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REPORT OF THE MID-TERM EVALUATION

OF

THE COOPERATIVE AGREEMENT

BETWEEN

USAID AND THE INTERNATIONAL

COUNCIL FOR RESEARCH IN

AGROFORESTRY (ICRAF)

AGROFORESTRY RESEARCH AND TRAINING

PROJECT NO.936-5545

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EXECUTIVE SUMMARY

This report presents a mid-term evaluation of AID's $1.0 million Collaborative Research Grant with the International Council for Research in Agroforestry (ICRAF). Initiated in FY 1982 with an anticipated completion date in August 1985, the Project's purpose was three-fold:

(1) To develop and test a diagnostic methodology to identify agricultural and forestry land-use problems, analyze constraints and recommend practices to mitigate these constraints;

(2) To assemble systematic documentation of existing world-wide agroforestry systems out of which new practices and systems might emerge;

(3) To develop and carry out training courses in agroforestry for LDC participants.

With the exception of number two above (the Systems Inventory), the Team found that project purposes were being implemented as scheduled; in some instances, progress actually exceeded Project Paper plans. Because of the complexities in standardizing world-wide data and such factors as delays in international mails, the inventory component has been delayed. The Team did not find that these delays would jeopardize this component of the Project and would recommend that consideration be given to an unfunded six month project extension so that the systems inventory could be essentially completed.

A field-tested Diagnostic and Design Methodology (D&D) has been developed and is published in two ICRAF working papers. Curricula have been developed, teaching materials assembled and a training course attended by 20 LDC participants has taken place. Two training courses have been scheduled for 1984. As mentioned above, considerable progress has been made in making an inventory of world-wide agroforestry systems.

The team feels ICRAF has a significant role to play in improving land-use problems and sustainability of small and medium size farm operations in the LDC's. However, the Team would suggest that ICRAF move more directly into technology generation as contrasted to the synthesis, evaluation and interpretation of existing technology. The Team had the opportunity to present this idea to the ICRAF Board and its donors at the end of March and found them, for the most part, receptive to it. The final outcome of Board deliberations on this issue is not known. In this connection, ICRAF has already established a network of research projects under its Collaborative and Special Projects Program (COSPRO) (described in more detail in the text) where its scientists could be assigned and work directly on applied research activities.

We would urge that ICRAF give some attention to higher input agroforestry technology (as contrasted to subsistence technology) and small and medium-sized market-oriented agroforestry operations (as contrasted to subsistence operations). We feel there are significant opportunities in this sector.

What are the recommendations for AID's role in the future of ICRAF? First, by all accounts the training component of the project has been highly successful. We see an opportunity to build on this experience and, moreover, add the dimension of assistance in professional education. By this we mean helping traditional forestry and agronomy schools establish new curricula, develop teaching materials and train teachers at both the diploma and degree levels in agroforestry.

Second, in order to assist ICRAF to take a more active role in technology generation, we feel AID should examine the possibility of supporting the development and expansion of COSPRO programs. More specifically, AID could provide funds for a network of research projects under different ecological conditions (e.g. humid tropics, semi-arid tropics) that would have as their expected output relevant and profitable new agroforestry technologies.

Finally, we see the need for AID to develop some mechanism to allow its field missions to facilitate access to ICRAF expertise. Existing procurement and contracting regulations make this process extremely slow and inefficient. No additional funds should be required to implement this idea.

REPORT OF THE MID-TERM EVALUATION OF THE COOPERATIVE AGREEMENT BETWEEN USAID AND THE INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY (ICRAF)

AGROFORESTRY RESEARCH AND TRAINING PROJECT NO.936-5545

1.0 INTRODUCTION

It is the purpose of this evaluation to assess the progress made toward achieving the objectives in AID Project 936-5545 for the period from March 1982 through February 1984. Included in the report are recommendations of appropriate ways that USAID can support ICRAF's program after the current agreement expires on August 30, 1985.

1.1 The USAID Supported Projects

The three ICRAF projects supported by USAID's Cooperative Agreement which provides a total of US$1,000,000 over a 3 year period are:

(1) developing a diagnostic and design methodology to identify land-use problems and to analyze constraints to improved land management;

(2) making an inventory of important and promising agroforestry systems in the world, the information gathered to be fed into a register and data bank at ICRAF where it will be analyzed and disseminated; and,

(3) developing and conducting training courses in agroforestry.

1.2 How the Evaluation was Conducted

The Evaluation Team was composed of Dr. Robert F. Chandler, Jr. Team Leader and Consultant, Dr. L. Harlan Davis, Deputy Director of S&T/Agr, AID/W and James Seyler, Regional Forestry Advisor, REDSO/ESA. The Evaluation Team stayed in Nairobi from March 12-30, 1984, during which period it spent two days in the field looking at sites where the ICRAF-stimulated or guided field work in agroforestry is taking place or where case studies have occurred. Included also was a half-day visit at Machakos Field Station.

During its stay in Nairobi the Team visited with appropriate officials of the Government of Kenya, and with members of the regional and country missions of USAID (REDSO/ESA and

USAID/K). Towards the end of its stay the Team was able to visit with several members of the ICRAF Board of Trustees and representatives of donor organizations. Thorough discussions took place with the senior staff of ICRAF who were in charge of the USAID-supported projects and, of course, with the Director of ICRAF. A list of people consulted appears in Annex 1 of this report. Essentially all of the senior staff of ICRAF were met by the Team. Therefore, this list provides also the names and titles of ICRAF's senior professional staff.

Agroforestry, as used by ICRAF, is a word for all land-use systems and practices in which woody perennials are grown and managed on the same land with agricultural crops and/or animals. Benefits of the system may include diversification of farm income, fuelwood production, improving soil fertility, reducing soil erosion, protecting watersheds, and providing windbreaks for agricultural crops.

1.3 What ICRAF Is and Its Overall Program

ICRAF had its beginning in 1977 when it was formed under the instigation and support of the International Development Research Center (IDRC) of Canada. IDRC served as the initial executing agency, with the support and cooperation of the Swiss Development Corporation, the Dutch Ministry of Development Cooperation and the Canadian International Development Agency (CIDA). ICRAF was chartered and located its headquarters in Nairobi in 1978 under an agreement with the Government of Kenya.

ICRAF's charter gives as the objective of the organization, "to improve the nutritional, economic and social well-being of the peoples of developing countries by the promotion of agroforestry systems designed to result in better land use without detriment to the environment." ICRAF's activities are organized under eight programs. The following is a brief description of the activities under each of them.

1.3.1 Management and Administration. Under this heading falls the work of the Director who handles all relationships with members of the Board of Trustees, donors, important visitors, and most significantly, he administers and coordinates the entire work program of ICRAF. Within this program is included also the Secretary/Treasurer, who is responsible for finance and accounting, personnel matters and Board Secretarial functions.

1.3.2 Field Station at Machakos. This station is on a 40-hectare tract of land provided to ICRAF by the Government of Kenya, located about 70 km southeast of Nairobi. It is representative of a semi-arid environment (700 mm of annual rainfall in a bimodal pattern) at 1500 meters elevation. The station serves as a demonstration and testing unit for some of ICRAF's activities.

1.3.3 AGroforestry Systems Program. A major component of this program is the project on diagnostic and design methodology. Its objective is to develop a framework and set of practical tools for the diagnosis of land-use problems and for the design of appropriate agroforestry systems and technologies to solve or mitigate land-use problems. A second project in the systems program is the making of a global inventory of the major agroforestry systems that exist. This is being done with the assistance of regional coordinators, each of whom is an authority on agroforestry in his home region. Information from the survey will be entered into a computer-based agroforestry systems data bank where it will be available for access by anyone and disseminated through ICRAF's normal communication channels.

The above two projects in the systems program receive USAID support and are analyzed thoroughly in a later section of this report. Two other projects are active in the systems program. One consists of an economic analysis of agroforestry systems. It has three principal objectives:

(1) to evaluate existing economic methods and determine their suitability for analysis of agroforestry systems;

(2) to develop guidelines and tools for economic evaluation of agroforestry projects; and,

(3) to compile case study materials and economic data on agroforestry systems from all over the world.

The other project in the systems program is referred to as land evaluation. Its main objective is to compare, on specific sites, the relative value of alternative land-use systems based on agriculture, forestry and agroforestry.

1.3.4 Agroforestry Technology. This program is focussed on collecting appropriate technology information. This is done in close collaboration with the Information Program. It consists of many sorts of activities including the preparation of manuals of crop descriptions, specialized bibliographies, workshops, reviews and booklets and manuals of various sorts. In addition, the program establishes international networks such as those to develop the principles and theory of agroforestry research methodology and to test the proposals in the field through existing international and national programs.

Another activity of the technology program consists of field demonstrations and trials both at the Machakos field station and on farms at various locations in Kenya. The agroforestry technology program has been one of the most active from its early years at ICRAF. A number of excellent publications have resulted from the information gathered, much of it from

ICRAF-sponsored workshops, seminars and symposia.

1.3.5 Information Program. The objectives of this program are to acquire, analyze, interpret and synthesize information relevant to agroforestry, and to disseminate the information among interested professional people and organizations. The principal elements in the program are:

(1) a library with over 3,000 reprints and 2,000 books;

(2) an information and documentation service which provides the best answers available to incoming requests; and,

(3) a computerized environmental data base, which eventually will enable information to be retrieved on trees, crops, practices and systems suitable for any specific environment. Although a product of the work of the senior staff and of the seminars and workshops they have organized, it is the responsibility of the information program to edit and publish the books, pamphlets, training materials, etc., emanating from these activities.

1.3.6 Training. There are three main components of the training program as follows:

(1) on-the-job internships for a six-month period, aimed at providing selected personnel from developing countries with an opportunity to participate in agroforestry research methodology and information development;

(2) a fellowship scheme to provide an opportunity for young scientists to work closely with ICRAF senior scientists for a one-year period, the fellowships being funded directly either by donor agencies or by the candidates' employer organizations;

(3) agroforestry short course, including the development of training materials. The first course was held in November 1983 for an 18-day period for 22 participants. A second course will be held in Nairobi in June 1984. Because this activity is supported by USAID funds, the activity is analyzed and assessed in considerable detail later in this report.

As perhaps a one-time activity of the training program, was an International Workshop on Professional Education in Agroforestry held in December 1982. This was supported by the German Foundation for International Development. It involved principally curricula development and teaching materials.

1.3.7 Collaborative and Special Projects Program (COSPRO). Because problem-solving agroforestry technologies are highly location-specific, this program is establishing collaborative

projects with institutions in various parts of the tropical world, including South and Southeast Asia, Latin America, Africa and the Middle East. This is a rather recent program for ICRAF, but several projects have now been identified and formulated; two have been implemented and others are awaiting a donor. The two active ones are Peru (Amazonian tropics with IDRC support) and in Kenya with local government cooperation. There is an excellent chance that donors will be found soon for projects in Costa Rica and India.

This world-wide collaboration program promises to be one of ICRAF's important contributions because it stimulates intensified research at many locations and is bound to have an impact on the use of improved agroforestry practices around the world.

1.3.8 Agroforestry Advisory Unit. This activity was started in late 1983 to meet requests from various foreign assistance organizations such as governmental and private organizations engaged in development work, and development banks. The Adisory Unit is designed to be self-supporting but non-profit making. Three professionals are now on duty at ICRAF including a forester, a range management specialist and an agronomist.

The above-described eight programs in ICRAF are conducted by an internationally recruited senior staff of 18, and a supporting staff of 42; thus there are 60 regular full-time employees. On reading ICRAF reports, one might gain the impression that there is considerable duplication among programs, particularly the systems, technology and collaborative special projects program. However, on closer examination it is evident that there is strong collaboration and cooperation among the staff assigned to each program with the result that there is truly no duplication but rather a multiple use of personnel. For example, in a case study of agroforestry systems in the Machakos District of Kenya, the principal leader of the project was the agricultural economist but also participating in the work and published paper were the leader of the Collaborative and Special Projects Program, the leader of the Diagnosis and Design Methodology Program, the agrometeorologist and a scientist from the Kenya Agricultural Research Institute. Such a pattern of work distribution has been obtained in all case studies that have been completed so far.

The program was supported by an annual budget of a little over US$ 2 million in 1983. The funds received in 1982 and 1983 came from the following donor organizations listed in decreasing order by the size of their contributions: Canadian International Development Agency (CIDA), International Development Research Centre (IDRC), Swiss Development Corporation, Dutch Ministry of Development Cooperation, US

Agency for International Development (USAID), Norwegian Ministry of Foreign Affairs, German Agency for Technical Cooperation (GTZ), Swedish International Development Authority (SIDA), Ford Foundation, German Foundation for International Development (DSE), Rockefeller Foundation, and the Beijer Institute(- Sweden).

About 40% of the funds received were designated for the unrestricted core program. The remainder were allocated for special projects or represented the cost of scientific personnel seconded to ICRAF by donor agencies.

The Government of Kenya provides highly significant support in kind which includes tax and duty exemptions, allocation of land for the field station, and a piece of valuable land for ICRAF's planned permanent headquarters (if and when funds become available from donor organizations). A table showing the source and amounts of funds received by ICRAF from 1979 through 1983 is presented in Annex 2.

2.0 ANALYSIS OF USAID-SUPPORTED ACTIVITIES

2.1 The ICRAF Training Course

As stated earlier, there are three main activities of the Agroforestry Training Program at ICRAF:

(1) the six-month on-the-job internship;

(2) the twelve-month fellowship scheme; and,

(4) the agroforestry supported short course. This last activity is supported by USAID and is analyzed in the following paragraphs.

One of the expected outputs of this component of the project was to develop curricula and teaching materials for the training courses scheduled in 1983 and 1984. The preparation of these materials was scheduled originally to take place in 1982, but the Training Officer did not arrive until September of that year. Therefore, most of the planning development of the training materials, as well as the actual giving of the course took place in 1983.

The Agroforestry Training Course was held from 1-18 of November 1983. Although the course was organized and coordinated by the Training Officer of ICRAF, Dr. Ester Zulberti, the lectures on the practice of agroforestry were given by ICRAF's senior professional staff, plus several outside speakers from international foreign assistance agencies with offices in Nairobi. Dr. Zulberti arranged for two major in-house seminars in 1983, one in May and the other in October. These sessions

laster one two days and involved all the ICRAF senior staff who were to be involved in teaching the course. Such matters as course structure, content, obtaining appropriate visual aids, the number and scope of the field trips were decided at these meetings.
A compendium of some 200 typewritten pages was prepared in loose-leaf form containing the main content of the course. In addition, other materials were given to the trainees while the course was under way.

The objective of the course was to enhance the professional capabilities of research scientists and development planners from the less-developed countries, to initiate and implement agroforestry research leading to the creation of systems and technologies that are suited to local conditions and adoptable by farmers.

Invitations to submit nominations for candidates were mailed in June 1983 to 170 appropriate institutions in 56 countries in tropical Africa, some five months before the course was to be offered. A total of 50 candidates were nominated from which 22 were selected in accordance with criteria previously established by ICRAF, as follows:

The candidates had to be citizens of African countries, have a degree in a field related to agroforestry, have experience and interest in agroforestry, speak and read English, and be officially nominated by their employing institutions. The 22 participants came from 13 African countries and represented the following disciplines: forestry, general agriculture, animal husbandry, soil science, geography, farm management, agroforestry and plant genetics.

The course program was organized in three phases. During the first phase (lasting one week), the conceptual and technical background of agroforestry was presented, along with a review of ICRAF's program. Two field trips were taken to allow the trainees to see actual agroforestry systems being practiced under different soil and climatic conditions in Kenya.

The second phase (lasting a week and a half) was devoted mainly to the conceptual framework and procedures of the system of diagnositic and design methodology, including both classroom and field exercises.

The final phase of the course was to identify research needs as indicated from the application of the diagnostic and design methodology approach. A complete account of the daily activities of the course are given in Annex 3 of this report, along with the names of the lecturers. After the participants had completed the course, they were asked to fill out an evaluation form so that the Training Program at ICRAF could benefit from their comments when planning the next course.

Essentially, all of the participants expressed high satisfaction with the course, station that they had gained a great deal of information and felt better prepared to attack agroforestry problems in their home countries. The most frequent criticism was that ICRAF tried to present too much material in too short a time. The participants wanted more opportunities to confer with ICRAF scientist and to work in the library. ICRAF has already announced its second short-time training course which will take place in Nairobi from June 4-22, 1984.

The description in the announcement for the second course is rather similar to that for the first except that it does include as one of the four modules "individual study/work by participants, e.g. library, computer, consultations with ICRAF scientific staff, etc." Consultations by the Team with the Training Officer indicate that much was learned by the ICRAF staff members who planned the first course and who gave the lectures and led the field trips. The material to be presented at the second course will be condensed, duplication will be eliminated and time will be provided for consultations with staff members and for library work. Furthermore, the amount of printed material handed out to the trainees will be reduced.

Another feature of the second course is that the trainees will be more carefully selected - not necessarily for quality (which was good for the first course) but with respect to the professional work of the trainee. It has been decided that five of the twenty persons to be admitted to the June course will be from the Collaborative and Special Projects Program (COSPRO) in Kenya, two or three will be persons who are resident at ICRAF headquarters under the in-service training program or the fellowship scheme. Another two or three will come from USAID missions in Africa. Four will be selected from active COSPRO projects in Latin America, and the final six remaining openings will be allotted to one each from six African countries. In this way many of the of the participants in the training course will be working in agroforestry projects, most of which are directly connected with ICRAF's Program of Work.

In the original project plan, ICRAF was to offer a short training course in Latin America or Asia in 1983, as well as in 1984.

However, due to the late start in the program, this was not possible. ICRAF will hold a 3-week training course in either India or Malaysia in 1984. ICRAF senior staff members will be visiting these two countries in April and May, and depending upon the stage of development of COSPRO projects, a decision will be made as to which country is the more appropriate for holding the course this year.

The Team found little to criticize in the way the course was conducted, considering that it was the first time it had been given. Without question, ICRAF is the most qualified organization in the worked to give such a course, and undoubtedly the teaching materials and course content will continue to improve as more experience is gained and as the science of agroforestry develops.

The Team interviewed three Kenyans and one Tanzanian who had been enrolled in the first training course. Based upon their favorable comments and on those of USAID and GOK officials, the Team recommends that USAID support for the training and education program of ICRAF be continued and expanded. The details of this recommendation are presented in a later section of this report.

2.2 Diagnostic and Design Methodology

The purpose of this component of the Project is "to develop a methodological tool for diagnosis of land-use problems on marginal lands, for design of appropriate agroforestry systems and for evaluation of the impact of agroforestry land management options". About one third of total project funding is allocated to this purpose with an anticipated output of an operational on-farm tested and evaluated diagnostic tool published in the form of a handbook at the completion of the project scheduled for 9/30/85.

Significant progress has been made by ICRAF in the development of the D&D system. To wit:

(1) a competent staff led by Dr. J. B. Raintree has been assembled with forestry, agronomy, horticulture, soil science, economics, and geology disciplines represented;

(2) a systems methodology has been formulated and is published in two documents (ICRAF Working Papers 6 and 7) which give step-by-step procedures for applying the systems; and,

(3) the D&D Methodology has been field-tested in 14 applications, three of which have been published in ICRAF Working Papers (two in Kenya and one in Philippines). Another five will be published in 1984 and the remainder in the 1985-1987 period, subject to the approval of cooperating entities.

In addition, the D&D Team anticipates refining the existing system by evaluating specific on-site trials of agroforestry projects based on earlier D&D applications and revising the methodology for application to larger-than-farm areas (e.g.

watershed management problems) and intra-household D&D problems (e.g. sex-role differentiation).

What are the major characteristics of the D&D Methodology, what does it contribute and how is it applied? Agroforestry is a system of land-use involving the interaction of man in the production of both trees and crops and/or animals. It involves complex biological, physical and social science considerations, and, therefore, cuts across a number of traditional academic disciplines.

The D&D Methodology is a systematic set of guidelines to help assure that these major inter-disciplinary considerations are taken into account and to identify priority problems in designing research or action-oriented agroforestry projects. In the simplest terms it is an approach which facilitates the identification of major land-use problems and suggests actions that will mitigate them. Its contribution is that it helps to assure (but does not guarantee) project success. In this context, project success means an intervention which increases economic returns and sustainability over traditional and other existing systems.

ICRAF has identified the following components in the D&D systems: pre-diagnostic description; diagnosis; technology design and evaluation; planning decisions; and evaluation. These steps or phases have been conceptualized in a flow-chart with feedback loops which can be found in Annex 4. Essentially, the pre-diagnostic stage covers a socio-economic and biophysical overview of the study area with preliminary description of key aspects of the agroforestry system. The diagnostic stage is a detailed on-site evaluation of major land-use problems and potentials with recommendations on generation of appropriate agroforestry technologies. The technology design phase suggests the design and ex-ante evaluation for component technologies and the planning stage involves the formulation of an implementation and management plan to carry out the activity. A more detailed explanation of these concepts may be found in Annex 5.

For each of these steps detailed instructions, procedures, questionnaires and other relevant materials are incorporated in ICRAF Working Papers 6 and 7. And as pointed out, the methodology has already been applied and field tested in 14 case studies in Africa and Asia. The anticipated output by 1983, as called for in the original Project Paper, was to be a first draft of a diagnostic tool which would be field tested in five case studies.

How is the D&D Methodology carried out in practice? To answer this question in detail would take more space and time than are available here. However, some insight gained during the Team's visit to a D&D site is briefly summarized in the following section to shed some light on this question.

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One of the D&D case applications was in the Machakos District, a semi-arid area some 70 kilometers outside of Nairobi. An ICRAF Team composed of an agricultural economist, a livestock specialist and an ecologist joined with two specialists from the Kenya Agricultural Research Institute (KARI) to form the basic group. However, other ICRAF consultants and GOK specialists also provided assistance on specialized problems. Besides KARI, the Machakos Integrated Rural Development Program participated in the study.

The aim of the project was to develop improved systems of agroforestry land management appropriate to small-scale mixed farming systems characteristic of Kenya's semi-arid zone. Following a pre-diagnosis and overview the study team went to the field for a first approach or rapid D&D appraisal. Based on secondary data the basic biophysical and socio-economic characteristics of the area were identified. The target area and target population were pinpointed and their biophysical and socio-economic conditions were described. Then, based on detailed field study and farm visits, the farming systems of the target population were analyzed.

From this analysis the basic agroforestry problems were suggested. These included low income, low land and labour productivity, poor soils, high water run-off and erosion on small units and seasonal feed shortages for livestock. Based on these constraints an agroforestry research project was formulated that involved, among other practices, alley-planting of trees with an upper story of fuelwood and fruit trees in the cropland that would have the potential to reduce erosion and water run-off, improve soil nutrient status, maintain soil organic qualities and improve the quantity and quality of livestock feed. Also, as a result of increasing crop productivity, and reducing the need to buy wood building materials and firewood, cash income would increase.

The project is now being implemented and it is too early to evaluate results, much less ascertain the feasibility of disseminating the results to client farmers in Machakos. One problem already encountered, however, has been the logistics and administration of implementing the research project with local counterparts. Plantings have not taken place as scheduled and there have been some deviations by counterparts in the research design from those recommended through the D&D system. The study is published as ICRAF Working Paper 19, "Agroforestry Systems for the Semi-Arid Areas of Machakos District, Kenya" for readers who may wish to pursue this matter in more detail.

The Team considers that the D&D component of the project has served not only the purposes of which it was intended but it has also been instrumental in bringing the entire staff of

ICRAF together into a problem-oriented and functional inter-disciplinary unit. Further, the D&D Methodology has allowed and will allow the gathering of standadized information and data from different geographic and socio-economic conditions which can be sysnthesized to improve agroforestry concepts and programs in general.

The following observations are offered by the Team, however, on the D&D work to date:

(1) Because of the wide diversity of conditions under which the Methodology may be applied, a high degree of flexibility in concepts, approaches, and interpretation of results is necessary. Site-specific problems in some instances may require considerations not encompassed by the existing Methodology. While we feel the D&D system does allow for much flexibility we feel that caution must be exercised, so that it will not become rigid dogma and obscure site realities. It should be utilized as a set of guidelines which can be easily modified or changed for special circumstances, as it is intended to be;

(2) Along these same lines, the existing D&D language and concepts are seemingly sophisticated especially for LDC professionals whose first language usually is not English. If the Methodology is to be widely applied as a tool in the LDC's its concepts and language may need to be modified to become more user-oriented;

(3) The Team is concerned about the technology generation component of the Methodology. More specifically, for field research projects (case studies) the question is raised as to whether there is an adequate number of tested technology options available from basic (or experiment station) research to be recommended for the field operations. The question takes an even more importance where the Methodology may be applied for action-oriented activities (as contrasted to agroforestry research projects) that may be financed by local or international donors. At present ICRAF, as a Council, is not allowed by its Board nor is it fully equipped to generate basic agroforestry technology as called for in the model. Thus, technology options available to the D&D team must come from the "shelf" or the existing stock of knowledge. But there is no assurance that there are not other more technically and economically relevant possibilities.

(4) While the model incorporates a practical guide for carrying out an economic analysis of various agroforestry systems, it does not present a description of practical tools or procedures (such as partial budgeting) of analysis. A non-economist user might find an elementary explanation of such tools and their utilization useful. Significant farm management and economic analysis work has been completed by ICRAF which could be synthesized and utilized in the existing D&D manuals. Also, the Methodology does not adequately address such issues as farm marketing and credit which may be of critical importance in the development of new tree crops through agroforestry systems.

(5) Nor does the Methodology address macro-economic or policy issues that could be relevant to the successful implementation of agroforestry systems. For example, tax incentives for livestock enterprises could encourage clear cutting and pasture development in some instances; on the other hand, they could encourage tree planting such as was the case in Brazil where large areas were re-forested as a result of fiscal policies propounded by the Federal Government. These may be important considerations for agroforestry development.

(6) The D&D model would appear to be directed mainly to marginal small-scale, low technology agroforestry systems. The team feels that higher technology options should at least be considered. ICRAF officials anticipate that studies in India and Costa Rica will allow the D&D system to evaluate higher technology systems. The Methodology does not address some of the issues involved in questions with more commercially-oriented systems of agroforestry. For example, what are the major biological and economic considerations involved in establishing such systems? Answers to such questions could stimulate significant interest among larger-scale operators as well as public sector support in general for agroforestry.

(7) Finally, as ICRAF is now structured, once the initial D&D appraisal is completed, and turned over to local institutions for implementation, there is no guarantee that design specifications and implementation schedules will be followed. Said differently, ICRAF has no mechanism for quality control. For example, implementation problems are already emerging in the Kenya D&D case study activity. The lack of adequate quality control mechanisms and resultant system failures could undermine the credibility of the D&D System.

In summary, the Team considers that the objectives developed for the D&D component of the project are being carried out effectively and according to schedule. The above issues have been discussed with relevant ICRAF staff who concur in their importance and to the extent possible will attempt to take them into account as the D&D Methodology is refined and put in final form at the end of the project. The involvement of ICRAF in technology generation is an issue discussed later in this report.

2.3 Agroforestry Systems Inventory

The purpose of the Agroforestry Systems Inventory sub-project is to systematically collect documentation of important and promising agroforestry systems throughout the world in order to bring relevant information on these systems together in one place for evaluation and dissemination. Based upon this information, research and development priorities will be identified and a systems register and data bank established to record and update global statistics and trends in agroforestry.

The rationale for the inventory is that although agroforestry is one of the oldest and widely practised land use systems around the world, information on these systems is usually limited to descriptive and qualitative accounts. It is not known whether they have reached their maximum operating potential, whether they are disappearing as a result of increasing population pressure or other factors, or if they could be improved and extended to other situations. In order to address these issues and provide innovations which can make these systems more productive, more protective of the environment and more replicable, a basic knowledge of existing agroforestry systems is required.

The Systems Inventory is also critical to the success of the majority of ICRAF's other programs in that it has the task of achieving one of the three overall objectives for ICRAF's work: namely, the development of problem-oriented interdisciplinary capacity and methodology to assess constraints in land use systems and to identify agroforestry potentials in those systems.

In order to accomplish this task, the implementation objectives of the Systems Inventory are:

(1) to assemble and catalogue the information on the functioning of different agroforestry systems around the world;
(2) to evaluate the information scientifically in order to identify the weaknesses and constraints of the systems, as well as their potential for improvement and wider applicability;

(3) to identify research topics to overcome the constraints and improve the systems;

(4) to establish an agroforestry systems register and data bank to record and update global statistics on trends in agroforestry; and,

(5) to disseminate as much quantative and descriptive information as possible on worldwide agroforestry practices for the eventual use of researchers and development workers.

The actual inventory would work as follows: a group of qualified Regional Coordinators (RCs) were to be identified and commissioned by December 1982, who together with other individual and institutional cortacts and ICRAF staff field visits, would assemble systems information in various geographic regions. The major geographic regions originally chosen included Southeast Asia, South Asia, Mediterranean and the Middle East, East and Central Africa and the American Tropics. A seventh region, the Pacific Islands and Papua New Guinea was added as a result of recommendations made by the RCs during the November 1982 systems inventory planning meeting.

The inventory is scheduled to be completed over a period of three years using USAID funds of $360,000. In spite of delays resulting from the unforeseen magnitude of the data collection exercise and other minor problems as noted below, the sub-project has made significant progress in achieving its goals and objectives. In particular, it has:

(1) provided a preliminary overview of the global agroforestry situation;

(2) exposed ICRAF to the complexities and problems of agroforestry systems worldwide; and,

(3) created an informal agroforestry research and development network among LDC institutions and individuals.

A more detailed analysis of the planned phases of this component and specific accomplishments may be found in Annex 6. Implementation problems are discussed below.

2.3.1 Complexity and Scope of the Project

The scope of the systems inventory project and the magnitude of work required in data collection and synthesis has turned out to be much greater than ICRAF or USAID has anticipated. As a result, the data collection phase has been delayed and it now appears that compilation of data will not be completed before September 1984 or later. The primary reasons for this delay were complex problems in designing a standard questionnaire,

difficulties encountered in defining agroforestry and in distinguishing between systems, sub-systems and practices; and an unexpected (but very positive) response from individuals and institutions outside the RC system.

Given the nature and complexity of the data collection format, many Regional Coordinators (RCs) assisting in data collection believed that what was called for was a detailed farm-to-farm inventory of systems. There was also some disagreement among the RCs as to what constitutes "agroforestry" and how to distinguish between systems, sub-systems and practices.

These issues were discussed during the November 1982 planning meeting and the July 1983 mid-project appraisal meeting. The Project Coordinator explained that the main objective and the first output expected from the exercise was a reconnaissance overview and a state-of-the-art summary of the existing agroforestry systems and practices around the world. Having identified these, some of the more "promising" ones could be studied in detail, with as much quantitative data as possible. Differences between and definitions of systems, sub-systems and practices would become apparent during the data analysis/evaluation phase and not during the collection phase.

Many of the RCs also felt that the questionnaire was too complex and elaborate. ICRAF's rationale for having an elaborate questionnaire was that it was designed for global applicability and as such, had to be of a general and flexible nature. ICRAF also maintains that this format is only intended to provide guidelines in describing systems and that some people might even prefer to discard the whole questionnaire and prepare a system description of their own encompassing all the required elements.

The Team believes the questionnaire/data collection format to be appropriate for project needs. However, the Team does not concur with ICRAF's rationale that the questionnaire can be used simply as a guideline. Standardization of data collection is critical to objective scientific analysis of the data. The Team therefore recommends that the Coordinator encourage the RCs to follow the questionnaire as closely as possible in order to facilitate compilation of data.

Additionally, the Team felt that the rational for the Systems Inventory may be somewhat overstated. Given that the quality of data received to date continues to be more descriptive and qualitative rather than quantitative, the objective of identification of potential methods of improving systems may be unattainable. However, the data will be invaluable in identifying priority regions, research needs and gaps.

The Team also noted that the Regionbal Coordinator System has not worked as efficiently as planned. All of the RCs have full-time positions and it has been difficult for them to respond properly to ICRAF requests. However, the response to the inventory from individuals and institutions outside the RC system has more than compensated for any deficiencies in the RC system itself.

2.3.2 Literature/Information Base

ICRAF's literature review to date indicates that available literature on agroforestry systems description is rudimentary, scattered and rather comprehensive accounts of systems and practices are difficult to find. However, one RC and several questionnaire respondents maintain that there is a significantly more information available than ICRAF initiatively thought. They also feel that their jobs would have been much easier if they could have had access to this information from the outset. ICRAF maintains that despite specific requests to all RCs for feedback on what they required in terms of information, literature, etc., only one RC responded and was provided with literature collected for his region at ICRAF. In the absence of knowledge of what the RCs already had, it was not feasible to indiscriminately send all literature collected to all RCs. This problem of lack of communication between the RCs and ICRAF is further compounded by the fact that the RC's Terms of Reference do not include development of an exhaustive bibliography. As a result, many of the RCs have been remiss in failing to provide new documentation to ICRAF in a timely manner.

The Team therefore recommends that:

(1) ICRAF request all RCs to prepare a bibliography of all partinent regional information and forward it to HQ as soon as possible, pending completion of the surveys;

(2) ICRAF explore additional data bases particularly USAID's; and,

(3) ICRAF make better use of USAID's Forestry Support Program, Regional Forestry Advisors and Washington-based foresters as contact persons.

2.3.4 Treating Pacific Islands and Papua New Guinea as a Separate region

The November 1982 ICRAF and RC Systems Inventory planning meeting recommended that the Pacific Islands and PNG as a separate (and seventh) region. The rationale for this recommendation is that the agroforestry systems of these islands are very specific to island environments and the

lessons of addressing self-sufficiency with the few resources, which many islanders have obtained, is unique and should be treated separately.

As the USAID Cooperative Agreement did not contain sufficient funds for data collection in a seventh region, ICRAF explored collaboration possibilities with Australian's National University Development Study Center, Canberra, and the East-West Center in Hawaii. While interest from these institutions was high, efforts to secure additional funds for this purpose proved unsuccessful. Consequently, USAID was approached on the possibility of funding an additional $35,000 for this exercise. After receiving favorable reaction from the USAID project manager in January 1984, ICRAF was asked to prepare a detailed proposal. However, USAID's response to this proposal was still pending at the time of this report.

The Team supports ICRAF's proposal and recommends that USAID explore possible internal funding sources, particularly ST/FNR's Forestry Support Program.

2.3.5 Need for a Final Wrap-up Meeting

The original budget for the systems inventory project contained provisions for only two RC meetings; an initial planning meeting and a mid-project appraisal meeting. However, during the course of the mid-project appraisal meeting, RCs expressed a need for a final wrap-up session after the data collection exercise in order to review accomplishments, determine areas/systems that were not covered, discuss information obtained by ICRAF outside of the RC contacts, review progress made in data compilation and decide on publication details. ICRAF was to approach USAID for additional $25,000 for this meeting.

While this meeting would be useful, the Team is not convinced that it is worth the additional funding. Although RC input into the data evaluation/publication-output phases would be valuable, the Team believes RC input could be handled through correspondence, using locally available RCs and during routine ICRAF travel.

2.3.6 Need for Extending the Time for Completing the Sub-Project

As previously mentioned, both USAID and ICRAF did not anticipate the magnitude of work required in systems data collection and synthesis. Moreover, specific issues such as appropriateness of the data collection format, defining agroforestry, distinguishing between systems, sub-systems, etc., were not resolved until the July 1983 meeting. As a result, the data collection phase is about six months behind

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schedule. The Team therefore recommends that this component be accorded a six month extension (from August 1985 to February 1986) with no additional funds other than the $35,000 already requested for the Pacific Islands/PNG Inventory.

The Team believes that by according this extension, ICRAF will be able to meet all Systems Inventory objectives and will have the capacity to continue/refine the inventory as a marginally low-cost core activity.

3.0 ASSESSMENT OF PROJECT MANAGEMENT BY BOTH ICRAF AND USAID

As seen in Annex 1, the Team talked with the principal officers of REDSO/ESA, USAID/K and ICRAF. In these consultations we repeatedly asked about management problems on both sides and we found that there seemed to be mutual satisfaction with the management of the Cooperative Agreement. ICRAF was pleased with the arrangement for fund advances by USAID, and the financial analyst who processes ICRAF accounts said that everything was being handled to her full satisfaction. A financial statement of funds expended on the Project through December 31, 1983 is presented in Annex 7.

ICRAF quarterly reports have come in on time and have supplied the information that USAID needed.

ICRAF indicated that there had been no problems with procurement of goods and services under USAID waivers.

The Team probed as deeply as it could and found the situation rather ideal. USAID indicated that such praise could not be accorded to many other organizations which were receiving USAID support in the East African region.

A suggestion was made by the REDSO/ESA Deputy Director that some arrangement be made to allow Country USAID Missions to more effectively gain access to ICRAF technical expertise in agroforestry. He pointed out that the existing USAID contracting procedures and competitive procurement regulations seriously delayed and hampered USAID Mission use of ICRAF technical resources.

The Team recommends that AID/W give consideration to establishing some kind of companion contract or IQC arrangement to allow more effective utilization of ICRAF's expertise, especially its Agroforestry Advisory Unit. Such an arrangement would greatly reduce delays and red tape and allow USAIDs to make effective use of ICRAF's resources.

4.0 THE FLOW OF INFORMATION FROM ICRAF TO USAID MISSIONS AND TO LDC INSTITUTIONS

Since its inception in 1977, ICRAF staff have published 115 miscellaneous and working papers and seven books including the proceedings of the International Conference on Plant Research and Agroforestry. A newsletter with a mailing list of 2,000 is being published two to four times a year. All of these materials are available to USAID Missions and LDC institutions; moreover, ICRAF makes a concerted effort to advise interested organizations about the availability of these materials and solicits views and comments. The REDSO/ESA Forestry Advisor has been instrumental in disseminating ICRAF materials and making appropriate linkages to host country institutions especially in East Africa.

In 1981, IDRC seconded a communications specialist to ICRAF to answer requests for information by searching for the answers in the literature and from other sources. The idea was to collect information as it was needed, and to build up a library on this basis. Significant progress has been made since then in the development of the library. Over 1700 books which are listed on-line by title and author have been assembled.

To increase the level of service for all information activities, the priorities listed have been identified. They are being implemented as follows:

First, a microcomputer-based information management system is being established to provide quick and specific access to the Council's library resources. Other specialized products, such as data bases on multipurpose trees, on the fodder value of woody plants, on plants with pesticidal values, etc. are also being produced.

Second, travel is undertaken to establish contracts with institutions throughout the world and to determine the information resources they may have that are relevant to agroforestry. Publications exchanges and a free subscription to Agroforestry Systems Journal are offered to assist with this effort.

In order to increase awareness of the Council's activities, to disseminate research results and to understand the market for ICRAF products, a reader survey is being undertaken and is being mailed to current recipients of the ICRAF Newsletter and to others who may be potentially interested. The objective is to identify and increase the number of interested recipients of the ICRAF publications aimed at a wide audience (i.e. Newsletter, Information Brochure, Publications List) and to improve the selected and rapid distribution of topic-specific publications.

A significant level of ICRAF senior and support staff time is needed for the initial stages of planning and implementing these projects.

For the longer term future, the Council will continue to seek alternate mechanisms to produce and disseminate its publications, possibly by cooperating with commercial publishers and/or other international agricultural centres and by considering co-publication of selected documents in local languages.

The establishment of the Advisory Unit in 1983 gave ICRAF a significant outreach opportunity. This group composed of three specialists principally carries out consultancy/contract agroforestry projects for LDC governments and international donors including the USAID. They have considered or have under consideration some 31 enquiries from USAIDs other international donors, and LDC governments. A list of these activities and projects under consideration is found in Annex 8.

The COSPRO and Training Programs are other means through which ICRAF has expanded its linkages to the LDCs and the USAIDs. Both of these activities are described elsewhere in this report.

We feel it is fair to say that to date the most effective ICRAF outreach network has been achieved in East Africa. As the organization expands through its COSPRO programs in other areas of the world we see a significant opportunity to enlarge this network and more effectively serve USAID in other parts of the world.

5.0 RECOMMENDATIONS FOR FUTURE USAID SUPPORT FOR ICRAF

Before going into recommendations, the Team wishes to express its confidence in ICRAF. The organization has a competent Director and staff, and its program of work has developed well during the past several years. Furthermore, the Team sincerely appreciates the excellent cooperation received from the ICRAF staff during the evaluation survey. Without such support, the objectives of the study could not have been achieved.

5.1 Training and Education in Agroforestry

A major activity the Team recommends that USAID support is a continuation of the training program with additional emphasis on professional education in agroforestry.

ICRAF is the most competent organization in the world to undertake training in the area of agroforestry. It has made an excellent start in developing the structure and content of a short training course which can be conducted in any part of the world, wherever there are qualified people to teach the course.

The Team recommends that USAID continue to support this 3-week short training course so that it can not only be given once a year in Nairobi but also annually in an Asian or Latin American country. Eventually of course, there should be enough experienced agroforesters so that national governments can sponsor their own training courses.

Pertinent to this last statement is the need for introducing agroforestry courses in the curricula of both practical diploma-granting schools (such as Egerton College in Kenya), as well as in degree-granting colleges and universities that have agriculture and forestry curricula. There is a need for not only developing course outlines and teaching materials, but also for completing curricula for students who wish to become specialists in agroforestry.

Among the many persons whom the Team consulted, a large proportion stressed the need for professional education in agroforestry, but no person or organization seems to be taking serious action in this direction.

ICRAF can assist greatly in this activity, but it cannot do the job alone. It has to be accomplished in conjunction and collaboration with professors of agriculture and forestry who understand university requirements for degrees, yet who are sympathetic with the need for including agroforestry in the curriculum.

As already mentioned, in December 1982, ICRAF held an International Workshop on Professional Education in Agroforestry, with the participation of over 70 people from around the world. It is expected that the proceedings of that workshop will be published in 1984. It should serve as an excellent source of information and opinions. Several of the lecturers on that program could be recruited to serve an ICRAF-sponsored international working group or task force to develop teaching materials and curricula.

If ICRAF simply waits for people to seek its advice, it seems unlikely that any real action will occur in the near future. Therefore, it is imperative that some donor organization provide support to ICRAF so that it can spearhead this effort. A task force composed of no more than two or three ICRAF senior staff members and several consultants from appropriate colleges and universities, could, over a period of a year or so, develop the needed course outlines, teaching aids and curriculum structures.

To summarize and reiterate this component of recommended USAID future support for ICRAF, funds should be provided so that ICRAF can carry out a program in training and education which involves not only the short training course at selected

locations around the world, but allows ICRAF to organize a working group or task force to plan and introduce at several institutions professional courses and curricula in agroforestry.

5.2 Diagnostic and Design Methodolcgy

Since the basic objectives of the Diagnostic and Design Methodology (D&D) will be attained by the end of August 198', when the current agreement expires, the Team sees no need for additional support for this activity. This recommendation does not in any way suggest dissatisfaction with the project. Obviously, the system will continue to be improved as more experience is gained, and this will occur as ICRAF scientists pursue their program of work.

5.3 Agroforestry Systems Inventory

As indicated earlier in this report, the other component of the USAID-supported project, the Agroforestry Systems Inventory is behind schedule and an additional six months (with no additional funds except as already requested by ICRAF for the Pacific Basin) should be provided for Dr. Nair and his team of Regional Coordinators to complete the work. As with the D&D Methodology component, additional systems of agroforestry will continue to be identified in the normal course of ICRAF activities. One of the more important contributions of the inventory work is that it is helping to establish an informal international research and development network in agroforestry. Nevertheless, the Team does not recommend that additional funds be allocated to this activity, after the currently available funds have been expended.

5.4 Participation of ICRAF in Technology Generation

Now that the D&D methodology has been well developed and that the agroforestry systems inventory is well under way, the next logical step in ICRAF's program of work is to expand and intensify the application of knowledge already being acquired through the Collaborative and Special Projects Program (COSPRO). As described in an earlier section, this program is stimulating the formation of teams of scientists in several different ecological environments, that are, or soon will be, conducting agroforestry research.

The Team feels that much greater progress in agroforestry technology generation could occur if ICRAF were to assign one or two scientists to each of several ecological zones around the world. These scientists could serve as team leaders or co-leaders with local scientists and actively participate in the research projects. In other words, it is recommended that ICRAF play a more active role in technology generation, instead of being exclusively an advisory and information-gathering-and-disseminating organization.

As stated at the beginning of this section of the report, the Team feels that ICRAF has developed an excellent program and has a well-rounded, competent senior staff. Nevertheless, it is the conviction of the Team (as of many persons consulted during the evaluation) that ICRAF could have a much greater impact on the advancement of the science of agroforestry if it were to participate directly in applied agroforestry research work in several selected countries around the world. Moreover, the Team believes that such an active role in research would enhance the competence and reputation of the scientific staff and greatly increase the creditability of the organization as a whole.

While establishment of the COSPRO program of ICRAF is a step forward, without an ICRAF scientist on the spot on a continuing basis, there is little guarantee that each project will continue as originally planned. If an ICRAF scientist could be assigned to a research project, become a member of the research team on a day-to-day basis, it would assure greater progress. This method of organizing agricultural research has been used successfully by both private and governmental foreign assistance organizations. Usually, the scientists assigned to the different country programs are not advisors, but actually join the local team, planning and laying out field experiments, making observations during the growing season, taking yield and other data at harvest time, interpreting the information gathered, and publishing papers jointly with the local researchers.

The Team does not recommend that ICRAF place "regional representatives" in the field. It believes that this would only increase overall costs and make little contribution to the advancement of agroforestry.

Obviously, no ICRAF personnel could be assigned to a country without the full permission of governmental authorities. In most countries, however, this would not be a problem.

The research program in agroforestry in Kenya will go ahead with ICRAF staff being available nearby for consultation and field visits. However, the Team believes that the Machakos Field Station should be developed for both demonstration and experimental work. The Team was pleased to learn that the Swedish International Development Authority (SIDA) is interested in supporting the development of this station over a period of several years. The Team feels that the Machakos Stations offers an excellent opportunity for ICRAF staff at headquarters to conduct trials applicable to semi-arid parts of Kenya and to East Africa in general.

The Team strongly believes that the mandate of ICRAF should not be restrictive, and that its staff should be permitted to engage in any research or training program whenever or whenever there appears to be a need for their services. Obviously, ICRAF cannot respond to all requests for help but its mandate should not be restrictive. Furthermore, although low-input oriented technology should be the main thrust of ICRAF, higher-level technology should be applied at times, if only to know what its potentials are. Under certain circumstances it would seem adviseable for ICRAF to get involved in market-oriented agroforestry, an activity that appears to be almost non-existent in ICRAF's current program.

5.5 Other Considerations

To reiterate a recommendation expressed in section 3.0 of this report, the Team recommends that AID/W give consideration to establishing some kind of companion contract or IQC arrangement to allow more effective utilization of ICRAF's expertise, especially its Agroforestry Advisory Unit. There is no funding implied in this recommendation.

ICRAF has a number of serious financial problems originating, in part at least, from donor policies. First among these is the fact in order to maintain a staff of 18 senior professionals, it needs more core support (unrestricted funds). Thus it would have assurance that its senior staff could remain permanent. Now, no more than 40 percent of ICRAF's financial support is unrestricted. It has to pay the salaries of a number of key people from project funds, allocated in accordance with the proportion of the scientist's time devoted to the particular projects involved. As one project is discontinued by a donor, the Director has to shift a scientist's salary to some other project fund. ICRAF should have enough core funds to support its staff, and utilize additional project funds for the salaries of research assistants, supplies, travel, equipment, etc.

Another problem with which ICRAF is struggling is that of a headquarters building. The organization is crowded in its present quarters and it has inadequate facilities for its training program. The Government of kenya has set aside a 5-acre tract of land as a building site, and two donors have together promised approximately two-thirds of the cost of constructing and furnishing the building. A third donor willing to contribute US$ 500,000 is badly needed so that the building can be erected.

ANNEX 1

PERSONS CONSULTED BY THE TEAM IN NAIROBI

Mr. Donald R. Fiester, Agricultural Division Chief, REDSO/ESA
Mr. Robert E. McColaugh, Agricultural Officer, REDSO/ESA
Mr. Peter Bloom, Deputy Director, REDSO/ESA
Mrs.Linda Martin, Financial Analyst, Regional Finance Management Centre(RFMC), Nairobi
Mr. David Lundberg, ADO/USAID/K
Mr. Keith Openshaw, Eastern and Southern Africa Field Director, Energy Initiatives for Africa (USAID supported)
Mr. D. Michael Bess, Deputy Field Director, Energy Initiatives for Africa
Mr. O. M. Mburu, Chief Conservator of Forests, GOK, and member of ICRAF Board of Trustees
Dr. Fredrick Owino, Chairman. Department of Forestry. University of Nairobi
Dr. Amare Gatahun, Project Manager. Kenya Renewable Energy Development Project, Energy/Development International (USAID sponsored)
Mr. Cyrus Ndegwa, Senior Agroforester, Energy/Development International
Mr. Bjorn Lundgren, Director of ICRAF
Mr. Karugor Gatamah, Secretary/Treasurer of ICRAF
Mr. Dirk A. Hoekstra, Farm Economist, ICRAF
Dr. P.K.R. Nair, Agronomist/Soil Scientist, ICRAF
Dr. John B. Raintree, Ecological Anthropologist, ICRAF
Dr. Dianne Rocheleau, Geographer/Systems Ecologist, ICRAF
Dr. Filemon Torres, Range Management and Livestock Production Specialist, ICRAF
Dr. Anthony Young, Land Evaluation/Soil Science Specialist, ICRAF
Dr. Ester Zulberti, Training Officer, ICRAF
Mr. Peter G. von Carlowitz, Forester, ICRAF
Mr. Richard Labelle, Information Officer, ICRAF
Dr. Jeff A. Odera, Deputy Director, Forestry Research Department, Kenya Agricultural Research Institute, KikuyuDr. (Mrs.) Grace Lusiola*, Soil Conservation Division, Ministry Agriculture, GOK
Dr. Winston Mathu*, Professor of Forest Management, University of Nairobi
Mr. David Kamweti*, Department of Forest Management, University of Nairobi
Mr. Vincent Nambobe*, Forestry Training Institute. Olmotony, Arusha, Tanzania
Dr. Till Darnhofer, Bioclimatologist/Agrometeorologist, ICRAF
Dr. Peter A. Huxley, Horticulturalist/Agronomist, ICRAF
Mr. Michel Baumer, Range Management and Marginal Lands Specialist, ICRAF Advisory Unit

ANNEX 1 (CONTINUED)

Mr. Willem C. Beets, Agronomist, ICRAF Advisory Unit
Mr. Peter J. Wood, Forester/Coordinator, ICRAF Advisory Unit
Dr. Michael P. Collinson, Regional Economist, CIMMYT
Mr. Bruce Scott, Regional Director, IDRC
Dr. W. Bosshard, Chairman, ICRAF Board of Trustees
Prof. H.A. Steppler, Chairman, Program Committee, ICRAF Board of Trustees
Prof. L. Roche, Vice Chairman, ICRAF Board of Trustees
Dr. Soekiman Atmosoedaryo, ICRAF Board of Trustees
Dr. (Mrs.) K. Chowdhry, ICRAF Board of Trustees
Dr. M. Wessel, ICRAF Board of Trustees

*Former ICRAF Trainees

ANNEX 2

INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY

SUPPORT & FUNDS RECEIVED

	1983 US$ PROVISIONAL	1982 US$ ACTUAL	1981 US$ ACTUAL	1980 US$ ACTUAL	1979 US$ ACTUAL
Funds brought forward from previous year	100,991	135,600	255,400	208,200	462,200
RECEIVED DURING THE YEAR					
Ministry of foreign Affairs - Netherlands	88,667	125,000	125,000	125,000	125,000
Co-operation au development et aide humanitaire - Suisse	144,439	127,291	101,204	128,300	152,100
Canadian International Develop ent Agency	304,175	245,143	121,237	87,500	172,400
International Development Research Centre - Canada	-	120,724	242,915	262,600	260,000
Norwegian Ministry of foreign affairs	139,870	-	-	-	-
Ford Foundation	250,000	-	-	-	-
Sub-total core support	927,151	618,158	590,356	603,400	709,500
OTHER RECEIPTS					
Agency and office services fees	14,910	12,144	25 55	-	-
Interest earned	7,297	10,985	12,370	11,200	17,500
Sub total other receipts	22,207	23,129	37,625	11,200	17,500
SUB TOTAL UNRESTRICTED FUNDS RECEIVED	949,358	641,287	627,981	614,600	727,000

INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY

SUPPORT & FUNDS RECEIVED

	1983 US$ PROVISIONAL	1982 US$ ACTUAL	1981 US$ ACTUAL	1980 US$ ACTUAL	1979 US$ ACTUAL
RESTRICTED SUPPORT					
SENIOR STAFF SECONDMENTS					
International Development Research Centre - Canada	26,000	53,000	24,600	-	60,000
Rockfeller Foundation - United States	24,000	-	24,000	-	-
German Agency for Technical Cooperation GTZ	85,000	50,000	18,000	-	-
Co-operation au developm nt et aide humanitaire suisse	93,001	42,015	-	-	60,000
Netherlands Ministry of Foreign Affairs	44,333	75,000	-	-	-
French government	-	-	-	-	-
Sub total - Staff Secondment support	272,334	220,015	66,600	-	120,000

ANNEX 2 (CONTINUED)

INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY

SUPPORT & FUNDS RECEIVED

	1983	1982	1981	1980	1979
PROJECT SUPPORT					
RECEIVED DURING THE YEAR					
Fund for International Development - DSE	-	46,600	-	5,400	5,800
National Academy of Science - USA	19,000	21,750	-	-	-
United States Agency for International Development	620,249	-	-	-	-
Ford Foundation	52,380	31,000	-	-	-
Beijer Institute	-	5,000	-	-	-
World Bank	-	-	-	2,300	-
Cooperation au development et aide Humanitaire - Suisse	-	-	-	104,300	-
German Agency for Technical Development GTZ	15,003	54,288	-	3,590	5,000
International Development Research Centre - Canada	90,185	81,499	-	-	-
Swedish Interantional Development Authority	50,704	80,000	-	-	-
Wagenigen University	5,517	7,389	-	-	-
Canadian International Development Agency	-	12,296	60,981	20,000	-
Agency for International Development - Norway	-	-	1,584	-	-
Rockfeller Foundation	-	-	-	6,210	-
United Nations Environment Programme	-	-	-	7,500	-
Seminar/Workshop support - BAT	6,647	26,476	-	-	-
Netherlands	10,000	-	-	-	-
Sub-total support for the year	869,685	366,298	62,565	149,300	10,800
TOTAL INCOME	2,192,368	1,363,200	1,012,546	972,100	1,200,00

Annex 2 (Continued)

Annex 3

Content of Short Training Course

Training Course - "AGROFORESTRY RESEARCH FOR DEVELOPMENT: Concepts, Practices and Methods" 1-18 November 1983 Nairobi

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SAT.	SUN.
FIRST WEEK	Morning	October 31 Participants arrive	November 1 . Introduction to the course . ICRAF's Role and Programme	November 2 . Global Overview of Agroforestry Systems and Practices	November 3 Agroforestry	November 4 .Technology for Agroforestry	Nov. 5	Nov. 6
	Afternoon	and Registration	. The Concept of Agroforestry . AF Field trip to Kiambu District	. Agroforestry Potentials and Constraints	Field Day	(continued)	FREE	FREE
	Evening	Reception		Independent Work		Independent Work		
SECOND WEEK	Morning	November 7 . Approaches to Farming Systems Research . Diagnostic Approach to the Design of AF Technologies	November 8 . Field Study Preparation . Field Survey Methods	November 9 Field	November 10 Field	November 11 . Diagnostic Analysis (in 4 simultaneous workshops)	Nov.12	Nov. 13
	Afternoon	. Case Study Review in Costa Rica	. Case Study Review in Malaysia	Excercise	Excercise		FREE	FREE
	Evening	Independent Work	Independent Work			Independent Work		
THIRD WEEK	Morning	November 14 . ICRAF's Summary of Diagnosis and Design Specifications . Technology Appraisal	November 15 . Design Evaluation Survey (Field Activity)	November 16 . Detailed ex-ante evaluation of the design	November 17 . Research Objectives and Research Planning	November 18 . Proposals for Experimental measurements	Nov.19	Nov. 20
	Afternoon	. Information & Documentation in AF . ICRAF's Design Proposal for Kathama	. Visit On-Site Experiments	. Planning & Implementing Investigations to generate Technology.	. Proposals for experimental designs	.Course Review and Evaluation	Participants Leave	
	Evening	Independent Work		Independent Work	Independent Work			

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 1 (Tuesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.45	Introduction and general objectives of the course.	Bjorn Lundgren
09.45 - 09.15	Course structure and organization. Announcements.	Ester Zulberti
09.15 - 10.15	Participants introductions and brief description of current professional activities and AF interests.	
10.15 - 10.45	Coffee Break	
10.45 - 11.45	Continued.	
11.45 - 12.30	ICRAF's Role and Programme	Bjorn Lundgren
12.30 - 14.00	Lunch	
14.00 - 15.30	The concept of Agroforestry	Filemon Torres
15.30 - 15.45	Coffee Break	
15.45 - 18.00	Agroforestry field trip to Kiambu District	Peter Huxley

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 2 (Wednesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.30	Global overview of Agroforestry systems and practices	P.K.R. Nair
09.30 - 10.15	Agroforestry systems in arid and semi-arid regions	Michel Baumer
10.15 - 10.40	Coffee Break	
10.40 - 11.00	Agroforestry systems in African Highlands	Amare Getahun
11.00 - 12.30	General discussion	E. Fernandes P.K.R. Nair
12.30 - 14.00	Lunch	
14.00 - 14.45	Agroforestry potentials and constraints for land use	Bjorn Lundgren
14.45 - 15.30	Group discussion on "Actions needed for AF development at international, regional and national levels"	
15.30 - 16.00	Coffee Break	
16.00 - 16.45	Continued	

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 3 (Thursday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
07.30 All day	Agroforestry Field Day	
	. Observations on on-farm and on-station agroforestry trials (Kakuyuni and Katumani) and the role of woody vegetation in the semi-arid regions.	Dirk Hoekstra Michel Baumer
	. A visit to ICRAF's Field Station in Machakos	P.K.R. Nair Till Darnhofer P.v. Carlowitz

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 4 (Friday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.00	Technology for Agroforestry Introduction	Peter Huxley
09.00 - 09.45	The environmental data base	Till Darnhofer
09.45 - 10.30	Soils aspects of AF Research	P.K.R. Nair
10.30 - 10.45	Coffee Break	
10.45 - 11.30	Climate and climatic measurements in AF	Till Darnhofer
11.30 - 12.30	Multipurpose trees. Opportunities and limitations.	P.v. Carlowitz & Peter Wood
12.30 - 14.00	Lunch	
14.00 - 14.30	Characteristics of crop species for AF	Willem Beets
14.30 - 15.30	Animal production in AF systems	Filemon Torres & P. Robinson
15.30 - 15.45	Coffee Break	
15.45 - 16.45	Tree/crop mixtures - the benefits (or otherwise) of mixed marriages	Peter Huxley
16.45 - 17.00	General review of the first week of the course and brief overview of the programme of activities for the second week	E. Zulberti

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 7-18 November 1983

DATE: November 7 (Monday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.00	Approaches to Farming Systems Research	Roger Kirkby IDRC
09.00 - 09.20	CIMMYT's Conceptual and Methodological approach to On-farm Research	P. Ananda CIMMYT
09.20 - 09.40	CIMMYT's experience to date in Africa	M.P. Collinson CIMMYT
09.40 - 10.00	Coffee Break	
10.00 - 11.00	Group discussion	Filemon Torres
11.00 - 11.10	Short break	
11.10 - 12.30	Diagnostic approach to the design of AF technologies	John Raintree
12.30 - 14.00	Lunch	
14.00 - 15.30	An example of a diagnostic and design application: Case study review in Costa Rica. Case study review in Costa Rica. (Example 1 of a diagnostic and design application)	D. Rocheleau
15.30 - 15.45	Coffee Break	
15.45 - 16.45	Continued	

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 8 (Tuesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.00	Field Study Preparation	
	Introduction to the case study exercise in Kathama	John Raintree
09.00 - 10.30	Pre-diagnostic overview of the Kathama study area.	Dirk Hoekstra Till Darnhofer
10.30 - 11.00	Coffee Break	
11.00 - 12.30	Field survey methods	D. Rocheleau
12.30 - 14.00	Lunch	
14.00 - 15.30	Case study review in Malaysia. (Example 2 of a diagnostic and design application).	P.v. Carlowitz & D. Hoekstra
15.30 - 15.45	Coffee Break	
15.45 - 16.45	Continued	

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 9 (Wednesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
07.30 onwards	Field Exercise in Kathama	John Raintree D. Rocheleau Eileen Torres Dirk Roeksera E. Zulberti Interpreters Japheth Kyengo Veronica Ndungo L. Kyongo R. Mwendandu

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 10 (Thursday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
07.30 onwards	Field Exercise in Kathama Continue	(same as previous day)

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 11 (Friday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 10.00	Diagnostic Analysis (in four simultaneous workshops)	John Raintree D.Rocheleau Filemon Torres Dirk Hoekstra
10.00 - 10.30	Coffee Break	
10.30 - 12.30	Continued	
12.30 - 14.00	Lunch	
14.00 - 15.30	Continued	
15.30 - 15.45	Coffee Break	
15.45 - 16.30	Preparation of posters for group presentations on Monday.	
16.30 - 16.45	General review of the second week of the course and brief overview of the programme of activities for the third week.	E. Zulberti & John Raintree

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 14 (Monday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.30	Groups presentations of diagnosis. Discussion session.	Group leaders
09.30 - 10.00	ICRAF's summary of diagnosis and design specifications in Kathama	John Raintree
10.00 - 10.30	Coffee Break	
10.30 - 12.30	Technology appraisal exercise in small groups	Group leaders
12.30 - 14.00	Lunch	
14.00 - 15.15	Information resources in AF	Richard Labelle
15.15 - 15.30	Coffee Break	
15.30 - 16.45	Design and Evaluation . suggested design procedures . ICRAF's design proposal for Kathama . introduction to design evaluation survey	John Raintree D. Rocheleau

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 15 (Tuesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
07.30 onwards	Field Exercise	
	Design Evaluation Survey (in consultation with farmers interviewed before)	Group leaders & interpreters
	Lunch in Kathama	
	Visit on - site experiments	

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 16 (Wednesday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.00	Detailed ex-ante evaluation of the design. (Technology evaluation score sheets)	John Raintree
09.00 - 10.30	Some relevant examples (ecological, physical, social, biological, economic aspects)	Michel Baumer P.K.R. Nair D. Rocheleau Filemon Torres Dirk Hoekstra
10.30 - 11.00	Coffee Break	
11.00 - 12.15	Continued	
12.15 - 12.30	Summary of Diagnostic Approach to the Design of AF Technology	John Raintree
12.30 - 14.00	Lunch	
14.00 - 15.00	Defining specific research problems	Peter Huxley
15.00 - 15.30	Coffee Break	
15.30 - 16.45	Planning and implementing investigations to generate technology: The Alley Cropping Case	Peter Huxley

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Nairobi, 1-18 November 1983

DATE: November 17 (Thursday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 10.00	Choosing MPT species	Peter Wood
	Some implications for intercropping research	Willem Beets
10.00 - 10.30	Coffee Break	
10.30 - 12.30	Predicting productivity and sustainability for mixtures of trees and agricultural crops	Peter Huxley
	Abstract criteria	Till Darnhofer
12.30 - 14.00	Lunch	
14.00 - 15.15	Systematic spacing designs for AF	Peter Huxley
15.15 - 15.30	Coffee Break	
15.30 - 16.45	General discussion on field layouts	(All above)
	(Candidates split into two working groups to plan an alley cropping experiment Group A - High level of research resources Group B - low level of research resources	

ICRAF/USAID TRAINING COURSE

AGROFORESTRY RESEARCH FOR DEVELOPMENT

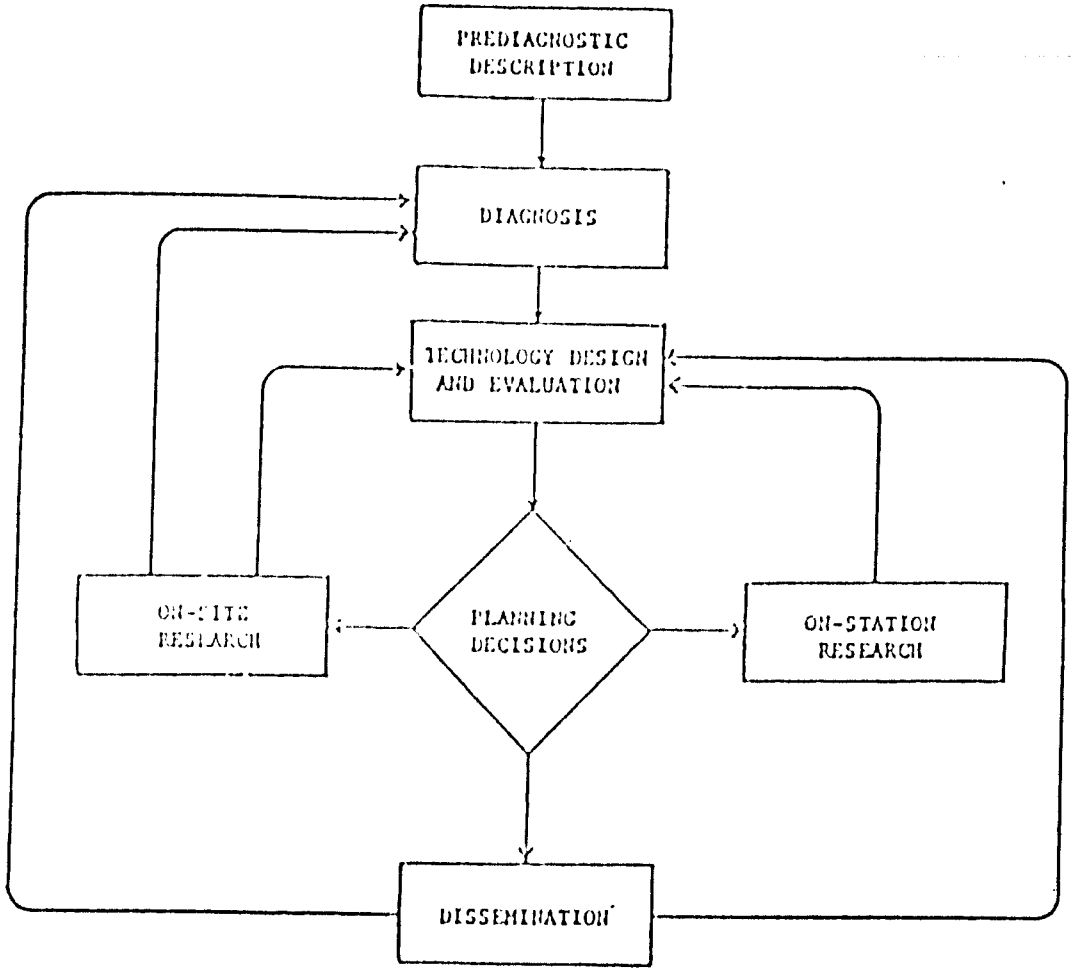
Nairobi, 1-18 November 1983

DATE: November 18 (Friday)

TIME	SUBJECT/ACTIVITY	PRESENTED/ COORDINATED BY
08.30 - 09.30	Proposals for experimental measurements Appropriate data collection for: - Plant characteristics	Peter Huxley
09.30 - 10.30	- Environmental characteristics (soils/ climate)	Till Darnhofer
10.30 - 11.00	Coffee Break	
11.00 - 12.30	Data analysis and summaries. Plenary session	Peter Huxley & ICRAF staff
12.30 - 14.00	Lunch	
14.00 - 15.30	Overall course review and evaluation	Ester Zulberti & ICRAF staff
15.30 - 16.30	Farewell to participants	

COURSE ENDS

FLOW CHART OF D&D SYSTEM



ANNEX 5

SEQUENCE OF STEPS IN D&D SYSTEM

THE LOGICAL SEQUENCE OF STEPS

The procedures for project formulation consist of series of information gathering and analytical steps, leading logically form one to the next. This sequence entails a hierarchical progression from the general to the particular, which is designed to economize on time and effort by excluding irrelevant information from further consideration while developing a progressively sharper focus on essential information. By this open-ended but structured approach, the D&D methodology avoids the seemingly endless and needlessly complicated data collection and processing task characteristic of an unstructured approach to systems analysis. The progression of steps is divided into four stages as follows:

Prediagnostic Stage (Steps 1-3)

This stage covers (1) background description of the study area, including diagnostically relevant aspects of the biophysical and socioeconomic environment, (2) differentiation and selection of land use systems within the study area for further D&D attention, and (3) preliminary description of diagnostically relevant aspects of the selected systems.

Diagnostic Stage (Steps 4 - 6)

This stage includes (4) diagnostic survey of the selected systems and relevant aspects of the environmental setting, (5) diagnostic analysis and identification of major land use problems and potentials, and (6) derivation of specifications for appropriate technology (including non-agroforestry options but with special attention to agroforestry potentials).

Technology Design Stage (Steps 7 - 9)

This stage involves (7) appraisal and selection of candidate technologies for possible inclusion in the design, (8) synthesis of a general design concept for an improved land use system and development, if possible, of initial 'best bet' designs for component technologies, and (9) ex ante evaluation and refinement of the proposed design. The activities of this stage may involve reiteration of the above steps.

Follow-up Planning Stage (Steps 10-12)

This stage covers (10) identification of research needed to develop and/or test the identified agroforestry technologies, (11) identification of areas needing further D&D attention in

a follow-up stage, and (12) development of a detailed project implementation plan to carry out the envisaged R&D programme.

The remainder of this section contains an overview of the step-by-step procedures in outline form, showing the content of each step. This is followed in the next section by a prose summary which might usefully be read in parallel with the outline. Most of the methodological aids mentioned in the outline under 'Useful Tools' can be found in Resources for Agroforestry Diagnosis and Design (ICRAF, 1987).

ANNEX 6

ANALYSIS OF WORK PROGRAM IN SYSTEMS INVENTORY

Phase I - PLANNING (OCTOBER - DECEMBER 1982)

REQUIRED INPUTS	ACTUAL ACCOMPLISHMENTS/OUTPUTS	MAJOR ISSUES
- identification of regions/ target area - identification and selection regional coordinators	- project research assistant recruited November 1982 Regional Coordinators identified, commissioned and brought together for planning Workshop December 1982	(1)COMPLEXITY AND SCOPE OF PROJECT (a)misconception about expected outputs (b)complex nature of the questionnaire data collection format (c)difficulties in defining agroforestry and in distinguishing between systems sub-systems and practices.
- development of an operational framework e.g. general classify cation of agroforestry systems and development of data collection format	- target area chosen/focussing primarily on developing countries of the tropics and sub-tropics.	
- planning workshop of Regional Coordinators and ICRAF staff to discuss the operational framework and decide the regional action plan	- agreement to take geographic data collection approach rather than ecolo- local sub-division approach; regions chosen plus separate region for Pacific Islands	(2) TREATING PACIFIC ISLANDS AND PAPUA NEW GUINEA AS A SEPARATE REGION continued into Phase II
	- data collection/format/guidelines developed and agreed upon by all parties (ICRAF, USAID, RCs)	
	- operational units and systems categorization agreed upon by all parties	
- initiate a region wide situation review through mail survey, literature search and on the spot visits to fields and situations who are knowledgeable about local and regional agroforestry practices		

ANNEX 6 Phase I (CONTINUED)

- initiate literature search to identify, assemble and catalogue as many documentary materials as possible on such systems

- project announcements made in 3 professional journals and presented at two international seminars by ICRAF staff

- RCs prepared lists of major systems/ practices that are currently practiced in their respective systems

- mail survey and literature search postponed to phase II.

ANNEX 6 (CONTINUED)

PHASE II SURVEY/DATA COLLECTION (JANUARY 1983 TO DECEMBER 1983) EXTENDED TO WORK IN 1984

REQUIRED INPUTS	ACTUAL ACCOMPLISHMENTS/OUTPUTS	MAJOR ISSUES
- travel of Regional Coordinators to the respective regions and completion of data by RCs from all available sources	- project announcement made in 12 additional professional journals	(1) issue one continued
	- project details and questionnares sent to 500 individuals and 70 national, regional and international institutions	(4) issue Four continued
- development of detailed case studies of specific systems within a region		(2) use of a Regional Coordinator system
	- over 500 bibliographic references relating to systems, practices etc. collected and codified	(3) literature/information Base
- travel of coordinator and other staff to the Regions for field work and on the spot studies	- project announced and discussed at various international meetings and in conjunction with ICRAF staff travel	
- continue literature review and mail survey	- individual meetings with RCs	
	- three case space studies/system descriptions prepared by ICRAF	
- mid-term project appraisal meeting on data collection with RCs, coordinator, ICRAF staff and consultants to evaluate progress to date and determine further courses of action	(Forest Villages in Thailand; Chagga Home Gardens on Mt. Kilimanjaro, Tanzania;)	
	- mid-term appraisal meeting held in July	

ANNEX 6 Phase II (CONTINUED)

- arrangements confirmed with "Agroforestry Systems" to publish short and concise descriptions (case studies) of prominent and promising AF systems.

- slides of AF systems throughout the world

- establishment of informal global network (table II)

- 36 voluntary contributions of systems descriptions (completed questionnaires) received

ANNEX 6 (CONTINUED)

PHASE III - EVALUATION AND SYNTHESIS (JANUARY 1984 - JULY 1984)

REQUIRED INPUTS	ACTUAL ACCOMPLISHMENTS/OUTPUTS TO DATE	MAJOR ISSUES
- agree on methods of data evaluation by all parties project	-arrangements finalized for undertaking data evaluation by Prof. Colin Spedding and his group at University of Reading, England	(1) complexity and scope of project
- RCs to undertake data evaluation in order to highlight distinguishing characteristics and merits of described systems, diagnose inherent weaknesses and operational constraints and indicate methods	-based on collected info from all sources, four data bases established (agroforestry woody species, fruit and spice crops; uses of AF woody species; AF systems bibliography; plant species with anti-pest properties)	(5) need for final wrap up meeting
- obtain service of expert consultant for data collection and evaluation	-case studies in preparation	
- begin pooling information for each geographic region and/ecological division		
- wrap-up/final meeting of RCs to be held in June 1984.		

ANNEX 6 (CONTINUED)

PHASE IV - FINAL DATA COMPLATION AND PUBLICATION (JULY 1984 - APRIL 1985)

END OF PROJECT STATUS	EXPECTED OUTPUTS	MAJOR ISSUES
-a global field survey of AF systems will be carried out which reviews past experience, with AF management, identified systems and system components of wider development potential, determines AF research development priorities and establishes AF systems register and data bank	- establishment of agroforestry Data Bank (comprehensive compation on AF systems, their distribution, basic characteristics, functional weaknesses, operational constraints ways for improvement and sources of information) - establishment of Agroforestry Systems Register (detailed and descriptive information on catalogued systems, similarities and dissimilarities, literature extracts and documentary materials resulting from mail and field survey activities) - publications to disseminate info gathered - identification of potential methods to improve the systems, research needs and scope and approach for further investigation	-how achievable is EOPs? see summary

INTERNATIONAL COOPERATION IN AGROFORESTRY SYSTEMS INVENTORY

Number of active contacts excluding those of through the Regional Coordinators in different geographical regions (March, 1984)

	SE Asia	S. Asia	Middle East, Mediterranean and N. Africa	E & C Africa and Humid West Africa	Sahel and southern Africa	American Tropics	Pacific	Others
1. No. of people to whom the project details and questionnaires were sent	50	50	20	100	40	150	15	75
2. No. of additional requests for project info. (excluding 1)	15	14	-	30	12	12	4	15
3. Voluntary contributions (completed questionnaires, system descriptions, etc.)	6	8	-	4	2	7	7	2
4. No. of institutions with active contacts	12	10	2	12	8	18	8	several

ANNEX 7

FINANCIAL REPORT

INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY

PROJECT FINANCIAL IMPLEMENTATION REPORT
COOPERATIVE AGREEMENT NO: DAN-5545-A-00-2076-00
PROJECT NO. 936-5545

1983.

APPROVED BUDGET/LINE ITEM	1 AMOUNT	EXPENDITURE TO DEC 31 1983				
	US$	TOTAL EXPENDITURE	SUB PROJECT (I) DIAGNOSTIC & DESIGN METHD	SUB PROJECT (II) SYSTEMS INVENTORY	SUB PROJECT (III) TRAINING MATERIALS	SUB PROJECT (IV) TRAINING COURSES
1. Salaries	444,525	265,160	130,865	43,850	47,580	42,865
2. Consultants	104,000	84,265	—	84,265	-	—
3. Travel and transportation	103,500	39,985	—	37,028	-	2957
4. Equipment, materials supplies	107,240	59,260	34740	9552	10770	4198
5. Participant training	63,400	24,850	-	-	-	24,850
6. Overhead	162,335	94,705	33,776	35,172	11,274	14,483
7. Evaluation	15,000	-	-	-	-	—
Total	1,000,000	568,225	199,381	209,867	69,624	89,353

SUMMARY

Total expenditure as at December 31 $ 568 225
Total advances or disbursements received at that date $ 620,249

Received in advance $ 52,024

I certify that records and supporting payment documents, eg. commercial invoices, receiving reports, inventory and property records are on file at ICRAF headquarters (Nairobi), and are available for review by US Government representatives upon request.

Signature Gatamah
Name: Karugor Gatamah
Title: Secretary/Treasurer

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Revised Version 1

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
IBRD (3)			
BURUNDI (BI 84/01)	RECONNAISSANCE MISSION to identify AF inputs to ongoing projects. It is possible that the project will eventually be given a more restricted objective, but will anyway lead to the possibility of a global reconnaissance on AF potential.	Visit Planned in May 1984.	(MB)
RWANDA (RW 83/01)	RECONNAISSANCE MISSION The Visit made permitted the identification of 5 fields for potential cooperation between ISAR (Institut des sciences agronomiques du Rwanda) and ICRAF: development of AF awareness, training, monitoring of AF research, research on AF for bee-keeping, research on AF for silkworm breeding. Report in preparation.	Visit made 7-15 March 1984.	(MB)
TANZANIA (TZ 83/01)	STUDY TOUR IN KENYA FOR TANZANIAN RURAL DEVELOPMENT OFFICERS.	Completed October 1983.	(PW)

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
USAID (7)			
DOMINICAN REPUBLIC (DO 83/01)	ENERGY AND TIMBER ICRAF input on forestry development proposals.	Preliminary Correspondence	(PW)
MALAWI (MW 83/01)	USE OF DESIGN & DIAGNOSIS (D&D)	Suspended	(PW)
AFRICA (XA 83/03)	FIREWOOD RESEARCH	Abandoned	(PW)
AFRICA (XA 83/02)	PREPARATION OF BOOKLET ON AGROFORESTRY FOR AGRICULTURAL OFFICERS.	Almost Completed	(WB)
KENYA (KE 83/01)	MID PROJECT EVALUATION	Abandoned	(PW)
KENYA (KE 83/02)	ENERGY INITIATIVES	Replaced by XA 83/02	(WB)
SCF/USAID			
SOMALIA (SO 83/01)	AF TRAINING WORKSHOP related to planting trees in refugee areas.	Postponed indefinitely	(MB)

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
COMEUR (2)			
KENYA (KE 84/02)	KIRINYAGA BEE-KEEPING PROJECT How AF could be associated with bee-keeping.	Preliminary Visit made February 1984.	(MB)
KENYA (KE 84/03)	NEW MUTARO IRRIGATION Possible AF Consultancy.	Preliminary Visit made February 1984.	(MB)
FAO (3)			
KENYA (KE 84/04)	BARINGO PROJECT Proposed Input by ICRAF on Extension, training and agroforestry in FAO Baringo fuelwood and afforestation project.	Preliminary Visit made and Consultancy proposal submitted.	(PW)
SRI LANKA (LK 83/01)	COMPUTERIZED ENVIRONMENTAL DATA BASE.	Completed	(AY)
	LAND EVALUATION FOR FORESTRY	Completed	(AY)

PROJECTS OF THE ADVISORY UNIT

PROPOSAL DONOR	TITLE	STATUS	
UNEP (5)			
AFRICA (XA 83/04)	EVALUATION OF AF	Proposal under preparation.	(MB)
AFRICA (XA 84/01)	SHIFTING CULTIVATION	Proposal under preparation	(MB)
AFRICA (XA 84/02)	COMBATING DESERTIFICATION Very preliminary proposal prepared by UNEP.	A counter-proposal will soon be established.	(MB)
ZAMBIA (ZM 84/01)	WATERSHED MANAGEMENT (UPPER) ZAMBIA	Proposal under elaboration with Regional Centre for Services in Surveying and Mapping.	(MB)
TOGO (TG 84/01)	AF ON MINING LAND How land degraded by phosphate open mining could be rehabilitated by AF ?	Mission expected in July 1984.	(MB)

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
IUFRO (2)			
AFRICA (XA 83/06)	FOREST RESEARCH WORKSHOP FOR AFRICA ICRAF in charge of the preparation as AF is 2/3 of the agenda.	Preparations in in hand.	(PW)
ASIA (XP 83/01)	FOREST RESEARCH WORKSHOP FOR ASIA ICRAF staff participation.	Preparations in hand.	(PW)
CIDA (1)			
NIGER (NE 83/02)	EVALUATION OF REAFFORESTATION	Very Preliminary talks.	(MB)
SIDA (1)			
ZAMBIA (ZM 83/01)	TRAINING SEMINAR Arrangements made with SIDA Nairobi for training on "AF and soil erosion control" for Projects in N.E. Zambia.	Course to be held in Nairobi in April 1984.	(PW)

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
ADB (1)			
SOLOMON ISLANDS (SB 83/01)	AF POTENTIAL Evaluation of the potential of AF in the Solomon Islands.	Preliminary correspondence.	(WB)
? KENYA (KE 83/06)	LAIKIPIA AREA DEVELOPMENT Preliminary talks with Swiss Embassy, seeking a contract by which A.U. could assist and monitor a Swiss team of experts.	On going talks Next talks planned for 15 March.	(MB)
? KENYA (KE 83/03)	EAST AFRICAN INDUSTRIES Association of AF with sunflower cultivation.	Deleted for several years.	(MB)
? SEYCHELLES (SC 83/01)	JACK-TREE Revival of a proposal made by MB to the Government of the Seychelles in 1979.		(MB)

PROJECTS OF THE ADVISORY UNIT

POTENTIAL DONOR	TITLE	STATUS	
NORAD (2)			
ZAMBIA (ZM 84/02)	TRAINING, TECHNICAL BACKSTOPPING AND DESIGN AND DIAGNOSIS (D&D) PROPOSALS IN N. ZAMBIA.	Preliminary discussions.	(PW)
KENYA (KE 83/05)	LITERATURE AND TECHNICAL SUPPORT TO MISSION.	Completed Jan. 1984.	(WB)
DANIDA (1)			
KENYA (KE 84/01)	INPUT TO PROPOSED FORESTRY AND FUELWOOD PROJECT.	Confidential evaluation submitted.	(PW)

IBRD	3	AFRICA	26		
USAID	7	ASIA	3		
COMEUR	2	LATIN AMERICA	1	TOTAL	31
FAO	3	GENERAL	1		
UNEP	5				
IUFRO	2				
CIDA	1				
SIDA	1				
ADB	1				
NORAD	2				
DANIDA	1				
MISC	3				

ANNEX 9

SCOPE OF WORK

1. KEY PRINCIPALS AND DATES

A. AID Project Manager: S&T/FNR, Mike Benge

B. Evaluation Period: August 1983-February 1984

C. Evaluation Dates: March 12, 1983-March 30, 1984

D. Place of Evaluation: Nairobi, Kenya

E. Evaluation Team Members:
Dr. Robert Chandler, Team Leader Consultant;
Dr. Harlan Davis S&T/Agr;
Mr. James Seyler, Regional Forestry Advisor, REDSO/ESA.

2. PURPOSE OF THE EVALUATION

The Evaluation Team will assess the progress made thus far toward the achievement of the project goal and purpose as specified in the project logical framework and the project paper (pages 1-5) and the inputs and outputs (pages 6 - 10) to make that possible.

3. SCOPE OF WORK

Prior to departure for Nairobi, Kenya, Drs. Chandler and Davis will meet in Washington, D.C. or about three days March 7 through 9, 1983; to review all relevant project documentation project paper, cooperative agreement, project log frame, correspondence, reports, Eetc., to orient themselves of the project. In Nairobi, documents not available in Washington, D.C. will be provided and meetings will be arranged with those available who are knowledgeable about the project, including REDSO/ESA and USAID/Kenya staff, GOK officials, participants in ICRAF training program, ICRAF staff and board members, and representatives of ICRAF donors. ICRAF staff and the REDSO/ESA Regional Forestry Advisor will arrange for the support required in Nairobi.

The Evaluation Team will specifically address but not be limited to the following:

A. Progress being made on the development and testing of the diagnostic methodology, its strength and weakness, and its potential utility for the LDCs and USAID missions.

ANNEX 9 (CONTINUED)

B. Progress achieved on the design of appropriate agroforestry systems and an appraisal of the quality and utility of this effort.

C. Status of ICRAF's evaluation of the impact of agroforestry land management options and the utility of this activity.

D. Efforts made thus far to train LDC participants in agroforestry technology and the quality and long-term usefulness of this training.

E. Appraisal of the outputs as cited in the logical framework and project paper.

F. Assessment of the utility where applied and the potential utility of the project outputs with respect to the needs of USAID missions and their LDC clientele.

G. Recommendations with respect to technical materials not specified as a specific output under the project that could be used by AID's office of technical review (S&T/TRI/PI) for training materials and other types of publications for AID missions.

H. Assessment of the merits of USAID/ICRAF relationship beyond the life-of-the-project and suggestions with respect to the nature of that relationship.

I. Assessment of ICRAF and AID project management, including:

-- Quality and timeliness of quarterly reports on activities and expenditures as specified under the project P.27, project paper.

-- ICRAF procurement of goods/services under AID waivers.

-- Compatibility of ICRAF's operating procedures with achievement of AID project objectives.

-- Efficiency and effectiveness of ICRAF management of AID resources.

ANNEX 10

ST/FNR COMMENTS ON MID-TERM EVALUATION

A. S&T/FNR agrees with the team's evaluation of ICRAF and that the project purposes, except the Agroforestry Systems Inventory, were being implemented as scheduled; in some cases progress has actually exceeded Project Paper plans.

B. S&T/FNR also concurs with the recommendation that the project be extended by six months (unfunded), so that the systems inventory can be essentially completed. The necessary paperwork to initiate this action will be submitted to the Program Office in the near future.

C. S&T/FNR also agrees with the other conclusions that:

1. ICRAF should become more directly involved in technology generation and research, and applied research should be emphasized (ii, p.2).

2. ICRAF should give attention to higher input technology and small and medium sized, market-oriented agroforestry operations because there are significant opportunities there (ii, p.2).

3. The training component of the project has been successful (ii, p.2).

4. AID should explore building upon the success of the training program and add to it the dimension of professional education (ii, pp.2 & 3).

5. AID should consider supporting the development and expansion of the COSPRO program (ii, p.3).

6. AID should develop some mechanism to allow field Missions to facilitate access to ICRAF expertise (ii, p.3).

7. AID should explore possible internal funding sources, particularly S&T/FNR's Forestry Support Program, for an agroforestry systems inventory in a seventh region, Pacific Islands and Papua New Guinea.

8. There is no need for a Regional Coordinators' meeting (wrap-up session) for the agroforestry systems inventory (P. 26, Para 5 and P. 27, Para 1 - 2).

9. The D&D Methodology should address, and incorporate whenever possible, such issues as farm marketing and credit as well as macro-economic and policy issues relevant to the successful implementation of agroforestry systems. Also, that higher-technology options should be considered. Furthermore, on projects it designs, ICRAF, whenever possible, should make a major effort to ensure quality control, through adherence to specifications and implementation schedules, once the initial D&D appraisal is completed and turned over to local institutions (p.19).

10. The data generated under the systems inventory portion of the project that identifies research needs and gaps, topics to overcome and constraints to agroforestry is important. This should be a topic for discussion in the design of the S&T/FNR planned FY 86 project, on-farm forestry (pp. 21-24).

D. It is recognized that for AID to further influence ICRAF's programmatic direction, a follow-on activity that funds components which complement ICRAF's program would have to be developed since ICRAF is funded by a number of other international donors.

E. In reference to the evaluation team's conclusions (C. above), S&T/FNR has the following comments:

1. ICRAF should become more involved in research and technology generation; however, to what degree is of question. Should ICRAF spend its limited resources on a few research scientists, narrowly focusing on specific research topics? Or should the next step be the placement of regional and sub-regional coordinators, whose main responsibility should be strengthening networks and initiating research with other research institutions, with a secondary responsibility of actual research?

These questions will be addressed in discussions with ICRAF and other donors, through consultations with other AID offices, and through a panel of experts who are cognizant of Agroforestry needs in the developing countries.

2. Subsistence agriculture should never be a goal of agroforestry, and higher-input technology in many cases may be appropriate technology.

3. & 4. If agroforestry is to be accepted as an effective and productive farming system, increased training is necessary. Training will also generate increased agroforestry research. AID should fund an expanded training program. Also, the development of agroforestry curricula is imperative if

agroforestry is to become institutionalized. Furthermore, extension is equally as important and should be part of both training and curriculum development.

5. The suggested expansion of the COSPRO program and hands-on research (in C.1. and C.5.) are interrelated.

6. In cooperation with the Contracts Office, the Project Officer is developing a memorandum that will be sent out to all Mission Contract Officers which may ease this situation by clarifying salary levels and ICRAF's predominant capability. However, the momorandum won't be a panacea, and difficulties may still be perceived by contracting officers. REDSO/ESA feels that such a memo should be adequate. Still, contracting will not be as easy as with an IQC. If a follow-on project is developed with ICRAF, a mechanism to alleviate this problem should be built into the project.

7. The Agroforestry Research and Training Project Manager has explored several sources of funding and has received verbal confirmation from FSP that it will fund an agroforestry systems inventory in a seventh region, the Pacific Islands and Papua New Guinea, subject to contract negotiations with ICRAF. This is expected to be finalized in the immediate future.

F. A number of minor editorial changes need to be made before finalization of the report. Foremost are:

1. A copy of the scope of work for the evaluation team should be added as an appendix (No.9).

2. The period covered by the evaluation, March 1982 thru February 1984, should be include on page of the report.

3. The anticipated project completion date should be changed to August 30, 1984, instead of September 1984 [p. i of Ex. Summ.(p.1 of report)]

4. Next to last line of 1.2.2 on p.3 should be changed to read"... where it will be available for access by anyone and information will be disseminated through..."

5. p. 14 last sentence referring to ".... economic return and sustainability over existing or traditional systems." One would assume that traditional systems also exist. Therefore, some change is needed in the wording, perhaps a change to "...economic return and sustainability over traditional and other existing systems."

6. p. 26, section of Treating Pacific Islands and Papua New Guinea as a Separate Region and request for funding of an agroforestry inventory in this region. This portion will have to be revised and may be a moot point since FSP has agreed to

fund the inventory (ref. C.7). Nonetheless, ICRAF was informed of action taken by the Project Officer after the submission of this proposal through a copy of his letter to the USAID Representative in Suva requesting Mission funding for the inventory.

7. p. 28, section 3.0 Assessment of Project Management by both ICRAF and USAID, para.5, reference suggestions for more discussed in C. 6.; however, there is still a need to change this statement before the report is finalized.

S&T/FNR is exploring the development of an on-farm forestry activity and ICRAF has been identified as a possible lead international agroforestry institution for contracting, as has CATIE in Costa Rica as a secondary regional institution. Therefore, it will be necessary to discuss with ICRAF its ability and desire to work with other institutions, such as CATIE, and what informal or formal linkages are most advantageous. The recommendations made by the mid-term evaluation team for AID's role in the future of ICRAF, such as professional education, training, technology generation and research, and the expansion of the COSPRO program will be seriously considered in the development of the S&T/FNR planned project for FY 86, on-farm forestry.