest products in closed and open natural forests. Products from management for multiple objectives will include timber, medicinal plants, dyes, cultural products, nuts, bamboo, rattan, ecological and environmental services, tourism. Research will include the determination of the potential productivity of the resources together with studies on biological, technological, socio-economic and policy issues related to organization, attitudes, incentives, utilization, biology, silviculture and management.
- 5.3 compiling and analyzing research data on species / site interaction in planted and natural forests and assessing the potential impact on forest and climate change as well as the effects of forests on climate.
- 5.4 contributing to improved policy environments for sustainable management of land use systems and natural resources through socio-economic and policy research aimed at improved understanding of the underlying causes of forest and land degradation, and the development of remedial policies.

DECISIONS OF THE FIRST BOARD MEETING RELATIVE TO STRATEGIC PROGRAMME

6. During the meeting, ACIAR presented a more advanced version of an "outline for a draft strategic plan" to the Board than the one presented to TAC (March 1992) and CGIAR (May 1991). Also, numerous individual and regional consultations were made as inputs from the international forestry and natural resources community to the establishment of the research agenda for CIFOR.
7. The outline for the proposed draft Strategic Plan included:
 - o description of the internal and external environments of CIFOR;
 - o the Mission, Guiding Principles and Objectives;
 - o the proposed Research Programmes and support activities; and
 - o ideas to convert strategy into action.
8. The CIFOR Board at its first meeting decided that, rather than present a further (still necessarily draft) version of the plan to CGIAR at ICW92, the Programme Committee and ACIAR should prepare the present "Programme of Work and Budget for 1993" which will provide a basis for the operations in 1993.
9. The Board requested its Programme Committee to continue working with ACIAR in the elaboration of the Strategic Plan for the Center. The Programme Committee will consider the contribution of the many consultations made by ACIAR in the formulation of the most effective research agenda consistent with the purpose of CIFOR and the above discussed priorities and principles.
10. The Board reviewed the Mission Statement and decided that:

"the purpose of CIFOR is to contribute to the sustained well being of people in developing countries, particularly in the tropics, through collaborative strategic and applied research and related activities in forest systems and forestry, and by promoting the transfer of appropriate new technologies and the adoption of new methods of social organization for national development".

11. The **Guiding Principles** adopted by the Board of Trustees for the activities of CIFOR, consistent with the mission statement, can be summarized as follows:

- 11.1 Provide a focal point within the CGIAR for leadership in forestry research worldwide by defining and updating a global research agenda of priority problems and by assessing the comparative advantage of existing institutions.
- 11.2 Address the problems primarily by fostering and facilitating research by other institutions and by hands-on research where CIFOR has a unique mission and/or a distinct comparative advantage.
- 11.3 Commitment to strategic research for better understanding of mechanisms and processes, and adopting an ecosystems and integrated approach in ecological, silvicultural, management and utilization research, and a holistic view in policy and socio-economic studies.
- 11.4 Marshalling the critical mass of interdisciplinary scientific expertise and resources to ensure efficient and effective implementation activities to meet clearly defined programme objectives.
- 11.5 Recognition that research must remain relevant to, and serve the needs of, developing countries in their efforts to achieve sustainable land use practices, minimise further degradation of forest lands and promote social equity.

FACTORS CONSIDERED IN THE SELECTION OF ACTIVITIES

12. In developing the CIFOR programme for 1993 the Board of Trustees was acutely aware of two conflicting needs:

- o to initiate active research in response to the increasing forestry problems in the target countries and in response to the desire of CGIAR members for a shift from planning to action; and
- o to avoid unreasonable constraints on the yet-to-be appointed Director General in the finalization of the strategic plan and the development of medium-term and operational plans.

13. The speed at which senior staff can be recruited will determine materially the rate at which projects can be brought into operation.

14. Nevertheless, the Board was determined that 1993 activities should be soundly based on problem analyses. The Board was not willing to approve an *ad hoc* collection of project proposals initiated outside a logical framework. The Board recognized at its inaugural meeting that the planning matrices will need to be refined further for the strategic plan. The following paragraphs summarise the current state of the Board's thinking, represented through its Programme Committee.

15. The frameworks developed by TAC for CGIAR priorities and strategies have been substantially adopted by the Board. CIFOR will initiate its work in all three continental regions:

- o Africa south of the Sahara
- o Asia and the Pacific
- o Latin America and the Caribbean.

16. The Board concluded, mainly on the basis of the size of the target populations, that CIFOR should concentrate on three major agro-ecological zones:

- o humid tropics and sub-tropics
- o sub-humid tropics and sub-tropics
- o dry (semi-arid) tropics and sub-tropics.

17. At this stage, the Board does not wish to assign priorities between the regions or between the zones.

18. The following table summarises the Board's view of the principal problems which require international, strategic forestry research in the three continental regions x three agro-ecological zones. This view is based on a preliminary study of the wealth of data assembled by the TAC forestry panel and by ACIAR and its collaborators. During 1993 the problem analyses will be developed further by the Board. Great attention to problem analysis is justified by the donor decision that CIFOR should be small in relation to the magnitude of problems requiring strategic forestry research. Especial care is therefore needed to ensure that the small resources are used most efficiently in problem-solving.

19. The table shows all continental regions combined, because no significant differences in problem types were found between regions. Inspection of the table will show that only minor differences exist between problems in humid and sub-humid zones compared with the dry zones. These similarities justify a global approach at the strategic level. Within the table, problems are classified by geographic scale, because the required research is markedly sensitive to scale.

Problems to be addressed by CIFOR

Agro-ecological zones		
Scale of problem	humid and sub-humid	dry
Watershed	Unsustainable farming associated with shifted populations moving with uncontrolled harvesting, leading to rain-caused soil erosion and increased seasonality of water flow.	Unreliable and variable rainfall leading to over-exploitation of the better soils, which are then subject to erosion by wind.
Natural forest	Boundaries shrinking through demographic pressure plus farming within boundaries. Depletion of forest biomass and loss of biodiversity through uncontrolled harvesting leading to poor recovery of forest, susceptibility to fire and further invasion by farmers and weeds.	Excessive harvesting of natural vegetation for fodder and for urban fuelwood markets. Poor management of fire leading to depletion of biomass and loss of biodiversity.
Plantation or woodlot	Low yields because of poor site-species matching, inferior or unsuitable germplasm and sub-optimal management.	Inadequate control of grazing and fire exacerbating low yields caused by poor site-species matching, inferior or unsuitable germplasm and sub-optimal management.

20. A review of the documentation made available to the Programme Committee of the Board showed that resolution of these major land use problems required attention to numerous topics. In Annex A are presented five tables, indicating the principal types of strategic research required to mitigate these problems. Because of the similarities in problems between continents, the tables apply to all regions. Moreover, the relatively minor differences between agro-ecological zones justify a global view.

21. One table is presented for each of the five activity clusters agreed by the Board:

- o policy analysis, social sciences and economics
- o techniques for better management (inventory and assessment; conservation and ecology of natural forests; establishment and management of plantations)
- o biological bases for better management (germplasm conservation, genetics, tree improvement; eco-physiology; microbial relations)
- o utilization of forest products
- o information services, training and institutional strengthening.

22. During 1993, CIFOR will progressively develop other matrices of relevant factors and incorporate them into its planning process, if a matrix approach proves to be suitable.

23. The small size of CIFOR will prevent it from undertaking research in all aspects of the possible activities listed in the tables in Annex A. The Board of CIFOR has therefore agreed on a preliminary list of criteria against which project proposals should be tested. These criteria are not ranked by priority.

23.1. Conformity with CGIAR goals. Special emphasis on research that will lead to maximum impact on large numbers of potential beneficiaries and that will contribute to rural poverty alleviation and income generation. Identifiable linkage to increased and sustainable rural livelihoods, and agricultural productivity.

23.2 Research that will foster peoples' participation in improved conservation and management of forest resources / forest lands.

23.3 Strategic research focused on high priority agroecological zones and research topics of significant regional / global relevance.

23.4 Research that leads to more effective conservation of endangered forest / plant / animal species germplasm. Tree breeding and improvement programmes that will increase productivity of selected multi-purpose trees.

23.5 Research that will result in more intensive utilization, increased productivity and sustainable management systems for forest resources / forest lands and to relieving pressure on fragile forest ecosystems.

23.6 Research that will contribute to restoration of degraded lands.

23.7 Research that builds on and strengthens promising ongoing research by NARS and regional / global networks, specialized research institutions, and international agencies.

23.8 Research that fosters IARC interaction in collaborative research approaches to sustainable forest land use and management.

- 23.9 Research that improves scientific understanding of the long-term biological functioning of natural forest ecosystems.
- 23.10 Research that contributes to improved understanding of global environmental issues such as global warming, loss of biodiversity, acid rain pollution.
- 23.11 Prospects of an early pay off, commensurate with cost of research.
- 23.12 Response to needs expressed in National Forestry Action Plans (TFAP) and Forestry Master Plans.

1993 PROGRAMME OF WORK

24. For the 1993 Programme of Work, the proposed activities are mainly global in nature with provision for work through partner institutions in each region. The type of project has been selected to maintain momentum in CIFOR activities and to incorporate an increasing number of partner institutions, without restricting the authority of the incoming Director General to shape the final version of the strategic plan. The activities are intended to progress rationally and quickly from problem analysis through project identification and preparation to field and laboratory research. The first five activities are continuations of work already considered by the CGIAR at ICW92 and at MTM92.

CIFOR's 1993 response to forestry problems: activities in progress in 1992

	Activity title	1993 amplified title	Principal problems addressed	Potential international collaborators
A1	Regional seminars on forestry policy research	Regional seminars, case studies and syntheses on forestry policy research	Inadequate national and international policies affecting land use and forestry, and contributing to unplanned deforestation and adverse terms of trade	CIAT FAO ICRAF IFPRI IICA
A3	Germplasm database	Germplasm database, compilation of ideotype profiles and identification of ideotypic species	No single location which holds information about germplasm suitable for tree improvement research. Poor conceptualizations of tree types required to supply specific products or to be productive on marginal sites	IBPGR
A5	Alternatives to slash-and-burn agriculture	Alternatives to slash-and-burn agriculture; forestry's contribution to integrated land use by subsistence farmers	Piecemeal or disciplinary attempts to stabilize shifted agriculturists have always failed. The GEF-funded global project affords the possibility of a fully integrated research study leading to an options basket of technologies	ICRAF and others
B1	Tree growth potential (TROPIS)	Tree and forest growth potential integration system (TROPIS)	Several promising tree and forest growth and yield databases and modelling systems would be improved by harmonization and more exchange of data. Integration with GIS would allow application to recommendation domains	CIAT and others
B2	Research networks database	Global forestry research information system	Development of CIFOR research networks and overview of global forestry research efforts for CGIAR members require a knowledge of existing efforts to avoid duplication and to permit selective strengthening. Communications between forestry research staff could be enhanced greatly by better organization of distribution systems	various

25. For the five activities new in 1993, the aim is to move swiftly from problem analyses to preparation and activation of research projects. Suggestions are given for potential collaborators by country and institution or project where the field research might be undertaken for each of the five activities. Countries are indicated by their FAO 3-letter code. To avoid over-loading the tables, the potential partners in the industrialized countries have not been listed.

26. Priorities have not been assigned between the ten projects because the criteria for prioritization have not yet been finalized by the Board of CIFOR.

CIFOR's 1993 response to forestry problems: activities new in 1993

	Activity title	Proposed work	Principal problems addressed	Potential collaborators
A2	Community participation in policy development	<p>a. review of current efforts to establish or re-establish effective community control over communal forest resources</p> <p>b. identification of effective interlocutors between legislators, policy makers, and local communities</p> <p>c. development of durable processes to facilitate dialogue between governors and governed</p> <p>d. comparison within and between regions to determine if global generalizations are meaningful</p>	<p>Peoples wholly and partly dependent on access to forest goods and services generally have little influence on policy decisions which affect that access. Legislative and policy changes may impose restrictions which lead to local disinterest in forest conservation and thus to deforestation</p>	<p><u>Africa</u></p> <p>CMR: Korup NP</p> <p>BKF: communal woodlands</p> <p><u>Asia</u></p> <p>Ford Foundation projects in IND and INS</p> <p>PHI: BFD forest stewardship areas</p> <p><u>Latin America</u></p> <p>COS: Proyecto Boscosa</p> <p>MEX: Plan Piloto Yucatan</p> <p>ECU: Comunidad El Pan</p> <p>PER: Comunidad Yanasha</p> <p><u>International</u></p> <p>FAO / TFP</p>

CIFOR's 1993 response to forestry problems: activities new in 1993

	Activity title	Proposed work	Principal problems addressed	Potential collaborators
A4	Community based non-wood forest products (NWFPs)	<p>a. bio-economic studies on one major NWFP in each region</p> <p>b. marketing studies to determine for each of these products how value accrues and to whom, and what are the possibilities of shifting a higher proportion to the harvester end of the chain</p> <p>c. development of verifiable indicators of good stewardship of NWFP resources</p>	<p>Common property and open access NWFPs are generally harvested by a "deplete and switch" process. Data are very scarce on the bio-economics of production cycles but most NWFPs are being seriously depleted. Many communities have traditionally depended for income on a variety of forest products.</p> <p>*Value is customarily added to NWFPs by the length and complexity of the marketing chain rather than by the pre-consumer processing. The small returns to the harvester provide little incentive for conservative management</p>	<p><u>Africa</u></p> <p>CMR: IRA for medicinal <i>Prunus</i> bark</p> <p><u>Asia</u></p> <p>MAL: Sabah Museum for edible birds' nest</p> <p><u>Latin America</u></p> <p>BRA: INPA & FUNTAC for Brazil nut</p>

CIFOR's 1993 response to forestry problems: activities new in 1993

	Activity title	Proposed work	Principal problems addressed	Potential collaborators
A6	Community management of dry woodlands	<p>a. improvement of land zoning systems to identify areas of high potential for sustainable agriculture</p> <p>b. bio-economics of the diverse products of dry forest and systems for enhancing value locally of these products (including reduction in wastage during processing)</p> <p>c. changes in social controls on access to goods and services in dry woodlands; one study in each region</p>	<p>Although much international interest is concentrated on tropical rain forests, deforestation is at least as rapid in dry woodlands.</p> <p>Intense demand for more farmland, plus constant cattle grazing, is tending to replace dry forests with much less biodiverse scrub. Soil is not always favourable to farming, because of acidity and aluminium toxicity. Formerly sustainable extensive management systems, integrating farming and woodland harvesting, need to be replaced by intensive management, in order to maintain the diverse benefits of dry woodlands.</p> <p>Some dry woodlands still have large and diverse herds of wild game, and have been protected for their income generated through tourism. This is not necessarily perceived as a good trade-off by the local population.</p>	<p><u>Africa</u></p> <p>SADC project profile 6 in project AAA.5.23</p> <p>MLI: FRIM</p> <p>TAN: Sokoine University</p> <p><u>Asia</u></p> <p>IND: CAZRI</p> <p>THA: Khon Kaen University</p> <p><u>Latin America</u></p> <p>MEX: INIFAP</p> <p>BRA: EMBRAPA + SUDENE</p> <p>GUA: CECON + CATIE</p>

CIFOR's 1993 response to forestry problems: activities new in 1993

	Activity title	Proposed work	Principal problems addressed	Potential collaborators
A7	Rehabilitation of degraded lands	<p>a. bio-economics of <i>Imperata</i>-adjusted farms in INS and PHI, with identification of potential for greater productivity</p> <p>b. suitable tenure and fiscal systems to stimulate tree planting and maintenance</p>	<p>Some communities in S.E. Asian countries have developed rotational fallow farming systems in fire disclimax grasslands which provide them with a subsistence level of existence. Generally, however, these grasslands are treated as wastelands, subject to extensive grazing and frequent casual burning. Even when most of the topsoil has been lost through erosion it is possible to rehabilitate these lands if tree establishment methods are good and fire is controlled for a few years.</p> <p>There is a substantial but under-used literature on recovery of <i>Imperata</i> and <i>Saccharum</i> grasslands (three volumes of CABI abstracts alone).</p> <p>Causes of degradation are often ascribed to inappropriate systems of land and tree tenure, which must be rectified before it is rational to make use of known plantation technology to re-establish tree cover on land with a forestry vocation.</p>	<p>CIAT IBSRAM ICRAF Oxfam</p> <p><u>Africa</u></p> <p>NIR: FRIN</p> <p><u>Asia</u></p> <p>PHI: UPLB and ViSCA</p> <p>INS: AFRD</p> <p>FJI: USP</p> <p><u>Latin America</u></p> <p>COS: CATIE</p> <p>COL: CONIF</p>

CIFOR's 1993 response to forestry problems: activities new in 1993

	Activity title	Proposed work	Principal problems addressed	Potential collaborators
A8	Biodiversity	<p>a. desk studies, one per region, of the relation between tree diversity and alpha diversity of other organisms. Selected sites should be well known taxonomically.</p> <p>b. review with collaborators of adequacy of current methods for biodiversity determinations in forests.</p> <p>c. study of utility of morphological keys (bark, slash, leaves) to families of trees, and of modern methods of key preparation (e.g., FROGIE)</p>	<p>The Biodiversity Convention signed by most world leaders in June 1992 places onerous obligations on many countries which will have difficulty in compliance. Methodology for holistic evaluation of baseline biodiversity and for monitoring of change is just beginning to be developed. Suitable sampling systems vary between types of organisms.</p> <p>Trees, as conspicuous elements in the landscape, may serve to some extent as surrogates for biodiversity.</p> <p>Some dry woodlands still have large and diverse herds of wild game, and have been protected for their income generated through tourism. This is not necessarily perceived as a good trade-off by the local population.</p>	<p>IUBS</p> <p>IUCN</p> <p>UNEP</p> <p>IBPGR</p> <p><u>Africa</u></p> <p>SEN: ABN</p> <p><u>Asia</u></p> <p>MAL: FRIM (Pasoh)</p> <p><u>Latin America</u></p> <p>BRA: INPA (Reserva Ducke)</p> <p>COS: INBio & OTS (La Selva)</p>

BUDGET SUMMARY IN 1000 US\$

ITEM	ESTIMATED 1993
A. <u>RESEARCH</u>	
PLANNING	210
CONSULTANTS	170
RESEARCH PERSONNEL (CIFOR STAFF)	320
FOREST POLICY	665
GERMPLASM CONSERVATION AND DEVELOPMENT	250
NON-WOOD FOREST PRODUCTS	430
NATURAL FOREST MANAGEMENT	450
PASTURES AND DEGRADED LANDS	220
BIODIVERSITY	240
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SUBTOTAL	2955
B. <u>INFORMATION SYSTEMS</u>	
TROPIS	200
FORNIS	100
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SUBTOTAL	300
C. <u>ADMINISTRATION</u>	
ACIAR STAFF	110
PROJECTS	100
HEADQUARTERS	1340
PROJECT ADMINISTRATION	100
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SUBTOTAL	1650
<hr/>	
TOTAL	4905

Scale of problem

Activity Cluster 1 : policy analysis, social sciences and economics

<p>Watershed</p>	<ul style="list-style-type: none"> o Understanding institutional interactions; o Incentives and compensation of upstream landusers by downstream landusers; o Cost benefit analysis of watershed management, with emphasis on valuation of benefits from management; o Tenure issues; o Macroeconomic policies affecting land use, including incentives to decelerate deforestation and relieve migration pressures;
<p>Natural forest</p>	<ul style="list-style-type: none"> o Linking causes of deforestation to remote sensing data and monitoring activities; o Institutional arrangements for forest management and conservation; including institutional aspects of buffer zone development; o Valuing non-wood outputs, including environmental services; o Commercialization of forest products and services, including vertical integration issues and marketing o Equitable systems for sharing of benefits by stakeholders, including development and transfer of licensing systems; o Mechanisms to assist organizations of farmers and rural communities to add high value to forest products and to upgrade the managerial and financial capacity of these organizations; o Mechanisms for operation of internationally recognized systems for quality certification of forest management and product processing which promote conservation of natural forest;
<p>Plantation or woodlot</p>	<ul style="list-style-type: none"> o Tenure and particularly common property issues; o Technology transfer and extension, including the development of easily-understood systems for estimating long-term costs and benefits of multiple options at the farm level; o Incentives and market issues;

Scale of problem

Activity Cluster 2 : techniques for better management

<p>Watershed</p>	<ul style="list-style-type: none"> o Water quality and quantity and other hydrological studies; o Land classification methodologies and associated systems for multiple-resource inventories, including use of remote-sensing imagery. o Use of GIS at the micro level and development of associated databases; o Methods for monitoring and evaluating land use shifts in watersheds; o Design and functioning of windbreaks and shelterbelts; o Impacts of deforestation on soil and water relationships and on downstream production systems;
<p>Natural forest</p>	<ul style="list-style-type: none"> o Land use classification methodologies, e.g., related to conversion and management policies and including criteria for designation and maintenance of protected areas for conservation of biodiversity and soil and water resources. Buffer zone management systems. o Use of GIS at the micro level; o Methods for monitoring deforestation and its causes; o Genecology, including pollinator/disperser mechanisms and management of gene flows and variation; o Enhancement of seedling regeneration, survival and growth through controlled disturbance; o Harvesting systems to recover a greater proportion of the intermediate and final yields while minimising damage to the residual stands and soil; o Monitoring of growth, and development of yield prediction systems for multiple forest products;

<p>Plantation or woodlot</p>	<ul style="list-style-type: none"> o Land classification; o Use of GIS at the micro level; o Impacts on other resources; o Relation to natural forest utilization; o Selection, conservation and management of appropriate germplasm, vegetative propagation of superior germplasm; o Nursery and establishment techniques to enhance symbiotic microbial inoculation and efficient uptake of water and soil nutrients; o Genotype-site matching for rehabilitation of depleted soils and those with adverse physical and chemical status; o Incorporation into yield models of effects of weeding, fertilizing, spacing, thinning, pruning, coppicing and pollarding, as well as collection of fodder, flowers and fruit. o Management techniques to enhance the efficiency of soil microbe - tree genotype interactions and to minimise risks of loss from pests and pathogens; o Harvesting systems to recover a greater proportion of the intermediate and final yields while minimising damage to the residual stands and soil;
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Activity Cluster 3 : underlying biological bases for better management

Type of activity

<p>Germplasm conservation and tree improvement</p>	<ul style="list-style-type: none"> o Reproductive biology, mating systems and effective population sizes needed to maintain evolutionary flexibility; o Population dynamics; o Patterns of genetic variation within a taxon, studied by biochemical, cytological and molecular marker techniques, and leading to improved sampling of native populations. o Rapid screening techniques; o Juvenile-mature correlations; o Breeding strategies to improve productivity and quality of forest products, and resistance to or tolerance of pests and diseases;
<p>Eco-physiology</p>	<ul style="list-style-type: none"> o Adaptations of trees to saline and sodic soils, waterlogging, low temperature and high solar radiation, low light, aridity and strong winds; o Soil-plant-water relations and nutrient cycling, including carbon fluxes; o Bud location and development; o Seed physiology, storage and germination, with special attention to recalcitrant seeds. o Relation of morphological and behavioural variations to eco-physiological adaptations to aid genotype-site matching for plantations; o Efficiency of use of light, water and nutrients, including irrigation and applied fertilizers; o Adaptations to extreme environmental stresses, including effects of pollution; o Crown/canopy development and leaf area index; o Eco-physiological process models to predict tree growth and yield;

Activity Cluster 3 : underlying biological bases for better management *continued*

Type of activity

Microbial relationships	<ul style="list-style-type: none">o Identification of beneficial and detrimental microbes and their genetic variation;o Interactions between tree genotypes and microbe genotypes and methods for enhancing symbioses;o Population dynamics and ecology of microbes, especially in relation to disturbance of soil or vegetation;o Assessment of biological nitrogen fixation (BNF) over long periods;o Selection of tree genotypes for high BNF;o Inoculation methods;o Influence of soil nutrient status;o Soil-borne pathogens: biology and control.
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Source of products

Activity Cluster 4 : utilization of forest products

<p>Natural forest</p>	<ul style="list-style-type: none">◦ Saw technology for timbers rich in inclusions and with interlocked grain;◦ Finishes suitable for extractive-rich timbers;◦ Processing technology to add high value in or near the forest yet be within the managerial and financial capacity of small farmers and rural communities;
<p>Plantation or woodlot</p>	<ul style="list-style-type: none">◦ Selection of genotypes to enhance yields of extractives with steady or increasing markets;
<p>common to both</p>	<ul style="list-style-type: none">◦ Use of small-sized trees, with or without a high proportion of juvenile or reaction wood;◦ Recovery of residues, including defective timber;◦ Combustion techniques and equipment;◦ Drying and preservation techniques for non-durable timbers, rattans and bamboos;◦ Harmonization and expansion of databases on properties and uses of tropical timbers, for better matching to end use.

Activity Cluster 5 (information services, education, training and institutional strengthening) is not likely to be highly specific to agro-ecosystems or scale as expressed by watershed / natural forest / plantation-woodlot. Possible activities have not therefore been tabulated. CIFOR will provide most of these services through activities related to individual research projects.

However, there are particular needs for training in leadership and management of forestry research and in its methodology (experimental design and statistical analysis) which are currently unsatisfied. Uptake of CIFOR results by forestry NARS will depend on training-supported improvements in these vital institutional aspects. CIFOR will work closely with ISNAR and pedagogic institutions in the development of appropriate training schemes.

The obligation to maintain a global overview of forestry research for CGIAR members requires the development and integration of suitable information systems. Such work can be run conveniently in parallel with improvements to systems for distribution of results from forestry research to stakeholders.

The Board of CIFOR recognizes that forestry extension services are also weak. CIFOR will work with training organizations such as IAC (Netherlands) and WOLPOL (U.K.) to adapt suitable programmes to the needs of forestry extension.