

Consultative Group on International Agricultural Research

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Agenda Item 5 - Report of the CGIAR Forestry Working Group

Research on Forestry in Developing Countries A Proposed CGIAR Initiative

At ICW 90 following a review of TAC's proposals for incorporation of agroforestry/forestry into the CGIAR System it was decided to appoint a small Working Group chaired by Dr. R. Herdt of the Rockefeller Foundation further to develop more specific proposals.

The Mid Term meeting will consider the report of the Working Group on forestry. (Attached)

The report suggests creation of a new CGIAR institution for forestry the International Service for Research on Forestry in the Tropics and Subtropics (ISREF).

ISREF would be located in Asia but would develop strong outreach programs in both Latin America and Africa.

Attachment

Distribution

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Its four suggested main activities would cover:

- Understanding the physical, biological, economic, and social environment of present and potential forestry systems in developing countries
- Creating the potential for sustainable improved productivity of forestry systems by evaluating technical and policy alternatives for their management choice of species, utilization, and marketing
- Providing information and advice to assist in making policy decisions about forest land use
- Increasing national forestry research capacity.

ISREF would operate through a variety of mechanisms including networking, contract and inhouse research with about 70 percent of its activities being devoted to support of forestry research in national/regional institutions.

A recommended initial budget of US \$0.5 million is suggested rising to \$7.5 million after 3 to 4 years and a possible target of US \$20 million by year 6.

ISREF would be governed by a Board of Trustees of similar composition and powers to those of other CG institutions. A total Board that would not exceed 11 in the first few years is recommended.

Relationship to ICRAF and Others

ISREF would be the CGIAR's instrument for the support and conduct of forestry research globally. ICRAF would be CGIAR's instrument for the support and conduct of agroforestry research globally.

ISREF would have close working relationships with other CGIAR institutions particularly with IBPGR on genetic resources, ISNAR on national institution building, and IFPRI on policy research.

Recognizing that ICRAF is in a process of transition, the report suggests that ICRAF Board and management may need to reexamine ICRAF's Strategic Plan in the light of the CG decision to establish ISREF and the potential for active collaboration.

In particular ICRAF would be urged to review:

- The CG concept of strategic research and how closely ICRAF's present research coincides with that.
- The extent and legalities of linkages with ISREF and those of the CGIAR centers likely to be involved in agroforestry research such as IITA, ILCA, ICRISAT and CIAT.

Key Issues for Discussion at the Midterm Meeting

The key issues are:

- (1) Does the Group endorse the notion of moving ahead with two CGIAR centers (i.e. ISREF and ICRAF) as the focal points for forestry and agroforestry respectively? This recommendation is at variance with TAC's earlier recommended position that a single integrated forestry/agroforestry center should become the focal point for forestry in the CG system. The Working Group report acknowledges that there are areas where there is potential overlap between forestry and agroforestry, but implies that working relationships could be developed to ensure complementarity between the research agendas and research expertise of the two respective institutions. Flexibility could be maintained to review the institutional arrangements for forestry and agroforestry some 3-5 years down the road and to adjust them should that prove to be desirable. (The Working Group's Report specifically recommends that an overall review of forestry/agroforestry in the CG System be carried out at a later date).
- (2) Does the Group approve of the recommended location of ISREF in Asia? In that context there have been strong representations from Latin American regional forestry researchers that a separate integrated forestry/agroforestry center for that region would have been a preferable arrangement (One of the earlier options for forestry identified by TAC was the notion of three regional centers located respectively in Asia, Africa and Latin America, each with an integrated forestry and agroforestry focus). The Working Group Report does emphasize the need for both ISREF and ICRAF rapidly to develop strong outreach programs in Latin America. That doesn't necessarily preclude the possibility that a separate integrated forestry/agroforestry Center for Latin America might be considered at some future date.
- (3) Does the Group approve in principle of the suggested budgetary levels for ISREF which could reach possibly \$20 million by year 6? Taken together with ICRAF's current proposal to increase its budget from \$15 million in 1991 to \$25 million by 1995 implies that by that date, total CGIAR contributions to forestry and agroforestry (including the forestry related components of other centers) could be in the order of \$40-\$50 million. That is in line with the recommendations of an earlier Bellagio Task Force on Forestry Research. However it does raise the issue of the relatively high proportion of the CGIAR budget needed for forestry vis a vis other research areas. Also of the desirability of ensuring that incremental funding for forestry will be secured.
- (4) Does the Group endorse the Working Group report recommendations that ICRAF would move ahead with revising its Strategic Plan (in close collaboration with ISREF) for review by TAC? Also that in so doing it would review how closely ICRAF's research programme coincides with the CGIAR's concept of strategic research? In developing their respective Strategic Plans, both ISREF and ICRAF could be requested to leave flexibility in their plans that will take into account the possible longterm evolution of the System towards, for example, three integrated

regional centers; or a single integrated center with regional subcenters or retention of the Working Group recommended option of two separate centers for forestry and agroforestry.

- (5) Does the Group approve of the suggested name for ISREF? (There have been several comments from reviewers of the Working Group report that the title International "Center" for Research on Forestry might be preferable to International "Service.")
- (6) Does the Group endorse the Working Group's proposed "Next steps" for establishment of ISREF? Specifically, the Working group report suggests that assuming a consensus on forestry issues at the Midterm 1991 meeting, then an Implementing Agency should be appointed that will:
 - (a) Create a temporary organization that can begin to develop specific proposals relating to the structure organization and research agenda of ISREF and to mobilize funding on ISREF's behalf.
 - (b) Initiate the search for a Director General and Board members
 - (c) Make the choice of a suitable location on the basis of criteria established by the working group and negotiations with potential host countries
 - (d) Establish the international status of the new institution
 - (e) Report to the CGIAR when it has concluded its mission and when the new organization is in operation.

Desirability of Reaching an early consensus on Forestry

Despite extensive consultations on this topic, there still remain differing perceptions among various donors and researchers about the desirability of integrating forestry and agroforestry research in the same institution versus the alternative option of separate institutions as the focal points for forestry and agroforestry in the CG System.

Even though it may prove difficult to resolve these differences in the short term, it would be important to try and reach a consensus at this Mid-Term meeting on a modus operandi that will permit the System to move ahead on forestry, but at the same time leave flexibility to adapt the institutional framework for forestry/agroforestry as experience is gained.

Research on Forestry in Developing Countries

A Proposed CGIAR Initiative

Forestry and agroforestry provide income and employment to hundreds of millions in the Third World. Firewood, poles, timber, fruit, gums, fodder, and extracts are only some of their bounty. Forests supply groundwater, protect watersheds, provide wildlife habitat and are the source of much biodiversity. But current rates of deforestation and land depletion signal the urgent need for better land use. Changes in policies, institutions, technology and practices are needed to realize solutions to these dangerous trends.

Acceptable, sustainable solutions will require research on ecology and conservation, as well as on the management of forests throughout the developing world. National and regional research institutions will have to conduct most of this research. These institutions need support, both intellectually and financially, and there is also need for international research, work that benefits all, but which no single national institution would find worthwhile or possible.

Recognizing these benefits and concerned that adequate practical knowledge of how to reverse the present trend of forest destruction be acquired and disseminated, the development assistance community decided to support increased research on tropical forestry at the Bellagio Forestry II meeting at Wiston House in December, 1988. The donors to the CGIAR subsequently requested the Technical Advisory Committee (TAC) to recommend how the CGIAR might assist.

In its report to the CGIAR, TAC recommended a four-pronged approach for forestry and agroforestry that would: (1) strengthen the capacity of national and regional institutions, (2) build on the capability of existing CGIAR centers like IITA, ICRISAT and CIAT which have broad ecosystem responsibilities, (3) incorporate forestry and agroforestry issues in the work of IBPGR, IFPRI and ISNAR, and (4) support an integrated forestry/agroforestry centre with strategic research capability to be a global focal point for such research.

"This widespread concern about tropical forests is based on a number of issues: that these forests are disappearing at an alarming rate; that the loss of so much forest has potentially disastrous effects - on soil, water, climate, the genetic richness of the globe and the supply of possible future economic products; that the uses to which the land is being converted are often not sustainable - that the forest is in fact being destroyed for no ultimate benefit, and that forest-dwelling peoples are being arbitrarily displaced."

Duncan Poore, **No Timber Without Trees**, Earthscan publications, London 1989, p.1.

Several other issues are relevant. In October 1990, TAC introduced the concept of eco-regional mechanisms, which has much appeal but still requires further elaboration to understand its relevance for forestry/agroforestry research. The forestry/agroforestry research agenda will be different in Asia, Latin America and Africa (see Appendix I), both in degree of integration of agroforestry and forestry and the potential for collaborative research between national institutions and the CGIAR. Based upon experience with the emerging eco-regional research concept, which may be of particular relevance in the forestry and agroforestry area, it is possible that several geographically-based CGIAR mechanisms may emerge to serve this area.

After considering the comprehensive analysis of the TAC and weighing institutional, financial and other realities, in October 1990, the CGIAR agreed that its program of work in forestry and agroforestry would require two entities, functioning in close collaboration with each other and with other stakeholders, national and international. The specific mandates of these two entities, and division of labor between them, should be complementary, providing a coherent and efficient approach to international assistance for forestry/agroforestry research in the Third World. The CGIAR agreed that one of these entities should be ICRAF, appropriately modified. A working group of five donors was appointed to make recommendations to the CGIAR regarding the scope of work, institutional nature, location, staffing and budget of the forestry entity, and its relation to ICRAF (see Appendix III). A draft report was prepared by the working group and circulated to donors on February 1, 1991, maintaining the need for an integrated research approach to forestry and agroforestry as components of land use. A series of consultations were held in February and March with developing country stakeholders and donors, in person and in writing (Appendix II). Many donors indicated their strong desire for separate entities for agroforestry and forestry research, despite the TAC's recommendation and some views from developing countries to the contrary.

This document reflects the best judgment of the working group on what will accomplish the task at hand and will be supported by the donors, and differs significantly from the draft of February 1. It outlines the mandate, goals, scope of work, and institutional structure of the new forestry entity. It offers a few thoughts about staffing and location, although location will need to be considered more thoroughly when the scope and focus of the new entity is accepted in principle. Finally, it outlines how the new entity should interface with ICRAF, mentions some of the consequences its program may have for ICRAF, and indicates the next steps needed for the CGIAR to move ahead with its support for forestry and agroforestry research.

NAME AND MANDATE:

The new institution shall be known as the International Service for Research on Forestry in the Tropics and Subtropics, ISREF.

The mandate of ISREF is to increase and disseminate knowledge about forest systems in the tropics and subtropics with the ultimate goal of contributing to the long-term well being of developing country people. ISREF works toward that goal by the development and dissemination of technology and knowledge to improve forest management, and by enabling national and regional institutions to develop and utilize such technology and knowledge to achieve desirable changes in policies and practices.

The goals for ISREF's initial five years are:

- Establish itself as a viable, independent, international institution within the CGIAR, serving national forestry research systems, and having clear cooperative relations with ICRAF and other relevant institutions;
- Assist and develop the forestry research capacity of national and regional institutions through research, training and other support programs;
- Develop its international research agenda, and begin active research and service work in the highest priority areas.

In accord with the schedule designated by the TAC, after approximately 5 years of existence, ISREF will undergo the normal CGIAR management and program audit.

PROGRAM ACTIVITIES

In recent years, the debate on deforestation, land use, development, and the environment has been wide-ranging and intensive, with heavy emphasis on tropical rain forests. Various groups have argued for their particular interests. In a rather simplistic manner, this debate may be summarized as follows.

Ecological proponents argue that tropical forests can only be saved if they are protected from human impact.

Champions of the economic agenda believe that the tropical forests are most suitably conserved in large tracts managed for extraction of timber and other industrial products. Such management is most effective if the forests are protected from incursions by shifting cultivators and other forest dwellers.

Agroforestry proponents argue that crop or livestock production can be improved and pressure on the land can be relieved by producing trees for fruit, nuts, fodder, firewood, other products, and services together with crops and/or animals. Their focus is on farm-dwelling people.

Finally, defenders of the social agenda argue that the needs of the rural poor -- who often live by exploiting forest products -- take precedence over nature and forest products.

There are merits in each argument, and the best chance for slowing deforestation and improving the lot of rural people in developing countries is to pursue all four within the perspectives of sustainable land use management, forest eco-system studies, agroforestry, and social forestry. Four program areas, roughly corresponding to the positions sketched above, can be identified: environment and forest conservation, production forestry, social forestry, and agroforestry.

Forest Systems Research. ISREF will conduct, promote, and support research that can provide the basis for improving all forest systems, thereby enhancing both environment and development, but it will emphasize the first three of the four program areas, in light of ICRAF's concentration on agroforestry.

Environment and Forest Conservation: The primary objective of forest conservation is to provide a wide range of bioecological services, such as conservation of biodiversity or maintenance of watersheds. Forest conservation can also occur in close proximity to (or as an integral part of) social or industrial forestry. It occurs at a wide range of scales, ranging from extensive biological reserves to small areas set aside for strictly ecological services such as erosion control.

Major research problems include understanding the ecology of such systems, understanding the spatial and temporal dimensions of biodiversity, and determining appropriate policies, laws and institutions to gain the acquiescence or active involvement of local populations in environment and forest conservation. Forest preservation entails the control and protection of natural forests.

Production Forestry: The primary objective of production forestry is to manage natural closed forests, woodlands and man-made forests to provide range of specific products, most commonly wood, but also non-timber products. Because of the high level of biodiversity of natural forests -- as well as the high degree of specialization of wood markets -- extensive areas of natural forests are required for timber production. To be sustainable, this form of land use requires clearly defined tenure arrangements that can permit repeated harvest at long (at least 20-50 years) intervals. Since an operational site covers large areas, the approval and active involvement of local people is essential and the welfare of these people is a key factor for the success of production forestry. Because considerable area within most natural forests is inappropriate for timber harvest, this land use may incorporate areas of forest preserve. Because of its extensive nature, long rotation and specialized needs, management of this land use should be achieved through economic incentives and laws that are, as much as possible, self-regulating and mutually re-enforcing.

Management of large scale man-made forests is another challenge for production forestry. Such plantation forests create a simple eco-system with planted trees dominating. Deliberate steps are needed to maintain biodiversity in these areas and to include useful products for local people. Establishment of large scale plantations entails some activities similar to agroforestry and/or social forestry.

The primary constraints to success in this land use system are technical, social, and economic. A wide range of research is needed, including effective natural regeneration, plantation establishment in waste lands, maintenance of biodiversity, work to understand incentives, social dynamics in forests, policy research on land use, and work to understand the competition between production forestry and other land uses. Other needed research relates to the wood trade, pricing and marketing.

Social Forestry: The primary objective of social forestry is to provide a wide range of market opportunities, employment and subsistence products for local consumption. Improvements in

social forestry require a knowledge of the relationship between society, the community, culture and the environment. In contrast to the previous land use, the approach of social forestry is generally community based. It addresses problems related to the conservation and management of tropical forests, and the causes and consequences of tropical deforestation on the community. Social forestry, having a community perspective, offers fertile terrain for investigation by both technical and social scientists in the development and application of appropriate technologies and policies. This includes an understanding of community attitudes and behavior towards the use or conservation of forest resources, community perceptions of social problems created by forest exploitation and degradation, opportunities and issues in community forest management, and an understanding of complex community organizations.

Agroforestry: The objective of agroforestry is to take advantage of complementary relationships between trees, crops and livestock such that the productivity, stability and sustainability of the total system exceeds that of single uses. Products include firewood, poles, fodder, fruit, nuts and other products in addition to wood. The soil-enriching effects of tree litter and nitrogen-fixing trees, the microclimate effects of shade and the retarding of soil erosion are additional services provided by agroforestry.

Each of the four systems has the potential to provide several valuable services and products, if managed wisely. Likewise, many research activities can contribute to solving problems of more than one land use system. For example, germplasm collection, selection, and breeding can be used to develop trees for agroforestry for plantation forests and for species enhancement in managed natural forests. Research into the nature of social dynamics is necessary for effective conservation, for natural forest management, and for agroforestry. Economic analyses are likewise needed to understand all four land use systems. The scope of work of ISREF, while directed toward environment and forest conservation, production forestry, and social forestry, may well generate results of value beyond these systems.

Potential Products and Services of Rural Land Use Systems

Products or services	Environment and forest conservation	Production forestry	Social forestry	Agroforestry
Biodiversity preserves	***	*		
Watershed protection	***	**	*	**
Soil maintenance	***	**	*	***
Timber production		***	**	*
Firewood production		*	***	***
Poles, canes, etc		**	***	**
Gums, extracts, etc	*	**	***	*
Crops, livestock		*	**	***

Phasing and Resource Requirements. ISREF will operate through a series of networking, contracting and collaborative activities with regional and national forestry institutions. The major part of its effort in its first few years will likely be establishment and staffing. In its second through fourth year, it will concentrate on implementing network and contract research programs, and only as those are established, and as circumstances require, will it implement in-house research activities as part of its participation in collaborative research.

The Bellagio II Task Force projected needs of \$50 million for global forestry/agroforestry research. The TAC envisioned that 30% of the CGIAR's support for forestry and agroforestry might be expended through centralized mechanisms such as ISREF, with 70% expended through national research organizations, regional institutions, other CGIAR centers, and eco-regional mechanisms. Under such a scenario, ISREF will be only a small part of the CGIAR's total effort on forestry, agroforestry and the environment, but some of the 70% envisioned by TAC for non-centralized efforts will flow through ISREF.

Starting with a first year budget, of perhaps US\$0.5 million, after 3 to 4 years, ISREF may have a budget of \$7.5 million, with \$3.0 million provided to collaborators through contracting and networking programs. ISREF may reach a budget of \$20 million by year 6.

At a budget of \$7.5 million, ISREF will have about 20 international staff members. From its beginning, ISREF will have to balance its contracting and networking activities with its in-house research. Each staff member will devote half of her/his time and effort to activities designed to increase the capacity of national forestry research institutions, such as training, networking, and research contracting.

The Bellagio II Forestry Task Force identified the following fields for expanded research:

- ** agro-forestry;
- ** watershed management;
- ** natural forest ecology and management;
- ** tree breeding and tree improvement;
- ** utilization and marketing;
- ** policy and socio-economic issues.

ISREF will emphasize service to national and regional forestry researchers and strategic research in the fields identified by the Bellagio Task Force (except agroforestry). It will follow a problem-oriented research approach, in which specialists from several disciplines work together with each other and with national scientists in research designed to answer questions about forest systems. In broad outline, the problem-solving approach requires understanding problems, evaluating alternatives, and choosing among alternatives. Some specific activities that may be required as part of the problem-solving approach are suggested below; the eventual balance among them will be determined by the Board and staff of ISREF in collaboration with national forestry researchers.

All of ISREF's activities must contribute to increasing national forestry/agroforestry research capacity, including the organization of collaborative research networks, management of research contracts, provision of information, enabling professional exchange, supplying materials to collaborating workers. These activities will be undertaken in strategic problem-solving research aimed at:

Objective 1. Understanding the physical, biological, economic and social environment of present and potential forestry systems in developing countries.

- 1.1 Physical: the interaction of soil characteristics, climate, watershed dynamics, and erosion in various forestry systems.
- 1.2 Biological: the interaction of trees, crops, pastures, shrubs, insects, fungi, microbes (soil and plant) and vertebrates; the effects of alternative systems on biological diversity, biological activity, biological sustainability and biological productivity.
- 1.3 Economic: costs and returns associated with alternative forestry systems; the effects of externalities, tenure, common property and policies; the equity effects of alternatives on women, children, the old and minority groups.
- 1.4 Social: traditional, legal and illegal community social institutions (informal as well as formal) that affect or determine forestry systems; the impact of perceptions on practices.

Objective 2. Creating the potential for sustainable improved productivity of forestry systems by evaluating alternatives for:

- 2.1 Management: natural forest harvesting, regeneration and protection; plantation establishment, husbandry, nutrition, pest protection, fire protection, rotation, and fertilization; watersheds; systems integrating woody species with annual crops and/or livestock.
- 2.2 Species: exploration, conservation and evaluation of woody germplasm; identification and selection of desirable species; evaluation of symbiotic micro-organisms, identification and selection of improved provenances; breeding; tissue culture; genetic engineering.
- 2.3 Utilization: development of processes for adding value, including wood products, non-timber products, residue and by-products.
- 2.4 Marketing: developing market information systems, marketing cost determination, identification of marketing opportunities including non-timber products.
- 2.5 Policy: land use and tenure regulations, pricing and taxation policies, trade policies, conservation policies, natural forest and plantation management policies.

Objective 3. Providing information and advice to assist in making policy decisions about forest land use.

3.1 Policy information: overviews of current policies, summaries of the results of past policy decisions, high-level seminars for forest policy makers, land use simulation exercises designed for decision-makers.

3.2 Policy advice: upon request, advice on forestry policy issues based on accumulated knowledge; after its first five-year period, commissioned studies of proposed policies in developing countries.

3.3 Decision support: computer-aided decision support systems that package both technical and policy-based information to support decision-making, e.g., fire danger meters widely used in Australia.

Objective 4. Increase national forestry research capacity.

4.1 Capacity: contract research for the above activities to national and regional institutions and networks; provide financial support for short-term training in-country and outside, and for graduate fellowships.

4.2 Research methodology: techniques that can be used to understand and improve the physical, biological, economic and social aspects of existing forestry systems.

4.3 Research information: empirical information about the nature of forest land use systems; computerized data retrieval systems for forestry experiments and bibliographic data bases; abstracting services.

4.4 Professional exchange: workshops and conferences; coordinated research projects; electronic communications networks; visiting scientist opportunities.

4.5 Materials: woody species germplasm; symbiotic micro-organisms; scientific equipment to facilitate research; information system hardware and software.

MODE OF OPERATION

ISREF will have the structure and operational capacity to play a global leadership role in research on forestry systems for developing countries, provide a focal point for identifying research needs and priorities, and stimulate and coordinate international research in these areas. To have the necessary credibility with developing countries, other international forestry and agroforestry agencies and donors, it will have to:

- be cost-effective,
- recognize and build on the strengths and comparative advantages of national, regional, and international research institutions,
- have sufficient flexibility to respond to changing technical and institutional needs and adapt to variable funding levels.

ISREF will operate through a variety of mechanisms suited to the needs of its constituent programs, including networking, contract research and in-house research. ISREF may operate an ISREF Fund for National Research Capacity Building as one mechanism. This would enable donors to provide funds to ISREF for very specific projects to be conducted by national research programs, but care must be taken to avoid ISREF becoming simply either a consulting agency or a funding pipeline.

Networking. A principal modus operandi will be to participate in, and where appropriate, initiate, support and coordinate, collaborative research networks. Such networks would consist of scientists from national, regional, and/or international programs as well as advanced research institutions and have the objective of jointly solving specific problems through comparative analysis, joint, or complementary research. Networks also have the objective of increasing the research capacity of developing country institutions. During its first years, ISREF will be involved in a limited number of well-focused collaborative research networks on priority topics within its overall mandate. Some networks may involve few participants, others may include large numbers; either way, features of the networks include:

- a clear set of objectives and shared research agenda, agreed to by all participants,
- mechanisms for joint decision-making, e.g., through the establishment of steering committees,
- adequate coordination mechanisms (full or part-time coordinators, well-defined communications channels, designated leadership by specific institutions, regular meetings, etc.),
- mechanisms for channelling funds to member institutions or programs, to enable them to effectively participate in collaborative research.

Contract Research. ISREF will contract out strategic research where cost effectiveness and the capacity of another institution make this the preferred mode. Core funds will be used for this purpose. Extra-core funding sources (e.g. direct donor financing of an institution in the donor's own country) may be used for such contract research under proviso that this work is approved by the ISREF Board and of the highest priority. Unlike networking, contract research will not generally require hands-on research by ISREF scientists, but they would be involved in identifying contract research opportunities and in monitoring it.

In-House Research. In the initial 3-5 years, once research priorities have been established, ISREF will concentrate on establishing its contract and networking research. ISREF staff will have dual responsibilities for research and for networking, contracting, communications or training. Basic laboratory and field facilities will be available after the first phase of establishment and based on the experience gained therein, either 'owned' by ISREF or made available through a cooperative arrangement with a national or regional institution.

Out-Posted Scientists: Some ISREF researchers will be out-posted, either singly or in small teams, as agreed with national, regional and international institutions, to conduct strategic research within particular environments and eco-regions.

Information, Communication and Training: ISREF will achieve a good deal of its impact through supplying information needed by policy makers and researchers, but it will also have some capacity to provide information to other groups who work with forest dwellers and rural

people. ISREF will develop and operate modern computerized data bases that utilize and complement existing comprehensive data bases of FAO, ICRAF, CABI and other agencies. These will include statistical data, a bibliographical system and research results. It will provide information from the data bases rapidly and efficiently. Printed materials will be an important part of its communication capacity.

Training will include workshops for decision makers, short courses for training of economic analysts, and training of technical research staff in appropriate areas.

RELATIONSHIP TO ICRAF AND OTHERS

ISREF will be the CGIAR's instrument for the support and conduct of forestry research globally; ICRAF will, assuming it modifies its mandate and program to the CGIAR's satisfaction, be the CGIAR's instrument for the support and conduct of agroforestry research globally. Close links will have to be forged between ISREF and ICRAF at the institutional as well as the program level. Linkage mechanisms could include out-posting of scientists by both ISREF and ICRAF to the other institution, joint research programs in areas of mutual interest, regular exchange of technical and other information, exchange of germplasm, coordination of training, and formal linkage in governance.

Some contend that a clear demarcation between forestry and agroforestry is impossible, but ICRAF does not accept that contention, even while recognizing the areas of overlap. The bulk of the work of each institution will focus on areas that clearly fall into one or the other area of primary responsibility. Examples of some areas where complementarities between the two institutions will have to be worked out include:

- The management of fast growing Acacia mangium and similar species in reclamation of alang-alang grassland in Southeast Asia,
- The role of tree species in reclamation of saline, formerly irrigated land in India,
- Improvement of coconut based farming systems in Southeast Asia,
- The conservation and management of savanna woodlands in Africa,
- Management of cacao plantations in Amazonia,
- Development of appropriate reforestation of the altiplano region of Ecuador.

Implications for ICRAF. In the donor consultations, it was stressed that ICRAF is in a process of change. A revised strategic plan with clarifications of ICRAF's agenda for strategic research has been requested by TAC. To meet the expectations outlined in the present recommendations, ICRAF Board and Management need to re-examine:

- ICRAF's strategic plan in light of the CGIAR decision to establish ISREF and the potentials for active collaboration;
- the CGIAR concept of strategic research, how closely ICRAF's present research coincides with that, and which current and future research activities are considered by ICRAF as strategic research, explicitly considering multipurpose tree collection, evaluation and improvement, policy research, and ecological studies of agroforestry systems;

- the extent and modalities for linkages and cooperation with ISREF and those CGIAR centers involved in agroforestry research such as IITA, ILCA, ICRISAT, CIAT.

Other CGIAR Institutions. ISREF will have close working relationships with other CGIAR institutions on forestry issues, particularly with IBPGR on genetic resources, ISNAR on national institutional building, and IFPRI on policy research. Linkage mechanisms similar to those mentioned above may be used.

As the CGIAR develops research on an eco-regional basis, additional opportunities will become available for close interaction with other components of the CGIAR system. An Inter-center forestry-agroforestry committee might provide one such mechanism. Special activities dedicated to providing donors with an overview of CGIAR activities in forestry and agroforestry research at the system level might be organized for International Centers Week.

Other Institutions and Programs. Close contacts will have to be developed and maintained with a large number of other tropical forestry/agroforestry research activities throughout the world. With the current growing interest in natural resource management and forestry research, the institutional situation will be very dynamic over the next few years. ISREF will be well placed to play a key role in helping to shape both the international research agenda and the structures set up to deal with emerging priorities.

ISREF may wish to establish an Advisory Council to institutionalize linkages with a broad range of key organizations from the public and private sectors in developing and developed countries. These could include major agencies with significant involvement in forestry such as FAO, IUFRO, ITTO and UNEP, as well as institutions such as IUCN and World Resources Institute. In inviting members, particular emphasis would be placed on organizations that are of importance to ISREF, but that are less appropriate as Board members because of their specific mandates. The Council will meet no more than once a year, but its members could be asked to undertake specific activities at any time, on a needs basis. It might consist of up to 15 members appointed by the Board of ISREF for 3 year terms. At least half would come from developing countries.

STRUCTURE AND GOVERNANCE

ISREF will be governed by a self-perpetuating Board of Trustees of similar composition and powers to those of other CGIAR institutions and guided by the CGIAR procedures for Boards. Its membership would comprise individuals with appropriate scientific, technical, financial, and administrative expertise, drawn from both the public and private sectors in developing and developed countries serving in their individual capacities. The Director General would serve on the Board in an ex-officio capacity. The total number of Board members will not exceed 11 and in the first few years will be significantly smaller.

Two members of the ICRAF Board, perhaps its Chairman and Chairman of its Program Committee will be nominated by ICRAF to the ISREF Board, assuming ICRAF agrees to a reciprocal arrangement. The host country will have one member, the CGIAR will nominate three. As with all CGIAR centers, at least half of the ISREF Board will come from developing countries.

LOCATION

Appendix I, which displays a number of indicators that reflect the importance of the forestry sector in the major developing regions, shows that all three have ample claim to an institution such as ISREF. Latin America has by far the largest area of closed tropical forest and the greatest amount of annual deforestation. Asia has the largest agricultural population, greatest volume of wood production and exports, the largest number of people dependent on forest production, and the largest number of people dependent on employment in wood products, pulp and paper manufacturing. Africa has the greatest extent of open forest land and the most rapid rate of population growth. Individual countries show similar diversity. No single location is an obvious choice.

In view of the substantial differences in the needs and opportunities for forestry research worldwide, ISREF will develop a decentralized structure. From the outset, programs will be established to meet priority needs in all regions. The headquarters will be small and a high proportion of the staff will be outposted. The mode of operation envisioned makes the decision as to the location of the headquarters of less importance than is the case for more centralized Centers. However, a decision does have to be made and it is a difficult one. Although the indicators are of some help, they do not give any one region an unequivocal advantage over the others.

It is recommended that the headquarters be located in Asia and that major activities be initiated in both Latin America and Africa early in the life of ISREF.

The final choice of country within Asia will be left to the implementing agency. The criteria for the choice include: a developing country where forestry is considered important, where the host government would clearly welcome ISREF, where international activities can be conveniently conducted, where ISREF is provided access to suitable forest research environments, and where an existing local institution wishes to actively cooperate with such an undertaking.

Activities in all regions will be closely coordinated with ICRAF and, to the extent possible, staff of the two organizations will be located together. It is foreseen, for example, that in Latin America both ISREF and ICRAF will base their activities in one or more key institutions in the region such as CATIE or CIAT.

NEXT STEPS

To move ISREF from concept to reality will require a number of steps over a period of time. The immediate steps which the Working Group foresee include:

1. The CGIAR approves these recommendations at the mid-term meeting in May, 1991.
2. The CGIAR appoints an Implementing Agency which will:
 - a) create a temporary organization that can receive funds on behalf of ISREF;
 - b) initiate the search for a Director General and Board members;

- c) make the choice of a suitable location on the basis of the criteria mentioned and negotiations with potential host countries;
 - d) establish the international status of the new institution;
 - e) report to the CGIAR when it has concluded its mission and the new organization is in operation.
3. The CGIAR undertakes a system-wide forestry/agroforestry review. In addition to regular TAC reviews, it seems appropriate for the CGIAR to have an overview and assessment of all its forestry and agroforestry activities. Such a review should take place when:
- a) ISREF has established its research agenda;
 - b) ICRAF has been formally admitted into the CGIAR and completed the revisions of its mandate, strategy and strategic research plan;
 - c) necessary revisions of the programs of IFPRI, ISNAR and IBPGR have been completed;
 - d) the work of other CGIAR centers involved in agroforestry research can be discussed, including those of ILCA, ICRISAT, IITA, CIAT.

It is tentatively assumed that such a review may take place in 1992.

Appendix I. Selected Indicators on Forestry

	Africa	Latin America	Asia	Source
Population (mil, 1990)	647	448	3108	11
Rural population (% of total)	65	35	70	11
Agricultural population (mil)	348	118	889	7
Agr. labor force as % of agr. pop.	41	36	40	2
Employed in wood products manuf. ('000)	77	41	623	6
Employed in pulp and paper ('000)	53	82	833	6
Closed forests (mil ha)	220	722	409	11
Open forests (mil ha)	465	207	87	11
Total forest (mil ha)	685	929	496	11
Closed broadleaf forests (mil ha)	215	653	258	8
Total natural forests (mil ha)	699	885	298	8
Plantations (mil ha)	1.8	4.6	5.2	8
Total forests (mil ha)	701	889	303	8
Forest land per capita	0.7	1.8	0.1	3
Forests and woodland as % of total area	27	47	25	1
Volume of wood production (mil m ³)	408	421	1016	2
Volume of exports (mil m ³)	5	8	44	2
Volume of imports (mil m ³)	3	5	34	2
Deforestation annually ('000 ha)	3822	12272	4405	11
Rate of deforestation (%)	-0.5	-0.6	-0.7	8
Afforestation ('000 ha)	355	817	5708	11
Afforestation rate (%)	+ 0.13	+0.53	+0.43	8
Projected deforestation (%) 2000 (high)	1.2	2.7	1.2	9
Forest projects (mil US\$)	170	45	320	10
Forest research expenditures (mil US\$)	26	27	103	5
Number of forestry schools (in 1997)	58	63	147	4

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Appendix II.

Group Consultations and Individuals Reacting to the Draft of Feb 1, 1991

Individual Reactions

Adeyoku, S. Kolade	- University of Ibadan, Nigeria
Agarwal, Anil	- Centre for Sc. and Env., New Delhi, India
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Hardin, Lowell	- Purdue University, W. Lafayette, IN, United States
Holmes, George D.	- Edinburgh, United Kingdom
Katerere, Yemi	- Forest Commission, Harare, Zimbabwe
Kio, P.R.O.	- Forestry Research Institute of Nigeria, Ibadan
Kobayashi, Fujio	- Ibaraki, Japan
Lizano, Juan Rafael	- CATIE, Costa Rica
Lynam, J.K.	- Rockefeller Foundation, Nairobi, Kenya
McClung, A. Colin	- Winrock International, New Delhi, India
Mok, S.T.	- Kuala Lumpur, Malaysia
Ng, F.S.P.	- FAO, Rome
Nor, Salleh Mohd	- Kuala Lumpur, Malaysia
Odera, J.A.	- Nairobi, Kenya
Pereira, Sir. Charles	- Kent, United Kingdom
Rao, Y.S.	- FAO Reg. Office for Asia, Bangkok, Thailand
Sanchez, Pedro	- Raleigh, N.C., United States
Sastry, Cherla	- IDRC, Singapore
Singh, R.V.	- Dehra Dun, India
Tarte, Rodrigo	- CATIE, Turrialba, Costa Rica
Tat, Tang Hon	- FAO/UNDP S. Pacific Forestry Commission, Vanuatu
Temu, A.B.	- Morogoro, Tanzania
Tewari, D.N.	- Dehra Dun, India
Verkant, Eric	- Ministère de la Recherche et de la Technologie, Paris
Williams, J.T.	- IFAR, Virginia, United States
Winrock International	- Bangkok, Thailand

Meetings and Consultations

January 9-11, 1991 - ICRAF, Nairobi, Kenya

Bengtsson, Bo	- CG Working Group, SAREC, Stockholm, Sweden
Cooper, P.J.M.	- ICRAF Staff

Cummings, Ralph W., Sr.	- ICRAF Executive and Finance Committee
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McWilliam, J.R.	- ICRAF Executive and Finance Committee
Mupawose, R.	- ICRAF Executive and Finance Committee
Muturi, S.N.	- ICRAF Executive and Finance Committee
Rothschild, George H.L.	- CG Working Group, ACIAR, Canberra, Australia
Scott, R.B.	- ICRAF Staff
Sickelmore, D.M.	- ICRAF Staff
Steppler, H.A.	- ICRAF Executive and Finance Committee
Zulbert, E.	- ICRAF Staff

February 13, 1991 - Harare, Zimbabwe

Campbell, B.M.	- University of Zimbabwe
Clarke, J.	- Zimbabwe Forestry Commission
Katerere, Y.	- Zimbabwe Forestry Commission
Kyomo, M.	- SACCAR, Botswana
Seward, B.R.T.	- Southern Africa Network Coordinator

February 19, 1991 - Nairobi, Kenya

Amari, G.	- Forestry Advisor, Ethiopia
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Maboka, J.	- Forestry Commission of Uganda
Nyaga, C.	- Kenya Ministry of Environment
Odera, J.	- Kenya Forestry Research Institute
Seward, B.R.T.	- Southern Africa Network Coordinator
Temu, A.B.	- Morogoro, Tanzania

February 25-26, 1991 - Brasilia, Brazil

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Tschinkel, Henry	- ROCAP/USAID, Guatemala, Guatemala
Vicente, Carlos Gonzalez	- Mexico, Mexico
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Zimmerman, Jorge	- Brasilia, Brazil

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March 4, 1991 - FAO, Rome, Italy

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