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ICRAF

INTERNATIONAL COUNCIL FOR RESEARCH IN AGROFORESTRY
CONSEIL INTERNATIONAL POUR LA RECHERCHE EN AGROFORESTERIE
CONSEJO INTERNACIONAL PARA INVESTIGACION EN AGROSILVICULTURA

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**REPORT ON THE SECOND ICRAF/USAID
AGROFORESTRY COURSE
4-22 JUNE 1984
NAIROBI**

by
ESTER ZULBERTI
with
JAMES WAHOME
SEPTEMBER 1984

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THE AGROFORESTRY COURSE IN PICTURES*

Registration Day



Participants filling pre-course forms

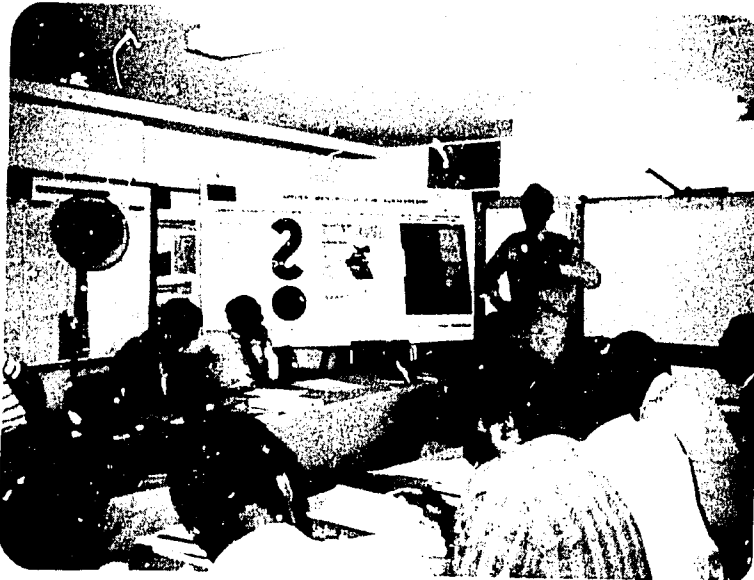
* This is a compilation of pictures taken and so arranged as to record the main activities of the Course. Unless otherwise stated, acknowledgement for photographs goes to Dr. Ester Zulberti.

III

The Conceptual and Technical Background of Agroforestry



An introduction to Technology and Agroforestry by Dr. Peter Huxley



Dealing with the Environmental Base of Agroforestry with Dr. Anthony Young (standing) and Applied Meteorology for Agroforestry with Dr. Till Darnhofer (sitting, wearing glasses)

IV

Field Trips



Observation of agroforestry systems in the tea-producing areas of Kiambu District



At Mr. Mbogo's farm participants observed terrace risers stabilized with napiergrass; bananas planted in channel in front of terrace risers; and bananas on terrace planted in holes.

At the ICRAF Field Station in Machakos



Being introduced to the Field Station by Dr. P.K. Nair



A demonstration tour of multipurpose tree species. Mr. Peter Wood explains to the participants some of the most relevant characteristics of Prosopis juliflora



This will shortly be our tree nursery, explains Mr. Peter von Carlowitz (third from the left, standing by the pole).

ICRAF's Diagnostic and Design Methodology



Presentation of the India Case Study by Dr. Dianne Rocheleau. The exercise gave participants an understanding of what to expect with a D&D application.

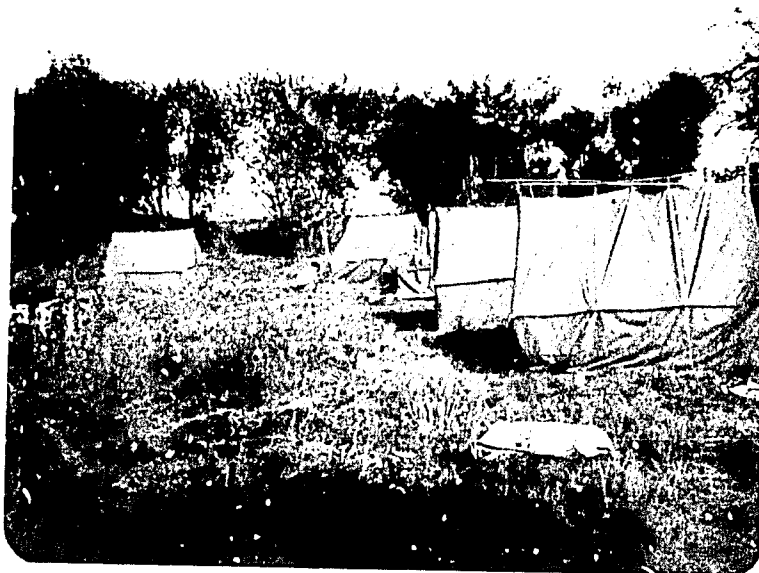
Field Survey



Interviewing farmers around the Kakuyuni site.
(Photo E. Fernandez)



Carrying out more house-hold interviews, under
the friendly shade of a tree.
(Photo E. Fernandez)



A tented camp was set up on the grounds of a school of the Undugu Agricultural Society in Katangi Market, where participants and ICRAF staff spent one night while undertaking the two-day field survey.



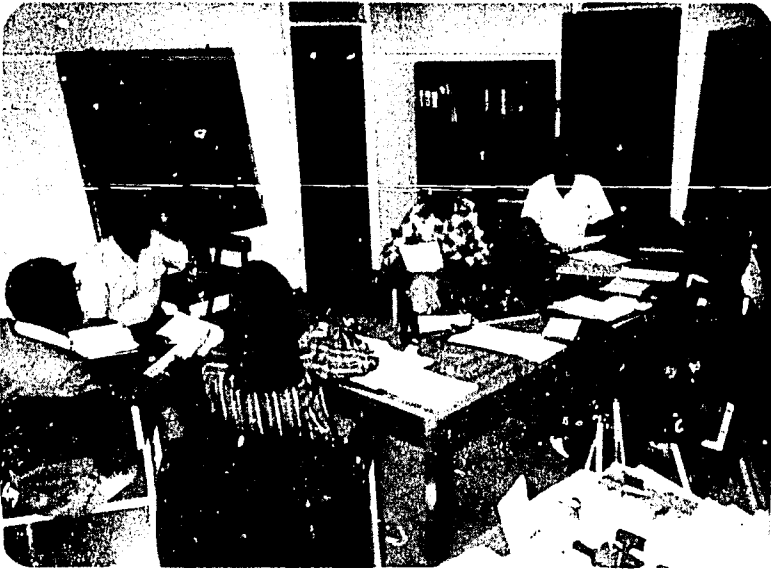
The setting was a good occasion for participants' interactions, (from left to right) Dr. Arap-Sang from Kenya seen chatting with S. Adegbanke from Nigeria & G. Agbahungba from Benin.



Lively discussions took place around the fire!



It was hard to believe, but the group ate three goats!



Back in Nairobi, each field team met to diagnose land use problems and design specifications for problem-solving interventions. Dr. J. Raintree (sitting by the blackboard) leads the analysis by this working group. (Photo E. Fernandez)



The group of participants worked out the diagnostic analysis and design recommendations for the farming system they surveyed.

Economic Appraisal of Selected Agroforestry Interventions

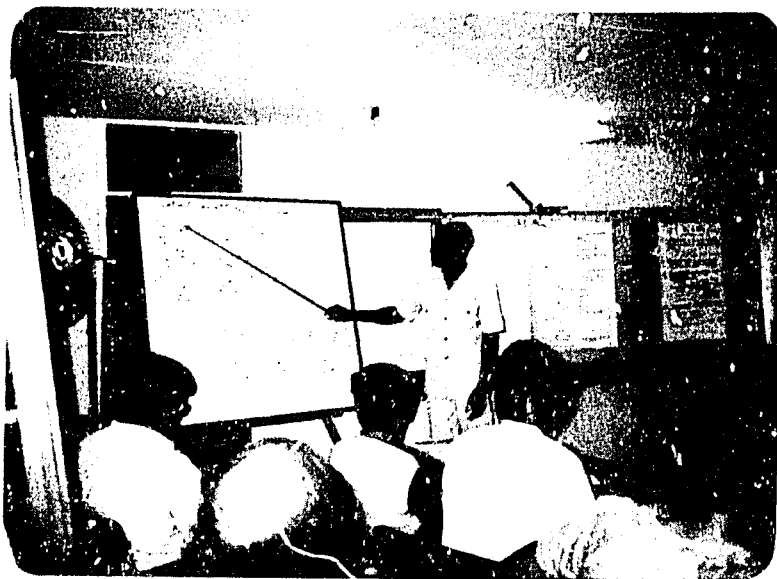


Ir. Dirk Hoekstra introduces the participants to MULBUD

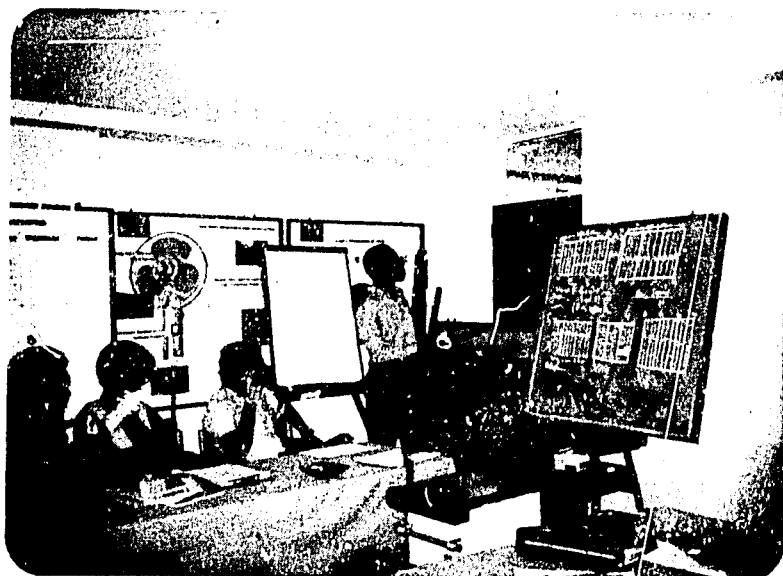


Hands-on experience with the computer!

Plenary sessions



Participants' presentations of diagnosed problems and potential interventions for system improvement.



Participants' presentations and discussion of experimental approaches to generate agroforestry technology.

Participants Consultations with ICRAF staff



Ing. Manuel Villavicencio from PERU & Dr. P.K. Nair



Georges Agbahungba from BENIN & Ir. Dirk Hoekstra

The Library



A place frequented for consultation of books, journals, and other documents.



... as well as for social interaction with colleagues.

Last Day - Closing Session



Participants' final evaluation and recommendations
(Photo E. Fernandez)



Certificates of Attendance...
(Photo E. Fernandez)

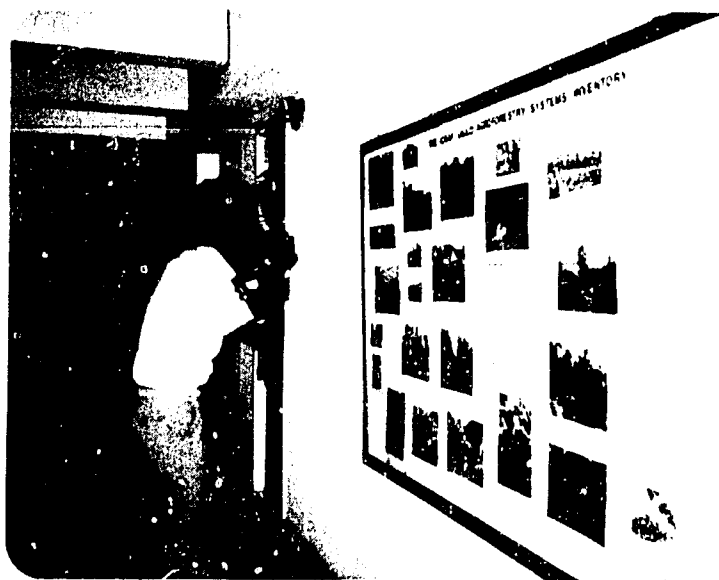


Dr. John Raintree, Officer-in-Charge, during the closing session...Time to say Good-bye, Adios, Kwaherini, Au revoir...
(Photo E. Fernandez)



Farewell reception...

XVIII



Just before I leave, I would like to take a picture of a live fence of Erythrina abyssinica in Echiopia...said Imadeldin Abunaib from SUDAN, and so he did!

END

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CONTENTS

	<u>Page</u>
AGROFORESTRY COURSE IN PICTURES	
1. Introduction	1
1.1 Background	1
1.2 Participation	1
1.3 Objectives	1
2. PROGRAMME	2
2.1 Registration	2
2.2 Opening session	2
2.3 Structure and Content	3
2.4 Participants' consultation with ICRAF & Scientific staff	6
2.5 Special Activities	6
2.6 Monitoring	7
2.7 Follow-up	7
2.8 Evaluation and recommendations	8
2.9 Closing Session	9
3. TRAINING MATERIALS	9
3.1 Training Package	9
ANNEXES	11
Annex 1 - List of Participants, ICRAF staff and Invited speakers	12-14
Annex 2 - Field Exercise in Kakuyuni - group organization, farmers identification and map of the Kakuyuni watershed.	15-16
Annex 3 - Timetable and Programme of Activities	17-18
Annex 4 - ICRAF/USAID Agroforestry Course Follow-up	34
Annex 5 - ICRAF/USAID Evaluation Sheet (Post-Course)	40
Annex 6 - Summary of Participants' Evaluation and Recommendations	
Annex 7 - The Training Package : Description of Content	55

1.

INTRODUCTION

1.1 BACKGROUND

The Second ICRAF/USAID Training Course on Agroforestry Research for Development was held in Nairobi, Kenya from 4 to 22 June 1984. It was carried out as part of a series of training courses launched by the International Council for Research in Agroforestry to disseminate available knowledge on Agroforestry practices and systems, and on methods for assessing land use problems and evaluating agroforestry potentials. Like the previous one*, it was made possible through a Cooperative Agreement between ICRAF and the United States Agency for International Development (USAID). It was organized by ICRAF.

ICRAF's multidisciplinary scientific and professional team participated in the development of the training programme covering a wide range of conceptual, methodological and practical aspects of agroforestry. The co-ordinator of the course was Dr. Ester Zulberti, ICRAF's Training Officer.

1.2 PARTICIPATION

Twenty-four professionals from Africa and Latin America attended the course. The distribution of participants by countries was as follows: Benin (1), Botswana (1), Costa Rica (1), Ghana (1), Kenya (5), Liberia (1), Nigeria (2), Peru (2), Senegal (1), Sudan (2), Tanzania (1), Uganda (3) and Zimbabwe (2). A complete list of participants - including invited speakers and members of ICRAF staff - is given in Annex 1 of this report.

1.3 OBJECTIVES

The overall objective of the course was "to enhance the professional capabilities of research scientists and development planners from developing countries for initiating and implementing agroforestry research, leading to the development

* The First ICRAF/USAID Agroforestry Course was held in Nairobi from 1 to 18 November 1983. For further information see Ester Zulberti: Report on the First ICRAF/USAID Agroforestry Course, January 1984.

of systems and technologies that are both suited to local conditions and adoptable by farmers.

To accomplish the above objective participants were exposed to:

- . the concepts and practices of agroforestry as a land use system;
- . ICRAF's methodology to diagnose agroforestry-related land use problems and potentials and the design of appropriate interventions to overcome the diagnosed constraints (the D&D Methodology);
- . available agroforestry research information; and
- . appropriate experimental approaches to generate agroforestry technology.

2. PROGRAMME

2.1 REGISTRATION DAY

Participants reported to ICRAF headquarters in Bruce House, Nairobi, on Monday 4 June for registration. There they had their first chance to get acquainted with some of the ICRAF senior and support staff; they received the package of training materials, general information about the course and settled administrative and financial matters with the Course Coordinator. All participants were accommodated at the Sixeighty Hotel, across the street from ICRAF. An evening reception was held at Dr. Zulberti's residence to welcome participants.

2.2 OPENING SESSION

It took place on the morning of Tuesday June 5. Dr. Peter Huxley, Officer-in-Charge, highlighted the Council's efforts in training research scientists and development planners from developing countries and declared the course officially open.

The Course Coordinator then provided the participants with a technical overview of the programme, outlining the objectives

of the event and the steps that have been taken to reach these goals; she also introduced ICRAF's Role and Programme of Work. The rest of the morning was devoted to participants' self-introductions. A very positive relationship evolved as a result of this exercise where individual members highlighted their current professional activities and agroforestry interests.

2.3 STRUCTURE AND CONTENT

The focus of the course was on ICRAF's multidisciplinary methodological approach to land use systems and technology development, in particular, on how to undertake the interdisciplinary identification of priorities for research to develop and test sound agroforestry technologies to fill the identified gaps.

The programme was organized in three modules; the scope and sequence of content for each module is indicated in Table 1.

Three field trips were undertaken during the first week (module I) to complement classroom presentations. They provided the opportunity to observe a wide range of land use systems - from the fertile coffee - and tea - producing uplands of Kiambu District to the semi-arid regions of Machakos District. Dr. Lill Lundgren, Regional Soils conservation Adviser with the Swedish International Development Agency (SIDA), provided the participants with an introduction to soil conservation in Kenya, followed by field observations in the Kiambaa Division of Kiambu District. At the ICRAF Field Station participants visited the demonstration plots on multipurpose trees and were introduced to on-going activities related to microclimate monitoring and soil sampling and monitoring in agroforestry.

ICRAF's rapid appraisal Diagnostic and Design Methodology (module II) was introduced at the beginning of the second week of the course. The sequence of activities as they occurred was as follows:

- Introduction to the D&D conceptual framework and methodological procedures by Dr. John Raintree;
- Example of a D&D application, specifically the India Case Study, by Dr. Dianne Rocheleau;

Table 1.

SCOPE AND SEQUENCE OF CONTENT

MODULE	MAIN TOPIC	PROVIDED ANSWER TO	@DURATION
I	The Conceptual and Technical Background of Agroforestry	<ul style="list-style-type: none"> . What is Agroforestry? . What are some of the existing systems and practices? . What is the role of (trees, crops, animals, economics, the human factor, etc) in agroforestry? 	4 days
II	The Diagnostic and Design Methodology	<ul style="list-style-type: none"> . What is the conceptual framework? . What are the steps and stages? . What examples are there of D&D applications and with what results? (Case studies). . How does it work in practice? 	7 days
III	Appropriate Experimental Approaches to Generate Agroforestry Technology	<ul style="list-style-type: none"> . What do we know that can be of immediate use? . What appropriate experimental designs to generate agroforestry technology? 	3 days

- Pre-diagnostic analysis of the Kakuyuni Case Study. Base-line information on the project site was presented by Dr. Anthony Young and Dr. Till Darnhofer and discussed among participants in preparation for the field survey;
 - Organization of Field Survey teams in four small multidisciplinary groups to carry out interviews with farmers (see Annex 2).
 - Field Survey was carried out during two consecutive days (Tuesday 12 and Wednesday 13 June) at the site of the Kakuyuni Agroforestry Project. A tented camp was set up in the grounds of an Agricultural School in Katangi where the participants and ICRAF staff spent one night. The "safari" type of arrangement fully justified the organizational efforts involved, as the group had a lively interaction with the ecological as well as the human environment in the area.
 - Diagnostic and Design exercises were carried out in four simultaneous working groups (the same field survey teams) with the aim of evaluating diagnosed land use problems, design specifications for problem-solving interactions, analyzing technology options to address the identified design specifications, and evaluating design alternatives to select 'best bet' options.
- Following the steps above, Ir. Dirk Hoekstra led the course participants into the "economic appraisal of selected agroforestry interventions". A full day (Tuesday 19 June) was spent in the economic analysis and practical MULBUD exercises.*

The next step in the development of the programme was to identify research needs to generate the required technology, wherever it was not readily available, and to discuss specific research planning and implementation of investigations (module III). During two full days (Wednesday 20 and Thursday 21 June) participants and ICRAF staff addressed themselves to such questions as:

* MULBUD is an interactive package designed to assist in the economic appraisal of land use systems involving trees, either as 'sole' enterprises or in combination with other enterprises.

- . What do we need to know about planning field trials that have different spatial arrangement? (Dr. Peter Huxley and Mr. Peter Wood)
- . How can we experiment on tree/crop mixtures? (Dr. Peter Huxley)
- . What environmental/social factors do we need to measure and how? (with Drs. Dianne Rocheleau, Anthony Young and Till Darnhofer)

Working groups were assembled to develop experimental models for three selected agroforestry technologies based on problems identified during the Diagnostic stage. The topics for the design models were: a) species/provenance trials; b) hedge-row intercropping; and c) fodder. Conclusions of the groups were presented in a plenary session on Thursday 21 June. The pre-established focus of the course on ICRAF's D&D methodology did not allow for further involvement in technology generation issues, which justifiably merit a separate training course.

The course timetable and the detailed day-to-day account of the programme activities and responsible staff involved can be found in Annex 3 of this report.

2.4 PARTICIPANTS' CONSULTATIONS WITH ICRAF SCIENTIFIC STAFF

Time was assigned during the three-week period for participants to consult with ICRAF scientific staff on matters of their own professional interest. Meetings were arranged either on an individual basis (participant and ICRAF staff) or in a collective way (small group of participants and ICRAF staff). Consultations covered a wide range of issues - from discussions on site-specific agroforestry research problems and/or potentials to gathering of information/references on particular agroforestry aspects, e.g. tree species, provenances, etc.

2.5 SPECIAL ACTIVITIES

During the course period participants were guests of different ICRAF staff on several occasions. Fun-tours to wild animal reserves were also organized. Tourist attractions in and

around Nairobi were visited over the weekends, especially by those participants visiting Africa and/or Kenya for the first time.

2.6 MONITORING

Monitoring procedures were applied throughout the development of the three-week course with the aim of detecting programme deficiencies, if any, and applying corrective measures in time. Formative evaluations were carried out by the Course Coordinator at the end of the first, second and third modules as part of the programme of activities. Minor adjustments were introduced in the programme as a result of this action; on the whole, the structure and content remained as originally planned.

2.7 FOLLOW-UP

On the morning of Friday 22 June, ICRAF staff met with the group of participants to discuss possible follow-up actions. A double channel of communication between ICRAF and the participants was identified as highly desirable to: a) provide ICRAF with feed-back information on the extent to which the course knowledge/methods are put into use by participants upon return to their home country institutions; b) update participants on agroforestry research developments; and, c) identify possible cooperative activities between ICRAF and national institutions in developing countries. Agreement was reached on the following specific actions:

- . ICRAF will include all participants' on the Council's mailing list;
- . ICRAF will send a follow-up questionnaire (see Annex 4) to all participants 4-6 months after the end of the course;
- . Participants will send to the Training Unit at ICRAF a copy of the reports presented to their respective institutions with detailed recommendations on possible agroforestry research alternatives and potentials at national/regional levels;

- Participants will collaborate with ICRAF in the identification of qualified colleagues who would benefit most from participating in ICRAF's training activities.

2.8 EVALUATION AND RECOMMENDATIONS

As was called for at the beginning of the course, participants were requested to evaluate and formulate recommendations on specific aspects of the programme at the end of the three-week course. An evaluation form was enclosed in the training package handed out to participants. A copy of this form will be found in Annex 5 of this report.

Twenty-three evaluation forms were filled and returned. In general, participants expressed very positive comments about the course. Particularly appreciated was the informal and friendly atmosphere which made it easy for direct relationships to be quickly established among the participants and ICRAF staff involved.

The detailed evaluation information is presented in Annex 6. A summary of participants' main observations and recommendations is given below.

- the course objectives - as defined - were considered relevant to the participants' professional activities and they were fully achieved;
- pre-course information was, in general, adequate; some recommendations to complement the information package were made;
- the course was considered 'too short'; recommendations for lengthening the duration go from 4 to 6 weeks more;
- the training materials were adequate;
- the distribution of participants by discipline and sex should improve to reduce the bias towards foresters and male participants;
- more time was in general, requested for Experimental Designs

in Agroforestry, Economic Appraisal, and consultations with ICRAF staff.

2.9 CLOSING SESSION

The official closing address was given by Dr. John Raintree, Officer-in-Charge. Course participants were presented with certificates of attendance by ICRAF staff. A farewell reception was then held for participants and the ICRAF scientific, professional and support staff involved.

3. TRAINING MATERIALS

3.1 TRAINING PACKAGE

Since agroforestry training is a new area, so is the development of appropriate training materials. A systematic method is being followed by ICRAF - under the ICRAF/USAID Cooperative Agreement - to develop such training materials. This is essentially the same as in developing research methods, viz. collation and evaluation of relevant information from cognate disciplines, integration of such information into a new format and testing during the training courses.

An "agroforestry training package" was compiled of existing knowledge and selected information about agroforestry principles, practices and methods gathered from different sources and arranged to follow the course programme of activities. A preliminary version of this package was developed and tested during the First ICRAF/USAID Agroforestry Course. Training materials were placed in a two-ring binder to be used as a portable system which could be easily revised and to which important information could be easily added.

Dividers were established to identify modules on "Technical and Conceptual Background of Agroforestry", "Diagnostic and Design Methodology", and "Experimental Approaches in Agroforestry". For each module the training materials included main notes or key articles, practical exercises (case studies, field trips, MULBUD) and a list of recommended readings or references. Additional information and hand-outs were provided

during the daily activities.

A slide set on "Agroforestry Practices and Systems in Developing Countries" was made available from the on-going ICRAF global Agroforestry Systems Inventory project, also sponsored by the ICRAF/USAID Cooperative Agreement. The 20 - slide set, plus a two-page description of the main systems involved, had a nominal cost of USD 3.00.

As mentioned at the beginning of this Report ICRAF is in the process of developing the model of a training course on Agroforestry Research and Development, together with the training materials. Both are still undergoing testing/trial as they are expected to be in its final form for distribution by the end of the ICRAF/USAID Agreement in late 1985. Thus, the decision was reached not to enclose copy of the training material with the present report but rather to include a list of the main articles, documents, working papers etc. used which can be made available to the general public on request. (See Annex 7.)

ANNEX 1.

LIST OF PARTICIPANTS

1. ABUNAIB, Imadeldin
Agricultural Research Council
P.O. Box 2404
Khartoum, SUDAN
2. ADEGBANKE, Samson
ILCA
P.M.B. 5320
Ibadan, NIGERIA
3. AGBAHUNGBA, Georges
Unite de Recherche Forestiere
B.P. 06 707
Cotonou, R.P. BENIN
4. ARAP-SANG, Francis
Kenya Agricultural Research Ins.
P.O. Box 74
Kikuyu, KENYA
5. BA, Ibrahima
Ecole des Eaux et Forets
P.B. 5 Ziguinchor
Dakar, SENEGAL
6. BIRIR, John
Ministry of Agriculture &
Livestock Development
P.O. Box 30028
Nairobi, KENYA
7. CHACHU, R.E.O
Department of Forestry
University of Science &
Technology
P.O. Box 1917
Kumasi, GHANA
8. CHAMSHAMA, S.A.
Faculty of Agriculture
Forestry & Veterinary Science
University of Dar-es-Salaam
P.O. Box 3009
Morogoro, TANZANIA
9. GARCIA, Mario
IVITA Research Centre
Ap. 245
Pucallpa, PERU

10. JIMENEZ, Ramiro
Direccion General Forestal
Ministerio de Agricultura
& Ganaderia
Apto. 10094
1000 San Jose
COSTA RICA
11. KADZICHE, F.B.M.
Energy Studies Unit
P.O. Box 30452
Lilongwe
MALAWI
12. KASOLO, Wilson
Forest Department
Ministry of Agriculture
& Forestry
P.O. Box 82
Jinja, UGANDA
13. KIRIINYA, Charles
Kenya Agricultural Research Ins.
P.O. Box 74
Kikuyu
KENYA
14. MHUNGU, Johnson
Rural Afforestation
(Forestry Commission)
P.O. Box HG 139
Harare
ZIMBABWE
15. MOMO, Jonathan
College of Agriculture
& Forestry
University of Liberia
Monrovia, LIBERIA
16. MORAPEDI, Ntwetsile
National Institute of Dev.
Research & Documentation
University of Botswana
P.B. 0022
Gaborone, BOTSWANA
17. NYAMAI, Daniel
Kenya Agricultural Ressearch Ins.
P.O. Box 74
Kikuyu, KENYA

18. OKORIO, John
Ministry of Agriculture
& Forestry
Forestry Department
P.O. Box 1752
Kampala, UGANDA
19. OMARA-OJUNGU, Peter
Department of Geography
Makerere University
P.O. Box 7062
Kampala, UGANDA
20. OYATOGUN, Moses
Kainji Lake Research Ins.
P.M.B 666
New Bussa, Kwara State
NIGERIA
21. SAUNGWEME, Dorothy
Agricultural & Rural
Development Authority
P.O. Box 8439
Causeway, Harare
ZIMBABWE
22. VILLAVICENCIO, Manuel
Tropical Soil Project
(INIPA-NCSU)
Yurimaguas (Loreto)
PERU
23. WANDERA, Foustine
National Dryland Farming
Research Station (Katumani)
P.O. Box 10
Machakos, KENYA
24. YAHIA, Abdalla
Jebel Marra Project
P.O. Box 9025
(K.T.I)
Khartoum, SUDAN

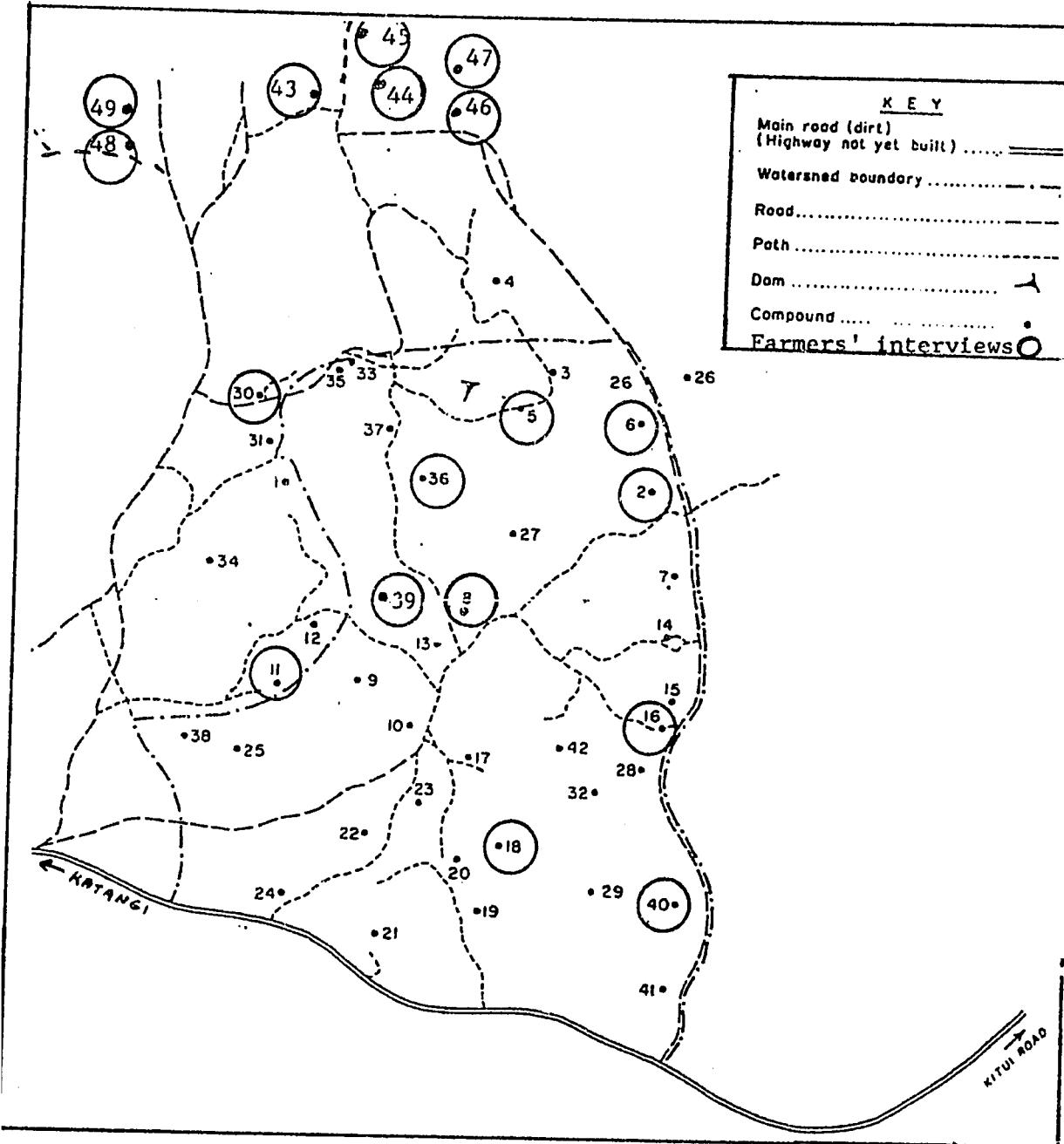
ICRAF STAFF AND INVITED SPEAKERS

1. Dr. Bjorn Lundgren Director
2. Mr. Peter von Carlowitz Forester
3. Dr. Till Darnhofer Bioclimatologist/Agrometeorologist
4. Mr. Denis Depommier Forester
5. Ir. Dirk Hockstra Farm Economist
6. Dr. Peter A. Huxley Horticulturist/Agronomist
7. Dr. P.K.R. Nair Agronomist/Soil Scientist
8. Mr. Richard C. Nturu Publications Officer
9. Dr. John Raintree Ecological Anthropologist
10. Dr. Dianne Rocheleau Geographer/Systems Ecologist
11. Dr. Filemon Torres Range Management/Livestock Production
12. Mr. Peter Wood Forester
13. Prof. Anthony Young Land Evaluation/Soil Scientist
14. Dr. Ester Zulberti Training Officer
15. Dr. Lill Lundgren Regional Soil Conservation Adviser/SIDA

FIELD EXERCISE IN KAKUYUNI: group organization
and farmers identification

GROUP NO.	GROUP LEADERS (Interpreters)	PARTICIPANTS	FARMERS TO INTERVIEW			
			TUESDAY 12		WEDNESDAY 13	
			FARMER'S NAME	HOUSEHOLD NO.*	FARMER'S NAME	HOUSEHOLD NO.*
1. LARGE FARMERS	Ester Zulberti Richard Mwendandu	ABUNAIB SAUNGWEME MHUNGU GARCIA VILLAVICENCIO NYAMAI	1. Mwangi Munyoki 2. Kaumbalu Katunda	40 16	3. Munyao Nzima 4. Kilei Mutisya	47 44
2. LARGE FARMERS	Dirk Hoekstra (Joseph Mutinga)	AGBAHUNGBA MORAPEDI OYATOGUN WANDERA CHAMSHAMA KIRIINYA	1. Mbonu Mutinda 2. Kimweli Mbithulia	49 48	3. Mukilya Kaula 4. Mbithi Ngeam	2 6
3. SMALL FARMERS	Dianne Rocheleau (Jackson Wambua)	OKORIO KADZICHE MOMO BA BIRIR KASOLO	1. Mbuya Iyuva 2. Koti Ngee	43 45	3. Maingi Mwilu 4. Kimonyi Ndolo	18 46
4. SMALL FARMERS	Peter von Carlowitz (Joyce Mutinda)	CHACHU MUNOZ ARAP-SANG ADEGBANKE YAHIA OMIPA OJUNO	1. Matia Wambua 2. Mutiso Luvai	5 8	3. Muia Kithumbi 4. Ngului Nzeki	36 39

KAKUYUNI WATERSHED WITH HOMES, ROADS, PATHS



		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
FIRST WEEK	morning	(June 4) PARTICIPANTS ARRIVE	(June 5) .Opening session, introduction to the course and partic- ipants' introductions	(June 6) . Agroforestry field trip	(June 7) .Concepts in AF technology a)environment b)soils c)multipurpose trees d)animals e)tree/crops f)economics	(June 8) .Participants' con- sultations with ICRAF Staff	(June 9) A visit to ICRAF's Field Station in Machakos & Nairobi Game Park	(June 10) FREE
	afternoon	AND REGISTRATION	.ICRAF Programme .The concept of AF	.Overview of AF systems in LDC .Participants' consultations with ICRAF Staff		.Field trip to Kiambaa Division		
	eve.	Reception	Independent work			Return to Nairobi		
SECOND WEEK	morning	(June 11) .First week review .Introduction to the D&D methodology	(June 12) Field Survey in the Kakuyuni	(June 13) Field Survey continued.	(June 14) .Diagnostic Analysis (in working groups)	(June 15) .WG's presentations and discussion of potential interven- tion points	(June 16) FREE	(June 17) FREE
	afternoon	.The India Case Study .Pre-diagnostic information on the Kakuyuni area	area.			.General "systems specifications" for candidate technol- ogies.		
	eve.		Overnight	Return to Nairobi				
THIRD WEEK	morning	(June 18) .Identification of candidate tech- nologies & service functions	(June 19) .Economic apprais- al of selected agroforestry inter- ventions	(June 20) .Planning research on species and provenances .Planning field trials	(June 21) .Experimental designs for selected AF technologies	(June 22) .Last participants consultations with ICRAF Staff	(June 23) PARTICIPANTS LEAVE	(June 24)
	afternoon	.General technol- ogy specifications .Scientific & tech- nical information sources	.MULBUD exercise	.Environmental & Social factors in technology generation		.Course evaluation .Closing session & certificates FAREWELL		
	eve.	.Second week review						

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: MONDAY 4th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
	Registration Day	Ester Zulberti Amina Musa
19.30	Reception at Dr. Zulberti's residence	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: TUESDAY 5th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.30	Opening session	Peter Huxley Officer-in-Charge
	Introduction to the course: objectives, structure and organization.	Ester Zulberti
09.30-10.15	Participants introductions and description of professional activities and agroforestry interests.	Participants
10.15-10.45	<u>Coffee break</u>	
10.45-11.45	Continued	
11.45-12.30	ICRAF's Role and Programme	Ester Zulberti
12.30-14.00	<u>Lunch</u>	
14.00-15.30	The Concept of Agroforestry	Filemon Torres
15.30-16.00	<u>Coffee break</u>	
16.00-16.15	Introduction to ICRAF Library	Stephen Okemo
	Independent work	Participants

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: WEDNESDAY 6th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-12.00	An agroforestry field trip to Kiambu District	Peter Huxley P. von Carlowitz Ester Zurberti
12.30-14.00	<u>Lunch</u>	
14.00-15.30	An overview of agroforestry systems in developing countries	P.K.R. Nair Erick Fernandez
15.30-16.00	<u>Coffee break</u>	
16.00-	Participants' consultations with ICRAF staff	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: THURSDAY 7th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.00	Technology for agroforestry: an introduction	Peter Huxley
09.00-10.00	The environmental basis of agroforestry	Anthony Young
10.00-10.30	<u>Coffee break</u>	
10.30-11.30	Soil productivity aspects of agroforestry	P.K.R. Nair
11.30-12.30	Multipurpose trees: opportunities and limitations	P. von Carlowitz
12.30-14.00	<u>Lunch</u>	
14.00-14.45	Animal production in agroforestry systems	Filemon Torres
14.45-15.30	Tree/crop mixtures - The benefits (or otherwise) of mixed marriages	Peter Huxley
15.30-16.00	Economics and agroforestry	Dirk Hoekstra
	Independent work	Participants

AGROFORESTRY RESEARCH FOR DEVELOPMENT
Training Course
Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: FRIDAY 8th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.30	Introduction to a field trip on soil conservation	Lill Lundgren
09.30-10.15	Participants' consultations with ICRAF staff	
10.15-10.45	<u>Coffee break</u>	
10.45-11.30	Continued	
11.30-13.00	<u>Lunch</u>	
13.00-17.00	Field trip to Kiambaa Division	Lill Lundgren Peter Wood Ester Zulberti

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: SATURDAY 9th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.15	Departure from Nairobi A visit to ICRAF's Field Station in Machakos District - Introduction to the Field Station - Visit to the demonstration plots - Microclimate monitoring - Soil sampling and monitoring	 P.K.R. Nair P.K.R. Nair P. von Carlowitz Peter Wood Till Darnhofer Anthony Young
12.30-13.30	<u>Lunch</u> at the Field Station	
13.30-	A visit to Nairobi National Park and return to hotel	Ester Zulberti

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: MONDAY 11th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.00	Review of first week	Ester Zulberti
09.00-10.15	Introduction to ICRAF's Diagnostic and Design Methodology	John Raintree
10.15-10.45	<u>Coffee break</u>	
10.45-12.30	Independent work	Participants
12.30-14.00	<u>Lunch</u>	
14.00-15.30	An example of a Diagnostic and Design application: the India Case Study	Dianne Rocheleau
15.30-16.00	<u>Coffee break</u>	
16.00-17.00	Pre-diagnostic information	Anthony Young Till Darnhofer

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: TUESDAY 12th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.00-10.00	Travel to the Kakuyuni area	Group leaders & ICRAF staff
10.00 onwards	Diagnostic survey in four work- ing groups (Overnight at Kakuyuni)	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: WEDNESDAY 13th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.00-12.00	Diagnostic survey continues in four working groups	(Same as previous day)
12.00-14.00	Lunch in Machakos town	
14.00-15.00	Return to Nairobi	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: THURSDAY 14th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30 onwards	Diagnostic analysis (in four working groups)	
10.00-10.30	<u>Coffee break</u>	
12.30-14.00	<u>Lunch</u>	
15.30-15.45	<u>Coffee break</u>	

AGROFORESTRY RESEARCH FOR DEVELOPMENT
Training Course
Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: FRIDAY 15th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-10.00	Group presentation and discussion of problems and potential intervention points for system improvement	Dirk Hoekstra
10.00-10.30	<u>Coffee break</u> Continued	
12.30-14.00	<u>Lunch</u> Continued	John Raintree
15.00-15.30	<u>Coffee break</u>	
15.30-17.00	General "systems specifications" for candidate technologies	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: MONDAY 18th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-10.00	Identification of candidate technologies and service functions (within existing system)	John Raintree
10.00-10.30	<u>Coffee break</u>	
10.30-12.30	General technology specifications	Peter Huxley Peter Wood
12.30-14.00	<u>Lunch</u>	
14.00-15.30	Scientific and Technical Information Sources. Data Bases	Richard Ntiru Anthony Young P. von Carlowitz
15.30-16.00	<u>Coffee break</u>	
16.00-16.30	Continued	
16.30-17.00	Second week review	Ester Zulberti

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: TUESDAY 19th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.30	Economic appraisal of a selected intervention	Dirk Hoekstra
09.30-10.30	Practical MULBUD exercise	Lubaina Fidaali Margaret Mutua Simeon Kanani
10.30-11.00	<u>Coffee break</u>	
12.30-14.00	<u>Lunch</u>	
14.00-15.00	Practical exercise continues	
15.00-15.30	<u>Coffee break</u>	
15.30-16.45	Continued	

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: WEDNESDAY 20th June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-09.00	Recapitulate steps 10 and 11 (Prioritized specifications and detailed Technical/Scientific/Economic/Social appraisal of technological choices that best fit the specifications)	Peter Huxley
09.00-10.00	Planning research on species and provenances	
10.00-10.30	<u>Coffee break</u>	
10.30-12.30	Planning field trials e.g. spacing arrangements, and experiments on tree/crop mixtures	
12.30-14.00	<u>Lunch</u>	
14.00 onwards	What environmental and social factors do we need to measure and how?	Till Darnhofer Anthony Young Dianne Rocheleau

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: THURSDAY 21st June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30 onwards	Experimental design for a selected agroforestry technology in working groups A. Species/provenance trials B. Hedgerow/intercropping C. Looking for fodder	
10.00-10.30	<u>Coffee break</u> Continued	
12.30-14.00	<u>Lunch</u>	
14.00-15.00	Working groups presentations of experimental designs on the above topics	Rapporteurs
15.30-15.45	<u>Coffee break</u>	
15.45-16.30	Wrap-up session	Peter Huxley

AGROFORESTRY RESEARCH FOR DEVELOPMENT

Training Course

Nairobi, 4-22 June 1984

PROGRAMME OF ACTIVITIES

DATE: FRIDAY 22nd June, 1984

TIME	TOPIC/ACTIVITY	RESPONSIBLE
08.30-10.00	Final individual participants' consultations with ICRAF staff	
10.00-10.30	<u>Coffee break</u>	
10.30-11.30	Summary session and course evaluation	ICRAF Staff and participants
11.30-12.30	Closing session. Presentation of Certificates. Farewell to participants	John Raintree Officer-in-Charge
	E N D	

ANNEX 4

ICRAF/USAID AGROFORESTRY COURSES FOLLOW-UP

Nairobi, 4-22 June 1984

Participants' Feedback Information

1. Please indicate whether there have been any changes in your employing institution affecting your position and/or responsibilities since you attended the June course. Tick as appropriate.

NO

YES. Briefly describe your new responsibilities.

During the three week training course, time was approximately distributed as follows:

Week I - The conceptual and technical background of agroforestry

Week II - ICRAF's Diagnostic and Design Methodology
First half of Week III

Second half of Week III - Agroforestry research information and relevant experimental approaches

2. Please indicate whether you have been able to use information presented during the course in Research Activities

NO

YES (Please, specify below)

Name the project or activity. How many people are involved?

3. Please indicate whether you have been able to use information presented during the course in extension activities

NO

YES (Please, specify below)

Briefly describe the activity.

Indicate how many farmers you are reaching.

4. Please indicate whether you have been able to use information presented during the course in Teaching Activities

NO

YES (Please, specify below)

Give title of courses/seminars.

Indicate approximate duration and number of students attending the activity(ies).

5. Have you used course information in any other activity?

NO

YES (Please, specify below)

At the time of the course you received a rather voluminous training package.

6. Have you been able to go over or read in depth the written information provided upon return to your country?

NO

YES

PARTIALLY

7. What information did you find most useful?

8. What information would you like to add to your training package?

9. Have you been able to disseminate the course information among your colleagues/students? Please specify.

10. Do you have any specific plan to use the agroforestry course information in the future? Please, briefly specify.

11. Have you had contacts with any of the ICRAF scientific staff during the past five months?

NO

YES (Please, specify below)

In relation to what subject/area?

A N N E X 5

ICRAF/USAID AGROFORESTRY COURSE
Nairobi, 4-22 June 1984

(Post -Course)

EVALUATION SHEET

The purpose of the present evaluation sheet is to seek participants' opinions about the general structure, organization and co-ordination of the course, as well as suggestions to improve the design of similar ones.

SECTION 1. This section is intended to gain information about Pre-Course Arrangements.

1.1 When did you learn about the course? Indicate the approximate date.
Your country is _____

DAY	MONTH
-----	-------

1.2 Did you receive the pre-course information before coming to Nairobi?

TICK

YES	NO
-----	----

1.3 Was pre-course information adequate?

TICK

YES	NO
-----	----

1.4 Suggest any pre-course improvements.

SECTION 2. Please give us your views on the structure of the course. Were the following adequate?

COURSE STRUCTURE	TOO LONG	ADEQUATE	TOO SHORT
2.1 The length of the course			
2.2 Daily working sessions			
2.3 Field exercises			
2.4 Independent work/study sessions			
2.5 Other (Please, specify)			

(Post-Course/2)

SECTION 3. The main objectives of the course are shown below. Indicate how appropriate you believe they were and to what degree they were achieved. Before completing this section note these definitions:

Appropriateness: the relevance to your work and usefulness of the course

Effectiveness: whether appropriate or not, the extent to which the objectives were fulfilled.

1 = not appropriate/effective

5 = very appropriate/effective

OBJECTIVES	APPROPRIATENESS					EFFECTIVENESS				
	1	2	3	4	5	1	2	3	4	5
(Main) 3.1 To become familiarized with the concepts and procedures of ICRAF's methodology to diagnose AF-related land use problems/potentials and design appropriate AF systems.										
(Complementary) 3.2 To become acquainted with ICRAF's institutional organization and programme of work.										
3.3 To develop/enhance an understanding of the concepts of AF as a land use system, and of its potentials and constraints.										
3.4 To become updated on available AF research information and appropriate experimental approaches.										

3.5 Suggested improvements

(Post-Course/3)

SECTION 4. We would like your views on the physical resources and administrative support for the course. Were they adequate?

1 = not adequate

5 = very adequate

Physical Resources and administrative support	1	2	3	4	5
4.1 Conference room					
4.2 Meeting rooms					
4.3 Library services					
4.4 Computer services					
4.5 Secretarial assistance					
4.6 Per diem payments					
4.7 Travel arrangements					
4.8 Hotel accommodation					
4.9 Meal arrangements in the field					
4.10 Transportation arrangements during field exercises					
4.11 Other (please specify)					

4.12 Suggested improvements

(Post-Course/4)

SECTION 5. Indicate your opinion about the organization of training sessions and general co-ordination of the course.

1 = not adequate

5 = very adequate

Aspect to evaluate	1	2	3	4	5
5.1 Training materials, written information given to participants					
5.2 Quality of presentations (clarify of speaker, use of visual aids, time)					
5.3 Availability of visual equipment, training aids, stationery					
5.4 Availability of staff for consultations					
5.5 Other (please specify)					

5.6 Suggested improvements

SECTION 6. What is your opinion about the course participants?

1 = not satisfactory

5 = very satisfactory

Aspect to evaluate	1	2	3	4	5
6.1 The size of the group of participants					
6.2 The various disciplines represented					
6.3 The interaction among participants					
6.4 The interaction between participants and ICRAF staff					
6.5 Other (please specify)					

ANNEX 6

SUMMARY OF PARTICIPANTS EVALUATION & RECOMMENDATIONS

PRE-COURSE ARRANGEMENTS

Invitations to submit candidates' nominations were mailed to institutions in Africa and Latin America five months before the beginning of the course. Twenty-two participants (out of twenty-three) indicated that they received the pre-course information between February and May 1984 - 2 in February, 8 in March, 8 in April and 4 in May. Table 1 summarizes participants' responses on "pre-course arrangements", followed by their recommendations on how to improve this aspect in future courses.

Table 1. Summary of participants' responses on pre-course arrangements

Aspect evaluated	YES (%)	NO (%)
Did participants receive the pre course information before the start of the course?	96	04
Was the pre-course information considered adequate?	81	19

* In percentage of total number of responses

Suggested improvements were:

- If possible, send to the future participants more information about the D&D methodology;
- Request participants to bring information on planned or on-going agroforestry activities in their countries;
- Advise institutions to distribute the information to other selected organizations.

OBJECTIVES

Participants were requested to express their views on the appropriateness and effectiveness of the course objectives using, for that purpose, a measuring scale from 1 to 5, where 1 - less appropriate/effective and 5 = very appropriate/effective. The terms were defined as follows:

Appropriateness - the relevance and usefulness of the course objectives to the participants' work

Effectiveness - whether appropriate or not, the extent to which the objectives were fulfilled.

Final information is summarized in Table 2. All the four objectives were assigned 4 or higher than 4 average values.

Table 2 Summary of information on the appropriateness and effectiveness of the course objectives*

Objectives	Appropriateness	Effectiveness
(MAIN)		
1. To become familiarized with the concepts and procedures of ICRAF's methodology to diagnose agroforestry-related land use problems/constraints and design appropriate agroforestry systems	4.6	4.4
(COMPLEMENTARY)		
2. To become acquainted with ICRAF's institutional organization and programme of work	4.4	4.2
3. To develop/enhance an understanding of the concepts of AF as a land use system, its potentials and constraints	4.8	4.6
4. To become updated on available AF research information and appropriate experimental approaches	4.6	4.0

* Expressed in average values of the total number of responses.

STRUCTURE OF THE COURSE

Participants' views were requested on the adequacy and duration/length of the course, the daily working sessions, the field exercises and the independent/study sessions. These aspects were evaluated in terms of *too long*, *adequate* and *too short*. A higher percentage of the total number of participants thought that the "course" and the "independent work/study sessions" were too short while the daily working sessions were adequate. As for the "field exercises", about half of the participants thought they were adequate and the other half indicated they were too short. Table 3 summarizes the information on this section of the questionnaire.

Table 3 Summary of participants' views on
 the course structure *

Aspects evaluated	TOO LONG (%)	ADEQUATE (%)	TOO SHORT (%)
The total length of the course	0	39	61
Daily working sessions	22	69	9
Field exercises	5	50	45
Independent study/work	4	31	65

* In percentage of the total number of responses

Suggested improvements were:

- Extend the length of the course - from four to six weeks - to allow for more in-depth study/information mainly on the following: experimental designs; economic evaluation and computer exercises; and independent consultations with ICRAF staff;
- Some ICRAF staff could not be around throughout the course period, due to other engagements; some efforts should be made to invite experts with similar backgrounds to replace them during training periods;
- Fridays could be used for consultations with ICRAF staff; in this respect ICRAF needs to recruit more staff in animal husbandry/range management.

- Stress (in content and time allocated) the experimental design in AF systems;
- The course should aim to provide more hard data/information about tested technologies.

PHYSICAL RESOURCES AND ADMINISTRATIVE SUPPORT

These aspects were evaluated using a 1 to 5 scale, where 1 = not adequate and 5 = very adequate. Table 4 summarizes the information provided by participants. In general, the physical resources and administrative support were considered adequate as indicated by the values higher than 4.0. Information is given in Table 4 below.

Table 4. Summary of information on physical resources and administrative support *

Aspects evaluated	\bar{x}
Transport arrangements during field exercises	4.9
Meal arrangements in the field	4.8
Hotel accommodation	4.7
Travel arrangements to and from Nairobi	4.7
Secretarial services	4.7
Meeting rooms for small working groups	4.4
Computer services	4.3
Conference room	4.2
Library services	4.0
Per diem payments	3.8

* Expressed in average values of the total number of responses

Suggested improvements were:

- Increase the per diem rate as Nairobi is quite expensive;
- Pay the same per diem rate to all participants, regardless of whether they are resident in Kenya or not;
- Arrange to display books produced by ICRAF staff and have them for sale;
- Arrange for participants to be able to borrow books from the Library during the course period;

GENERAL ORGANIZATION AND CO-ORDINATION

Participants views were requested regarding the adequacy of training materials, the quality of presentations, the use of visual equipment and training aids, and the availability of ICRAF staff for consultations. Again, a scale from 1 to 5 was used, where 1 = not adequate and 5 = very adequate. As shown in Table 5 below most aspects were considered more than adequate (values higher than 4). Once more, the time factor was considered the main constraint to consulting with ICRAF staff.

Table 5. Summary of information on general course organization and co-ordination

Aspect evaluated	\bar{x}
Adequacy of training materials and hand-outs	4.6
Availability of visual equipment and training aids	4.6
Quality of presentations (clarity of speaker, use of visual aids, time).	4.2
Availability of ICRAF staff for consultations	3.9

* Expressed in average values of the total number of responses

Suggested improvements:

- More time to be spent in consultations with ICRAF staff;
- Dr. Raintree needs to use a microphone, he has good material but his vocal projection is low; Dr. Rocheleau needs to slow down her presentations;
- Installation of a switch close to the speakers to control the lights;
- Hand out written information before the end of the day to allow for preparation for the next day;
- Avoid having too many speakers on the same day, otherwise participants lose interest;

- Use video tapes to demonstrate field experiments and practices, where constraints make actual trips to the sites impracticable.

PARTICIPANTS

Participants were requested to express their views about the size of the group, the various disciplines represented and the interaction among themselves as well as with the ICRAF staff. A five-numeral scale was used, from 1 = not satisfactory to 5 = very satisfactory. Table 6 summarizes the information on this section. In general, all aspects were considered more than satisfactory (values higher than 4).

Table 6. Summary of information about the
course participants *

Aspect evaluated	\bar{x}
Size of the group	4.4
Interaction among participants	4.3
Interaction of participants with ICRAF staff	4.2
Various disciplines represented	4.2

* Expressed in average values of the total number of responses

Suggested improvements were:

- More time should be allowed for interaction of participants with ICRAF staff;
- Improve the distribution of disciplines represented; there was a strong bias towards foresters. As a result there was a strong hard-science impact at the expense of socio-economic concerns.
- More women participants should be encouraged as they have a strong input in rural development programmes.

GENERAL COMMENTS

The participants were prolific in their comments and recommendations for the organization of similar events in the future. This is what they said (with minor editorial changes);

- My overall view of the course is good. There are a few things that I would like to suggest for improvement:
 - a) give more emphasis to Experimental Design;
 - b) ICRAF staff is a multidisciplinary group but during discussions they do not always act in an interdisciplinary fashion;
 - c) there is a strong interest in meeting the ICRAF staff on an individual basis but when we wanted to meet for a longer period we had to sacrifice part of the lectures;
 - d) I expected more interaction with ICRAF staff at the Kakuyuni site.
- In my personal view, the course was very well organized, informative and successful. ICRAF and USAID are highly commended. I am particularly grateful for this opportunity provided by the two organizations to enable the participants to attend the course. the multidisciplinary approach to agroforestry is highly appreciated. It has been a job very well done. The course has exposed me to ICRAF and agroforestry, and has provided a forum for sharing my experiences with ICRAF staff and colleagues all over the world. On behalf of my country, and my institution, The Kainji Lake Research Institute at New Bussa, I am very grateful for this opportunity.
- The training course was very fruitful and rewarding. I was very impressed by the manner in which it was conducted. It was properly planned and implemented on schedule. I acquired tremendous knowledge about agroforestry during the three weeks. I would, however, like to suggest that in the future more emphasis be put on field/practical training and information. I extend my profound thanks and appreciation to the Director and the able ICRAF staff.
- Personally, I have gained a lot from this course, though it was very short. I have gained much knowledge, but I fear that I will be coming to you at the time of the implementation of the principles I have learnt. I have every hope that the gaps will be filled by mail returns. As I am leaving, I have more or less designed an experiment for my institution. You will soon receive a copy for comments and suggestions. I wish that in future you increase field visits and independent work.
- Congratulations! than you very much. The training course was very good. I think ICRAF should, in future, offer specific courses according to the interest of candidates.
- The course was very interesting and full of important experiences and research recommendations in agroforestry. The facilities, training materials, and written information were excellent. All participants had the opportunity to discuss with the ICRAF staff relevant aspects of both AF in relation

to the course and in relation to specific projects on-going in our home countries. I think extending the duration by 1-2 weeks is difficult to achieve, but 2-3 days could be squeezed during the first week for further discussions about the D&D methodology. I am very grateful to all ICRAF staff for having given us all up-to-date information. Also, for their kindness and friendship.

- The course was certainly very useful in my case for teaching purposes, research, and practical introduction to farmers and government people. Unfortunately, but understandably, I feel that the time was rather short, especially for farm interaction and computer techniques. I expect that communications with ICRAF should continue from now on, especially in bringing to our attention emerging issues and literature news.
- The duration of the course should be extended to 6 weeks instead of 3, to give both the speakers (lecturers) and participants enough time to critically analyze and understand the information being presented. In the Diagnostic Survey, more attention should be paid to the method of selecting the farmers to be interviewed so as to give an insight into the representativeness of the farms in the area. This did not come out clearly and one wonders whether the data and/or the designs carried out were representative of the area. If possible, the trials at Kakuyuni should be replicated in various parts of the semi-arid areas since: Kakuyuni is a recently settled area even without land tenure; has different farming system from areas like Kitui, Lower Embu, etc.; farms size are much larger than in the other areas of Machakos; there are areas like Lower Embu where the use of oxen is limited due to rockiness and farmers are confined to hand-tool technologies. All these variations require technology testing for adaptability to different farming systems and life styles. Otherwise, the course was very helpful in understanding the concepts of agroforestry in general, and in particular, the last week that dealt very well with experimental designs in agroforestry, was of great help to researchers trying to incorporate forestry into crop production and solving shortage of animal feeds on small-scale farms in semi-arid areas.
- The course was very helpful in clarifying the goals of ICRAF, agroforestry systems, agroforestry experimental designs and diagnostic design. I hope such training courses will be continued to make the researchers who are interested in agroforestry are aware of what is important in designing agroforestry systems.
- The course was generally well organized and properly coordinated. In fact, we all should appreciate this good work. I, in particular, congratulate Ester Zulberti for her tireless effort in ensuring that everything was correctly done. Regarding the academic aspect, I feel ICRAF has fairly - if not very - qualified staff with vast experience and practical orientation. This academic wealth has been adequately shared out in their presentations and discussions with the participants. This tendency should, if possible, be intensified in future courses. I must say that I am leaving for my place of work with broadened AF information. Lastly, there should be an increase in the female fox because if their number is little, they tend to be dominated in discussions by the male fox.
- The course was in general, satisfactory to participants of

different disciplines. But there are some very important areas that were not given enough time, e.g. the computer exercise.

- The course has been so fruitful to the extent of generating the concept of agroforestry to be the general management of land use system into the mind of participants. I would like to suggest here that I feel the venue of this type of valuable training course should not be concentrated in one particular area. Maybe the organizers should plan the next one in another country in Africa?
- Very useful. I wish it could be extended to French-speaking countries, too.
- The course was excellently organized. I felt very comfortable from the start of the course to the end. This was possible because of the relentless efforts of Dr. Ester Zulberti to make the course a success. However, I should also mention that all the disciplines were well represented and I am positive to say that I shall be in a position to impart some knowledge on AF in my organization back home. Since economic analysis of AF is a very important part, I feel that it should not be left out until the final week but be introduced on the onset of the programme so that participants get acquainted with it right from the beginning.
- The course was useful and enjoyable. But it can be more useful if enough time is given for oral discussions; sometimes the exchange of views among participants is more interesting than the lectures. Why doesn't ICRAF conduct research, since it is a Council for research and has well qualified staff? Why not include more scientists from developing countries? A case study should be presented by at least one of the participants. Last but not least, my best wishes to all ICRAF staff who made this course possible.
- I have attended other training courses before (two) and I consider this one as having been the best organized in all aspects. Congratulations to the course co-ordinator and all ICRAF staff.
- The course was properly and efficiently organized. The only suggestions are: ICRAF should be more available for consultations with course participants; and allocate more time in the course programme for "Experimental Designs in AF".
- The course is excellent. Staff dedication most commendable although they pushed in too much in such a short time. It is proposed that: the time be increased to 5 weeks, siting be changed to a remote hotel; a longer time, say 3 days be given to experimental design, planning and use of computer; the familiarization with the computer should result in preparation of project plans; a wider scope of computer programmes should be worked out by ICRAF staff; course materials should have an appended section on relevant exercises; the objective of the course should be changed from "familiarization" to having a "deeper understanding" of the subjects in question.
- I must sincerely say that the course has been very successful and has added more and new knowledge to my work. I have learnt new concepts and practices related to land use and, no doubt,

these will give me new avenues in planning for both research and extension work in agroforestry. I would suggest that more field exercises in different ecological zones - arid, semi-arid, and high rainfall - be added. More time for computer exercises and the use of computers should be given. It is my feeling that the three-week period for the course was too short as there is still a lot to be learnt about agroforestry. Suggested 6 weeks duration of the course would give brighter views and research in-sight of agroforestry for development.

- I am quite convinced that the course arrangement, design and approach have adequately covered and achieved the purpose.
- To me the course was useful as it has made clear the concept of agroforestry, which has many features in common with rural development, on which the project I am working is based. For sure this new understanding will help me and my colleagues to reconsider the project and our priorities taking into consideration livestock, crops and trees as an integral part of the farming system for improved production. One should express gratitude to ICRAF staff for their co-operation, help, commitment and devotion to ICRAF objectives.
- The course is fairly good. It has reached a high scientific level, well appreciated by the participants. Discussions among participants and ICRAF staff - mainly group work presentations - have led us to feel at a fruitful scientific workshop on Agroforestry. I personally appreciate the kindness of all the ICRAF staff. The feeling started from the airport, and has continued throughout the training course period. I am very grateful to them.
- The course, in its present form, is very stimulating. The period chosen to start the course is particularly appropriate, in view of the world-wide environmental degradation, which is particularly serious in the Third World. If the participant had been working in some form of agroforestry institution, he/she is mostly likely to have many of his doubts cleared by the end of the course. If the course was to stimulate interest in the potential benefits to be realized from the agroforestry system of land use, then this objective has been achieved admirably. The only bottle-neck is that the participants did not have enough time to assimilate the course materials. The theories introduced during the training were not sufficiently backed by field practicals. Such a situation may affect the application of theories into field realities. It is gratifying to know that ICRAF staff are ever-ready to assist, as much as is practicable. There is, however, an excellent probability that most participants will make an attempt to practise this new land use method they have been introduced to. Such individuals will learn how to practise agroforestry by ACTUALLY PRACTISING AGROFORESTRY, THE SEED OF AGROFORESTRY HAS BEEN SOWN. THIS ALONE, IN THE UNLIKELY EVENT OF NOTHING ELSE, IS AN EXCELLENT ACHIEVEMENT!!!

A N N E X 7

THE TRAINING PACKAGE

On Registration Day participants received a binder containing a set of training materials (approximately 200 pages). A general description of the content of the training package by sections and a list of documents by title and author are presented below. Some of these materials can be made available on request.

DESCRIPTION OF CONTENT BY SECTIONS

Preface - By Dr. Bjorn Lundgren

Introduction - By Dr. Ester Zulberti

Provides an overview of the course objectives and programme of activities, as well as a description of the organization and content of the training package.

Section 1 - ICRAF Role and Programme

The ICRAF information brochure, "An account of the Activities of the International Council for Research in Agroforestry", provides information on ICRAF's mandate and objectives as well as on the eight programmes.

Section 2 - The Conceptual and Technical Backgrounds to Agroforestry

Is a compilation of key articles/notes dealing with the definition of the agroforestry concept, its potentials and constraints for land use. It provides background information on ICRAF's global Agroforestry Systems Inventory Project; introduces the newly established concept of 'agroforestry research' focussing on woody perennial species and land use; outlines ICRAF's approach to agroforestry technology; and includes hand-outs for the field trips. Suggested readings on various aspects of Technology for Agroforestry are included e.g. on environmental, economic, animal husbandry, and others. Documents enclosed are:

(Section 2 continued)

2.1 Main Notes

- Torres, F., Agroforestry concepts and practices. In Hoekstra, D. and Kuguru, F. (eds). Agroforestry Systems for Small-scale Farmers. Proceedings of a Workshop, Nairobi, 5-10 September 1982. Nairobi: ICRAF. 1983.
- Lundgren, B.O. and Raintree, J.B. Sustained agroforestry. Reprinted from "Agricultural Research for Development: Potentials and challenges in Asia". Report of a Conference held 24-29 October 1982, Jakarta, Indonesia. The Hague: ISNAR. pp. 37-49.

2.2 Practical Exercises/Field Trips

- Huxley, P. and Owino, F. Agroforestry Field Trip to Kiambu District, April 1981.
- Lundgren, L. Excursion to Kiambu District/Kiambaa and Lari Divisions. June 1984.

2.3 Supplementary Material/Readings

- Nair, P.K.R. and Fernandez, E. An Output from ICRAF's Agroforestry Systems Inventory Project. 1984.
- Huxley, P. Outlining the Objectives, Outputs and Immediate Inter-programme Links. June 1984.
- Young, A. an Environmental Data Base for Agroforestry. Working Paper 5. Nairobi: ICRAF, 1983.
- Nair, P.K.R. Soil Productivity Aspects of Agroforestry. Science and Practice of Agroforestry 1. Nairobi: ICRAF. 1984.
- Torres, F. Role of Woody Perennials in Animal Agroforestry. Reprinted from "Agroforestry Systems" 1: 131-163. 1983.
- Huxley, P. Intercropping with trees/optimising Tree-Crop Combinations. In A Manual of Methodology for the Exploration and Assessment of Multipurpose Trees. Huxley (ed).
- Hoekstra, D. The Use of Economics in Agroforestry. Working Paper 2. Nairobi: ICRAF. 1983.
- Zarnhofer, T. Plant-Water Requirement and Water Availability Assessments/Temperatures and Plant Development. Taken from Resources of Agroforestry Diagnosis and Design.

Section 3 - ICRAF's Diagnostic and Design Methodology

Documents included in this section cover the conceptual framework of the methodology; an outline and description of the step-by-step procedures; preliminary information on the India

(Section 3 continued)

Case Study; and pre-diagnostic information on the Kakuyuni watershed. Practical field tools, including a diagnostic survey guideline and maps are also found in this section. A manual and a practical exercise to undertake the economic appraisal of selected agroforestry interventions completes the section. Documents by title and author are as follows:

3.1 Main Notes

- ICRAF. Guidelines for Agroforestry Diagnosis and Design. Nairobi: ICRAF. 1983. Working Paper No.6.

3.2 Practical Exercises/Field Work

- Case Study Review in India (Preliminary and Information)
- Pre-Diagnostic Information on the Kakuyuni Watershed.
- Diagnostic Survey Guidelines.
- Map of the Kakuyuni Watershed with homes, Roads and Paths.
- Hockstra, D. Analysing Alley Cropping for Semi-Arid Conditions: The Kenya Case Study. ICRAF Training Materials/ The MULBUD Series No.2. May 1984.

3.3 Supplementary Material/Readings

- List of Centres Participating in AGRIS
- Etherington, D. and Matthews, P.J. MULBUD User's Manual. Australian National University. 1982.

Section 4 - Relevant Experimental Approaches to Agroforestry Research Needs

It provides background information on research planning considerations with emphasis on relevant agroforestry experimental designs and plant management. Notes, hand-outs and supplementary materials included in this section are as follows:

- Wood, P. Notes on Species and Provenances: A Guide to Field Practice.
- Darnhofer, T. Meteorological Elements and their observations. Nairobi: ICRAF. Working Paper No. 14
- Rocheleau, D. Update of ICRAF Methodology/Procedural Sequence for the Multi-Institutional Collaborative Projects.

- Assessment of Experimental Sites*
- The Scope and Design of Field Trials*
- Systematic Designs for Field Experimentations with Multipurpose Trees.*
- Considerations when Experimenting with Changes in Plant Spacings.*

Section 5 - Course Information

The last section of the binder contained general information about the course objectives, timetable and daily programme of activities, and the names and addresses of the participants. The Evaluation Form was also included. The organization and content of this section is as follows:

- Course Objectives
- Participants' Names and Addresses
- ICRAF Staff and Invited Speakers
- Timetable
- Programme of Activities (by day)
- Evaluation Form

* From Huxely, P. (ed). A Manual for the Exploration and Assessment of Multipurpose Trees. In preparation.