

# Technology monitoring and evaluation in agroforestry projects

An annotated bibliography



J.U. Müller and S.J. Scherr

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**An annotated bibliography**

**Compilers:  
E.U. Müller and S.J. Scherr**

The International Council for Research in Agroforestry (ICRAF) was established in 1978 with headquarters in Nairobi, Kenya. ICRAF is an autonomous, non-profit international research council governed by a Board of Trustees with equal representation from developed and developing countries. The mandate is to initiate, stimulate and support research leading to more sustainable and productive land use through the integration or better management of trees in land-use systems.

The Council derives its operational funds from voluntary contributions by several bilateral, multilateral and private organizations. In 1989, these included the World Bank (International Bank for Reconstruction and Development – IBRD), the African Development Bank, the International Fund for Agricultural Development (IFAD), the International Development Research Centre (IDRC), the Swedish Agency for Research Cooperation with Developing Countries (SAREC), the Ford Foundation and the Governments of Australia, Canada, Finland, France, the Federal Republic of Germany (BMZ/GTZ), The Netherlands, Norway, Sweden, Switzerland and the United States of America (USA).

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*Cover photos: A group of farmers in Kiambu District, Kenya, discuss the performance of agroforestry technologies with an extension officer during a field day on a group member's farm. The extension worker measures the height of a Leucaena leucocephala hedge in a farmer's field to monitor the growth rate of Leucaena managed for fodder production in a hedgerow-intercropping system with sweet potatoes.*

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The greater part of this annotated bibliography consists of materials received from resource persons and project staff who were contacted for the agroforestry monitoring and evaluation review carried out by ICRAF in 1988/89. The authors would like to thank all contributors to the review and particularly those who sent materials related to technology monitoring and evaluation in agroforestry. The publication of the bibliography would not have been possible without the help of ICRAF's INFOCOMM staff, especially Richard Labelle, Sidney Westley, Hilda Munyua, Lucille Majisu, Bondole Bofete wa Mbula and Gilles de Chatelperron. Their assistance was greatly appreciated. We would also like to thank all other ICRAF staff who contributed contacts and ideas. The support provided to ICRAF by the Ford Foundation and the Australian International Development Assistance Bureau is gratefully acknowledged.

## FOREWORD

When ICRAF was first established in 1977, agroforestry was still perceived by scientists and development policy makers as experimental. Despite the widespread existence of indigenous agroforestry practices, there was little scientific documentation of the value of different types of agroforestry interventions.

During the past decade, rural development projects began to introduce or intensify agroforestry with smallholders who seemed to have little scope for adoption of more conventional agricultural technologies, which require capital-intensive inputs, such as chemical fertilizer, bulk feed, terracing, fossil fuels and barbed wire. The projects were attracted by the potential of trees and shrubs to partially or fully replace these inputs through green manure, tree pods for fodder, contour hedgerows, woodfuel, and live fences.

In most countries, the national agricultural and forestry research institutions were not yet in a position to provide technical support to these projects. Thus, the projects were thrown back on their own resources to identify, evaluate and adapt to local farmers' needs and constraints the agroforestry interventions they were promoting. In doing so, the projects also had to grapple with the dearth of methods available for evaluating on-farm agroforestry.

This annotated bibliography on technology monitoring and evaluation in agroforestry projects represents an effort to explore the methods, which have been developed by projects, and make them available to the wider development and research communities. It also offers a welcome opportunity for us at ICRAF, as professional researchers, to acknowledge, commend and further encourage the pioneering work of the extension community in applied and adaptive agroforestry research. We see technology monitoring and evaluation as a concrete example of the continuous "Diagnosis & Design" (D&D) approach we try to promote. Based on a joint commitment to this approach, we hope and expect to improve our mechanisms for future collaboration in technology generation with the extension community.

Compilation of an annotated bibliography in the field was more complex than may be apparent. When this project review was initiated, ICRAF expected to find relatively little in the way of technology monitoring and evaluation tools. The unexpected scope and depth of the material collected demanded first the development of a conceptual model of agroforestry monitoring and evaluation in the extension process, in order to structure the bibliography. Its publication will be followed by a series of papers, which review specific M&E methods in greater depth.

Along with the authors, I would like to thank those project contributors whose input made these publications possible.

Dr. Bjorn Lundgren  
Director General  
ICRAF  
October 1989

# INTRODUCTION

## 1. BACKGROUND

In recent years there has been a tremendous increase in the number of research and development projects involved in agroforestry. This is due to the recognition that agroforestry has the potential to contribute significantly to sustainable rural development. Agroforestry is, of course, not new and has traditionally been practised by farmers in many parts of the world. Only recently, however, and due to the growing interest within the development community, has agroforestry become the subject of scientific research. As a result, there is currently limited scientific information available in agroforestry to allow firm recommendations on species, sites, arrangements and management of trees and other components. Agroforestry technologies are generally characterized by a high degree of complexity and variation due to farmers' multiple objectives and the combination of trees with agricultural crops or livestock. These factors limit the development of standard technology "packages" through conventional research experiments.

Many research and development projects involved in agroforestry have thus come to depend on a form of "action research", in which technologies are developed or adopted as part of the extension process. Such projects try to monitor the performance of agroforestry technologies introduced on-farm and their adoption and adaptation by farmers. By providing access to farmers' indigenous knowledge and experimentation, these projects may in fact have a great potential to significantly contribute to technology generation in agroforestry (Raintree and Hoskins 1988).

Although resources for conventional applied and adaptive agroforestry research are increasing rapidly, they remain inadequate to address all of the technical questions development projects and programmes will face in the foreseeable future. Monitoring and evaluation (M&E) will thus continue to play a critical role in agroforestry technology development and in the adaptation of technologies to specific farming situations. This implies that the role of technology monitoring and evaluation in agroforestry will often be different from that in conventional development projects, where M&E is most commonly used to measure project performance against targets.

To aid in the development of suitable methodologies for agroforestry monitoring and evaluation, ICRAF conducted in 1988-89 a worldwide "state of the art" review of activities and methods employed by development projects involved in agroforestry. The review focused on technology monitoring and evaluation, not including economic aspects of agroforestry, which are being studied in another project at ICRAF.

Objectives of the review were (1) to identify variables and methods of assessment currently used in agroforestry technology monitoring and evaluation by on-farm research and extension projects, and (2) to develop practical guidelines for the selection and design of appropriate methods based on the experiences so far.

The current bibliography presents a selection of the most useful material collected during the review. The 202 references by no means constitute a complete account of

M&E methods for projects, but provide an overview of the types of methods currently available for technology monitoring and evaluation in agroforestry. The main objective of the bibliography is to assist agroforestry project planners and implementers in the development of appropriate M&E systems by providing access to a range of methods that have been successfully applied by other projects.

## **2. METHODOLOGY OF THE REVIEW AND SOURCE OF MATERIALS**

In order to identify a wide range of projects, over 200 individuals, representing development organizations, government institutions, universities and national and international research centres worldwide, were contacted with a request for information on agroforestry projects they are supporting. They were also asked to describe their own experiences in agroforestry monitoring and evaluation and send materials related to the subject.

The 166 projects thus identified were requested through mailings to provide information about the agroforestry technologies they are promoting and the methods they are using for technology monitoring and evaluation. In addition, they were asked for publications and project reports that document these activities. Six of the projects located in Kenya were visited and M&E issues were discussed with project staff. An additional ten projects were identified through a literature review using the ICRAF library database. A full list of the projects with contact addresses may be found in Appendix 1.

The majority of the projects covered in the review are donor-assisted. They are more accessible than projects implemented by grassroots organizations or local government institutions because they can be contacted through their respective funding agencies. In addition, reporting requirements and the availability of resources make donor-assisted projects more likely to be involved in monitoring and evaluation of agroforestry activities.

Agroforestry research or extension is the main activity of approximately one half of the contacted projects, while the other half represent a range of rural development disciplines (see Table 1). The fact that 87% of the agroforestry projects and 54% of the other rural development projects responded to the request for information demonstrates the general interest in agroforestry M&E.

The review attempted to cover projects on a worldwide basis with more or less equal regional distribution. However, 55% of the responses came from projects in Africa, 30% from Asia and only 15% from Latin America. As a result, the bibliography contains a much larger number of references from Africa than from the other regions (see Table 2). It should be noted, however, that Kenya accounts for almost half of these. This is due to the fact that several projects were visited during the review and that many of ICRAF's conceptual papers related to agroforestry M&E are based on experiences in Kenya.

**Table 1 - Types of projects contacted and number of responses received**

PROJECT TYPES	NUMBER OF CONTACTS	NUMBER OF RESPONSES
Agroforestry research	20	16
Agroforestry extension	37	32
Agroforestry extension and research	7	7
Agroforestry training/support	3	3
Soil conservation	5	4
Forestry	16	3
Social forestry	15	11
Tree planting extension	5	5
Rural development	39	27
Watershed management	5	0
Agriculture	3	0
Range management	1	0
Unknown	10	0
Total	166	108

**Table 2 - Regional distribution of references in the bibliography**

REGION	NUMBER OF REFERENCES
Africa	95
Asia	41
Latin America	22
Global	44
Total	202

Approximately 450 documents were reviewed for the bibliography. The selection was based on the relevance of the material for agroforestry technology monitoring and evaluation, the amount of detail provided on methodologies and the usefulness to readers interested in specific methods. The intention was not to suggest that the reader might duplicate methods described in the bibliography, but to offer a range of experiences that can be used as input for the design of appropriate M&E systems.

### 3. TECHNOLOGY MONITORING AND EVALUATION IN THE PROJECT CYCLE

The information needs of agroforestry development and on-farm research projects with respect to agroforestry technologies fall into three main areas:

- Technology planning and design
- Evaluation of technology performance
- Evaluation of the impact of technology adoption.

For **technology planning and design**, information may be needed about biophysical site characteristics of the project area, priority needs of farmers, opportunities and constraints for agroforestry and existing knowledge about agroforestry components and management. In general, data collected at the early project stages provide the basis for tree species selection and agroforestry technology design in terms of sites, desired functions, arrangements and management. The initial designs may later be modified based on project experience or experimentation. Extension projects may develop their extension strategy based on this diagnostic information while on-farm research projects may use the information to select farmers for participation in the research programme. Frequently, some diagnostic data are also used as a baseline, against which project-induced changes are compared later on.

**Technology evaluation** encompasses both the biophysical and socio-economic performance of agroforestry interventions, generally in comparison to existing or proposed land use alternatives. Agroforestry plots on farms may be monitored in order to generate information on technology performance, as well as farmer management practices and technical adaptations. Agroforestry projects may also engage in formal testing of technologies, either through on-farm trials or experiments on off-farm research plots, in order to validate or improve technology-specific information for extension recommendations. Ideally, the process of technology testing, evaluation and adaptation should lead to fine-tuning or redesign of technologies to make them better adapted to specific site conditions and farming situations (Scherr 1988).

Once farmers are managing agroforestry technologies on their farms, projects may undertake **project impact evaluation** to document the socio-economic and environmental changes resulting from technology adoption. In order to evaluate the potential sustainability of technologies, their impact may be assessed both at the level of the individual household and of the community. Depending on project objectives and the stage of the project cycle, impact may be evaluated in terms of trees established on-farm, land area in agroforestry, farmer attitudes, practices and adoption, benefits (products and services) obtained from agroforestry, and general socio-economic impact. Project impact monitoring may be based on comparisons with baseline data collected during the early phases of the project, or on comparing similar areas with and without project interventions.

The technology information needs of farmers, extensionists and researchers will change during the course of the project cycle. During the project planning and start-up phase, the main concern will be initial technology planning and design. During the phase of tree establishment, information needs include such areas as seedling survival, evaluation of tree planting sites, and evaluation of farmers' species and technology preferences.

During the phase of tree management and harvest, more careful attention may be paid to technology performance. Possible improvements and adaptations may be developed as a result of monitoring farmer experience and research trials. Re-evaluation of interventions during this period may lead to significant technology redesign as the project expands. Since most projects increase the number of participants over time, lessons learned in the early years of the project can be used to improve planning, tree establishment and tree management with later participants.

Impact evaluation has different meanings at different stages of the project cycle. Early on, impact measures tend to focus on farmer participation and extent of adoption of interventions. Once the project matures, a more in-depth evaluation may be conducted of the impact on households and communities of participating farmers. Mid-term and final project evaluations may be used by sponsoring agencies to determine which technologies to promote in other, similar land-use systems.

The final phase in the project cycle is institutionalization, i.e. development of local resources to provide the information and technical support, multi-purpose tree and shrub (MPTS) germplasm and material inputs needed for continued agroforestry investment by farmers. Institutional issues are not covered systematically in this bibliography because they exceed the scope of the technology monitoring and evaluation review.

M&E methods are listed in the annotations of the bibliography according to the three types of information requirements, i.e. technology planning and design, technology evaluation and assessment of project impact. A specialized vocabulary has rapidly developed to describe the various methods, approaches and tools for agroforestry technology M&E. Appendix 2 provides a glossary to help the reader define these terms.

#### **4. AGROFORESTRY TECHNOLOGIES**

An agroforestry technology may be defined as an integrated management system in which woody and non-woody components are grown in specific arrangements and locations to perform specific functions through appropriate management inputs (Scherr, 1988). For convenience, technologies are often named according to spatial or temporal arrangements of the tree component and are categorized as such.

Specific methods for monitoring and evaluation depend partly on the type of technology to be monitored. For example, evaluating the impact on soil erosion of trees planted on contour lines requires a different methodology than the assessment of changes in fuelwood availability to households due to on-farm woodlots.

A number of the reviewed projects do not recommend specific agroforestry technologies, but try to offer a wider selection of tree species than previously available to farmers to meet their needs for poles, fuelwood, fodder etc. Information provided to farmers may include suitable planting locations, shade tolerance, compatibility with crops and products and services provided by the trees. While these

projects may in fact extend agroforestry technologies, this is not done systematically and, therefore is not mentioned as such in reports.

General definitions for technologies are given below. It should be emphasized that the definitions follow as closely as possible those used by the reviewed projects.

### **Mixed Planting**

*Mixed intercropping:* Annual crops are intercropped with timber, fruit or leguminous trees growing dispersed in cropland, usually at relatively low densities. Timber and fruit trees may be left standing when the field is cleared, may be planted because they are known not to have negative effects on crop growth, or may be established by encouraging natural regeneration. To reduce shading of crops, trees are generally pruned. Leguminous trees may be planted specifically for soil fertility management and production of mulch. Trees intercropped with perennial crops may have the same functions. Often, they are planted at regular spacing and specifically to provide shade for crops, as in the case of cacao or coffee. Multi-strata homegardens are systems with multi-purpose and fruit trees at relatively high densities on small pieces of land, planted and managed to provide a wide range of different products. Different types of mixed intercropping systems have not been distinguished in the technology index because project information was not always adequate for this purpose.

*Trees in grazing land:* These are agroforestry systems with trees dispersed in pastures and managed to provide fodder, timber or shade for livestock. The trees are either left standing when forest is cleared for pasture establishment, planted or established through encouragement of natural regeneration.

*Scattered trees around homesteads:* These are mostly fruit trees, shade trees or ornamentals. Occasionally they are managed for fuelwood or fodder production.

### **Block Planting**

*On-farm woodlots* are groups or blocks of trees grown mainly to provide construction wood or fuelwood. Crops may be grown adjacent to, but generally not inside woodlots. The trees are pruned and occasionally the stands are thinned.

*Fodder banks* are blocks of mostly leguminous trees grown for fodder and cut frequently at low heights to favour leafy biomass production.

*Orchards* are groves or blocks of fruit trees. It should be noted here that many of the reviewed projects listed "fruit trees" as a technology without any further specifications. Depending on spatial arrangements, fruit trees could be categorized under any of the other technologies.

*Natural woodland management* refers to the active management of existing woodlands for the provision of a range of products, including timber, fuelwood, wild fruits, fodder, medicines, etc.

## **Strip/Line Planting**

*Contour planting:* Lines or strips of trees are grown along contour lines or terraces on sloping terrain in cropland. The main objective is to provide physical barriers for soil conservation. In addition, the trees may be managed for the production of fuelwood, fodder or mulch.

*Boundary planting:* Lines or strips of trees planted along field or farm boundaries or on rice paddy bunds. The purpose is to provide timber, fuelwood or sometimes fodder. The planting configuration and location may be chosen to take advantage of unutilized space on farmland, to avoid direct competition with crops or to demarcate property boundaries. Management depends on the expected products. If the trees are grown adjacent to crops, they are generally side-pruned.

*Live fences:* Live fence posts or hedges are planted along boundaries of fields, pastures, home compounds or farms. The main purpose is to keep livestock out of the enclosed area. In addition, the trees may be managed for fuelwood or fodder production.

*Windbreaks:* Trees are planted in lines or strips along field or pasture boundaries for wind protection. Occasionally they are harvested for timber or fuelwood.

*Shelterbelts:* Wide strips of trees are planted on a larger scale to protect cropland, pastures or villages from wind. They may also be harvested for timber or fuelwood.

*Alley-cropping:* Leguminous trees are grown in rows in cropland, with regular spacing between tree rows. The main purpose is to provide leafy biomass for mulch, green manure or fodder. Fuelwood is occasionally harvested as a by-product. The trees are intensively managed by cutting back at frequent intervals.

## **Sequential/Rotational Planting**

*Taungya:* Tree plantations are established by intercropping seedlings with annual food crops during the first few years to reduce establishment costs.

*Improved fallows:* Most often, leguminous trees are planted on fallow fields for soil fertility maintenance or improvement, although trees or shrubs may also be planted, whose products increase the economic value of the fallow. The trees are generally harvested when the land is taken back into production. In rotational alley-cropping periods of fallow alternate with periods of cropping.

## **5. USING THE BIBLIOGRAPHY**

### **5.1 Organization of the Bibliography**

The annotated bibliography is divided into three parts. Part one contains materials on monitoring and evaluation methods from 85 field projects involved in agroforestry. Documents in this group are classified as either "A1" or "A2", depending on their focus and the amount of detail provided on M&E methods. "A1" references are generally case studies in which one or several methods are described in detail. Documents marked with "A2" may have a different focus, i.e. M&E is not the main subject. However, they contain a significant amount of information on M&E methods in the context of the subject under discussion. The annotations of the "A1" and "A2" documents identify the type of project, funding/implementing agencies and geographic location. They also list specific methods described in the document for technology planning/design, technology evaluation and project impact evaluation.

The second part of the bibliography consists of general literature on agroforestry monitoring and evaluation. References are marked with a "B". Most of these documents are concerned with conceptual issues and general approaches to M&E in agroforestry development. Others are case studies of the application of specific methods, generally prepared in the context of special research studies.

Part three of the bibliography contains publications on monitoring and evaluation approaches and methodologies developed by other rural development disciplines, such as agriculture or farming systems research. References in this group are marked with a "C". They by no means constitute a complete account of the literature available on this subject, but represent a selection of potentially useful methodologies for agroforestry M&E that were collected during the review.

The bibliography has been produced using the Micro CDS/ISIS textual database management software (version 2.3) developed by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Bibliographic units have been described according to ICRAF in-house format and rules. References are identified by a master file number at the top of the entry, which is assigned by the computer, and by the ICRAF library accession number.

### **5.2 Using the Indexes**

Seven indexes are given at the end of the bibliography: for author, country, general descriptors, technology planning/design, technology evaluation, project impact and agroforestry technologies. The country index is based on the two-letter country codes provided by the International Standards Organization (ISO). Explanations of the country codes may be found at the end of the index. The general index describes the content of the document, including the rural development discipline, the type of document (case study, review of methods, project report, etc.), the activities described (e.g. research, extension, training) and other relevant information. Technology planning/design, technology evaluation and project impact indexes consist of descriptors of variables monitored and methods used for each of the three categories.

Descriptors are defined in the glossary (Appendix 2). The technology index uses the definitions provided in Section 4 of the introduction. References in the indexes are to the Master File Number found at the top of every bibliographic unit.

Descriptors of five indexes are listed below the annotation and are marked with the numbers 1 to 5: (1) general descriptors, (2) descriptors of technology planning/design, (3) technology evaluation and (4) project impact and (5) technology descriptors. An example of a bibliographic entry with a description of its components is provided at the end of this introduction.

### 5.3 Ordering Documents from ICRAF

All documents listed in the bibliography are available from ICRAF and can be consulted in the ICRAF library. Photocopies of documents are available to individuals and institutions from developed countries at a charge of US\$ 0.20 per page. A maximum of 10 documents will be photocopied free of charge for nationals from developing countries. Books will usually not be photocopied for reasons of copyright. When requesting documents, the name of the author, the title and the library accession number should be identified. Some of the listed documents are in draft form. If published versions are available in the ICRAF library at the time of the request these will be sent instead of the drafts.

Requests for photocopies of documents cited in the bibliography may be referred to: IN-ODOC/ICRAF, P.O. Box 30677, Nairobi, Kenya.

#### SAMPLE ENTRY

1. \_\_\_\_\_ 036
2. \_\_\_\_\_ 09666
3. \_\_\_\_\_ A1
- 4., 5. \_\_\_\_\_ DAVIS-CASE, D. (1988)
6. \_\_\_\_\_ A CASE STUDY OF THE CARE KENYA AGROFORESTRY  
EXTENSION PROJECT
7. \_\_\_\_\_
8. \_\_\_\_\_
- 9.,10. \_\_\_\_\_
11. \_\_\_\_\_ CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA  
(UNPUBLISHED DRAFT)
- 12.,13., 14. \_\_\_\_\_ XA/KE EN pp. 1-72
15. \_\_\_\_\_ Case study of the development and application of the extension  
strategy and M&E methods in the CARE-supported agroforestry  
extension project in Siaya and South Nyanza Districts of western  
Kenya. The case study was conducted for the CARE/FAO  
Agroforestry Monitoring and Evaluation Methodology Programme  
(AFMEMP).

*Technology Planning/Design:* The project adapted the ICRAF D&D methodology to the needs of an extension project by emphasizing farmer participation. Methods included a farming systems problem identification survey, group interviews, and problem diagnosis and technology design with individual farmers. In addition, formal, single visit questionnaire surveys were conducted with individuals and groups to establish baseline data.

*Technology Evaluation:* Tree survival survey with field measurements; controlled research plots to test tree species suitability and performance in different agroforestry configurations, monitored through field measurements and observations.

Problems identified in the case study are related to consistency of methods, survey design, quantity of data collected in formal surveys and data analysis.

- |           |   |
|-----------|---|
| 16. _____ | 1. AGROFORESTRY; EXTENSION; PROJECT; M&E SYSTEM; CASE STUDY   |
| 17. _____ | 2. D&D; PROBLEM IDENTIFICATION; BASELINE DATA; TECHNOLOGY DESIGN; INFORMAL FARMER SURVEYS; FORMAL FARMER SURVEYS                |
| 18. _____ | 3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; FORMAL FIELD SURVEYS; RESEARCH PLOT EXPERIMENTS; MEASUREMENTS; OBSERVATIONS        |
| 19. _____ |   |
| 20. _____ | 5. ALLEY CROPPING; BOUNDARY PLANTING; MIXED INTERCROPPING; LIVE FENCES; ON-FARM WOODLOTS; FRUIT TREES; FODDER BANKS; WINDBREAKS |

1. Master file number
2. Library accession number
3. Document classification number (A1, A2, B, C - see Section 5.1)
4. Author(s)
5. Date of publication
6. English title
7. Title in original language
8. Source (e.g. proceedings, working papers, technical reports, journals, books etc. Authors or editors of books are listed in parentheses after the book title.)
9. Volume
10. Issue number
11. Publisher
12. Geographic/country location (see index for explanation of codes)
13. Language of the text (EN = English; FR = French; ES = Spanish)
14. Pagination
15. Annotation
16. General descriptors
17. Technology planning/design descriptors
18. Technology evaluation descriptors
19. Project impact descriptors
20. Technology descriptors

**PART 1**

**AGROFORESTRY TECHNOLOGY MONITORING  
AND EVALUATION IN PROJECTS**

001  
10044  
A1

ACKZELL, L. (1985)  
**EVALUATION OF A KENYAN SOIL CONSERVATION TREE NURSERY AND ITS PRACTICAL RESULTS IN FARMS. REPORT FROM A MINOR RESEARCH TASK WORKING PAPER 50**  
SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES/IDRC, UPPSALA, SWEDEN  
XA/KE EN pp. 1-36

The Kenya National Soil Conservation Programme is a SIDA-supported development project, which is implemented by the Ministry of Agriculture. The paper presents a case study of a combined evaluation of technology performance and project impact at tree establishment and management stages.

*Technology Evaluation:* Information on tree survival and growth, agroforestry configurations, management techniques and pest/disease problems was collected during farm visits in conjunction with the project impact evaluation survey.

*Project Impact:* Single visit survey consisting of informal farmer interviews, on-farm measurements/observations and farm sketches, to evaluate the extent of tree planting and species preferences of farmers. A questionnaire is included.

1. SOIL CONSERVATION; PROJECT; CASE STUDY; AGROFORESTRY
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; MPTS MANAGEMENT; FARM VISITS
4. TREES PLANTED; FARMER ATTITUDES; INFORMAL FARMER SURVEYS; MEASUREMENTS; OBSERVATIONAL METHODS; GRAPHIC METHODS
5. ON-FARM TREE PLANTING; CONTOUR PLANTING; FRUIT TREES

002  
B02261  
A1

AFRICAN DEVELOPMENT AND ECONOMIC CONSULTANTS (1983)  
**AGROFORESTRY SYSTEMS EVALUATION IN KENYA**  
MINISTRY OF ENERGY/KREDP, NAIROBI, KENYA  
XA/KE EN pp. 1-154

Report of a nation-wide agroforestry baseline survey conducted for the Kenya Renewable Energy Development Project (KREDP) in the areas surrounding the project's agroforestry centres.

*Technology Planning/Design:* Formal farmer survey, containing socio-economic and farming systems information, as well as data on traditional tree planting practices. A detailed description of the survey methodology and a questionnaire are included.

1. AGROFORESTRY; PROJECT

2. **BASELINE DATA; FARMING SYSTEMS DESCRIPTION; TRADITIONAL TREE GROWING; SOCIO-ECONOMIC DATA; FORMAL FARMER SURVEYS**

003

09636

A2

**ALEMAYEHU ABEBE; WERTER, F. (1988)**

**FORESTRY, SOIL AND WATER CONSERVATION UNIT: APPROACH AND ACTIVITIES**

AGRI-SERVICE, ADDIS ABABA, ETHIOPIA

XA/ET EN pp. 1-59

Nursery development and tree planting programme of the Forestry, Soil and Water Conservation Unit of Agri-Service in Ethiopia. The paper describes the M&E strategy and parameters to be monitored at various stages of the project cycle, but does not provide details on specific methods to be used.

*Technology Planning/Design:* Identification of traditional tree growing practices and needs assessment through field observations, informal interviews and meetings.

*Technology Evaluation:* Assessment of tree condition two weeks after planting and regular monitoring of survival, species adoption and utilization of tree products through field observations. Cost/benefit analysis of agroforestry practices.

*Project Impact:* Evaluation of technology acceptance and diffusion, using data from the needs assessment as baseline.

1. **SOIL CONSERVATION; PROJECT; M&E SYSTEM; AGROFORESTRY**
2. **NEEDS ASSESSMENT; TRADITIONAL TREE GROWING; INFORMAL FARMER SURVEYS; FARMER MEETINGS; OBSERVATIONAL METHODS**
3. **MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; OBSERVATIONAL METHODS**
4. **TECHNOLOGY ADOPTION; TECHNOLOGY DIFFUSION**
5. **ALLEY CROPPING; MIXED INTERCROPPING; BOUNDARY PLANTING; LIVE FENCES**

004

10020

A2

**AMARE GETAHUN; BASHIR JAMA (1988)**

**THE ROLE OF AGROFORESTRY RESEARCH/DEMONSTRATION PLOTS IN AGROFORESTRY EXTENSION**

PAPER PRESENTED AT ICRAF/CARE TRAINING WORKSHOP ON IMPROVING TECHNOLOGY RECOMMENDATIONS: RESEARCH FOR AGROFORESTRY EXTENSION PROJECTS, AUGUST 23-26

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-10

The paper is based on the experiences of the Kenya Renewable Energy Development Project (KREDP), an agroforestry research and extension project of the Ministry of Energy in Kenya. Its main focus is on the project strategy of simultaneous research and extension development, while M&E methods are described in general terms.

*Technology Planning/Design:* Formal baseline survey of socio-economic characteristics of the project area, farming systems and traditional tree planting/agroforestry practices (see African Development and Economic Consultants 1983).

*Technology Evaluation:* On-station research and demonstration plots; on-farm demonstration plots; farmer field days on research station.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
2. FARMING SYSTEMS DESCRIPTION; TRADITIONAL AGROFORESTRY; SOCIO-ECONOMIC DATA; BASELINE DATA; FORMAL FARMER SURVEYS
3. DEMONSTRATION PLOT MONITORING; RESEARCH PLOT EXPERIMENTS; FARMER FIELD DAYS
5. ALLEY CROPPING; BOUNDARY PLANTING

005

10047

A1

ANDHRA PRADESH SOCIAL FORESTRY PROJECT (1987)

BIOMASS FUEL/FODDER INVENTORY DESIGN

CIDA, HULL, CANADA

XP/IN EN pp. 1-34

CIDA-supported social forestry development project in India covering all seven agro-ecological zones of the State of Andhra Pradesh.

*Technology Planning/Design:* Inventory of existing fuel/fodder biomass through formal field measurements. Detailed descriptions of survey methodology and sampling techniques, as well as data collection forms are included.

1. SOCIAL FORESTRY; PROJECT; AGROFORESTRY
2. EXISTING NATURAL RESOURCES; RESOURCE INVENTORY; MEASUREMENTS

006

10048

A1

ANDHRA PRADESH SOCIAL FORESTRY PROJECT (1987)

SOCIO-ECONOMIC SURVEY: TERMS OF REFERENCE

CIDA, HULL, CANADA

XP/IN EN pp. 1-20

CIDA-supported social forestry project in India covering all seven agro-ecological zones of the State of Andhra Pradesh.

*Project Impact:* Formal impact evaluation survey conducted at mid-project stage for planning of future project phases. The survey contains information about farmer attitudes and acceptance of tree planting technologies, tree availability and expected utilization, planting configurations, species preferences, fuelwood availability and needs, and amount and distribution of benefits. The methodology consists of fuelwood measurements and formal interviews at farm and village levels using lengthy questionnaires. Copies of the questionnaires are included.

1. SOCIAL FORESTRY; PROJECT; AGROFORESTRY
4. FARMER ATTITUDES; BENEFIT DISTRIBUTION; TECHNOLOGY ADOPTION; FORMAL FARMER SURVEYS

007

10071

A2

ARYAL, R.R. (1987)

**TINAU WATERSHED PROJECT MONITORING AND EVALUATION**

**TINAU WATERSHED PROJECT, PALPA, NEPAL (UNPUBLISHED DRAFT)**

XP/NP EN pp. 1-6

The Tinau Watershed Project is an externally funded rural development project with an agroforestry component in the Palpa region of Nepal and is jointly implemented by His Majesty's Government of Nepal, Helvetas and GTZ. The three levels of the M&E system include: (1) progress monitoring of project activities; (2) "programme and process monitoring", i.e. monitoring of training activities, financial monitoring, micro-evaluations of selected activities, socio-economic data collection; and (3) impact monitoring.

*Technology Evaluation:* "Programme and progress monitoring" includes field measurements of tree survival.

*Project Impact:* Monitored in terms of area of contour strips and numbers of trees planted, and as environmental impact (not specified). Methods used are photographs, interviews and field measurements. Data sheets and questionnaire forms are included but details about characteristics of M&E methods are not provided.

1. RURAL DEVELOPMENT; PROJECT; M&E SYSTEM; AGROFORESTRY
3. MPTS PERFORMANCE; MEASUREMENTS
4. TREES PLANTED; AGROFORESTRY AREA; ENVIRONMENTAL IMPACT; GRAPHIC METHODS; MEASUREMENTS; INFORMAL FARMER SURVEYS
5. CONTOUR PLANTING; ON-FARM WOODLOTS; MIXED INTERCROPPING

008  
07371  
A1

**ASHLEY, M.D. (1986)  
A STUDY OF TRADITIONAL AGROFORESTRY SYSTEMS IN HAITI AND  
IMPLICATIONS FOR THE USAID/HAITI AGROFORESTRY OUTREACH  
PROJECT**

UNIVERSITY OF MAINE, ORONO, USA  
XL/HT EN pp. 1-151

USAID-sponsored agroforestry extension project in Haiti, implemented through CARE, ODH and PADF. The paper reports on a special study by the University of Maine conducted at mid-project stage to improve technology recommendations of the project.

*Technology Planning/Design:* Identification of traditional agroforestry practices through formal survey at farm level. Information collection included preparation of farm maps and vegetation profiles, physical site descriptions, recorded observations and farmer interviews. A description of the methodology is included.

1. AGROFORESTRY; EXTENSION; PROJECT
2. TRADITIONAL AGROFORESTRY; BIOPHYSICAL SITE DESCRIPTION; FORMAL FARMER SURVEYS; RESOURCE INVENTORY; GRAPHIC METHODS

009  
07358  
A1

**ATTA-KRAH, A.N. (1985)  
A DEVELOPMENTAL APPROACH TO ON-FARM RESEARCH: A PILOT  
PROJECT FOR IMPROVING SMALL RUMINANT PRODUCTION IN HUMID  
WEST AFRICA**

ILCA, IBADAN, NIGERIA  
XA/NG EN pp. 1-10

Description of agroforestry on-farm research in southwestern Nigeria, carried out in conjunction with ILCA's programme to improve small ruminant production in the humid zones of West Africa.

*Technology Planning/Design:* Biophysical site descriptions based on aerial surveys and site visits; farming systems description through questionnaire survey and field observations; meetings/workshops with farmers for planning and design of experiments.

*Technology Evaluation:* Tree survival, spatial arrangements, tree management and farmers' opinions about suitability and performance of trees were monitored through field observations, measurements and interviews.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT

2. FARMING SYSTEMS DESCRIPTION; BIOPHYSICAL SITE DESCRIPTION; TECHNOLOGY DESIGN; GRAPHIC METHODS; FARM VISITS; FARMER MEETINGS; FORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; MPTS ARRANGEMENTS; MPTS MANAGEMENT; FARMER EVALUATION; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS; MEASUREMENTS
5. ALLEY CROPPING

010  
07359  
A2

ATTA-KRAH, A.N. (1984)  
**FODDER INTERVENTION IN THE FARMING SYSTEM OF SOUTHEASTERN NIGERIA**  
ILCA, IBADAN, NIGERIA  
XA/NG EN pp. 1-10

Description and evaluation of the three-phase approach to on-farm agroforestry research in southeastern Nigeria. The research was conducted in conjunction with ILCA's programme to improve small ruminant production in the humid zones of West Africa. The paper focuses on the development of the research strategy and problems encountered during implementation and provides limited information on specific M&E methods.

*Technology Planning/Design:* Planning of research and design of experiments through workshops and meetings with farmers.

*Technology Evaluation:* Preliminary on-farm testing of tree performance in feed gardens by researchers with minimal farmer involvement; second phase trials jointly managed by farmers and researchers with monitoring of tree survival and growth, tree management and utilization; assessment of the viability of technologies under total farmer management during third phase.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT
2. TECHNOLOGY DESIGN; FARMER MEETINGS
3. MPTS PERFORMANCE; MPTS MANAGEMENT; ON-FARM EXPERIMENTS
5. FODDER BANKS; ALLEY CROPPING; BOUNDARY PLANTING; LIVE FENCES; MIXED INTERCROPPING

011  
08101  
A2

ATTA-KRAH, A.N.; FRANCIS, P.A. (1987)  
**THE ROLE OF ON-FARM TRIALS IN THE EVALUATION OF COMPOSITE TECHNOLOGIES: THE CASE OF ALLEY FARMING IN SOUTHERN NIGERIA**  
AGRICULTURAL SYSTEMS Vol 23  
XA/NG EN pp. 133-152

Case study of the on-farm research strategy developed by ILCA's small ruminant improvement programme in the humid tropical lowlands of southwestern and southeastern Nigeria. The research programme was developed in three stages with varying degrees of farmer participation. The first stage consisted of exploratory on-farm trials to test the suitability of tree species and the community approach to on-farm research. During the second stage, intermediate on-farm trials were carried out, combined with the development of an M&E system. Only the third stage, i.e. the "pilot project" with active farmer participation is described in detail in the paper: *Technology Planning/Design*: Biophysical site description based on aerial surveys and field visits; farming systems description through socio-economic surveys, field observations and interviews; farmer workshops and meetings for design and planning of experiments.

*Technology Evaluation*: Regular monitoring of tree survival and condition, agroforestry configurations, tree management and utilization, and farmer opinion of technology performance through field measurements, observations and informal surveys.

Complementary, researcher-controlled on-farm experiments were carried out to monitor the impact of technologies on farm productivity.

*Project Impact*: Technology diffusion was monitored, but methods are not explained in the paper.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT
2. BIOPHYSICAL SITE DESCRIPTION; FARMING SYSTEMS DESCRIPTION
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; MPTS MANAGEMENT; FARMER EVALUATION; ON-FARM EXPERIMENTS; MEASUREMENTS; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS
4. TECHNOLOGY DIFFUSION

012

09314

A2

**BALASUBRAMANIAN, V.; SEKAYANGE, L.; RUBYOGO, J.C. (1988)  
ALLEY CROPPING IN SEMI-ARID HIGHLANDS OF RWANDA: 3. SOME  
DESIGN AND MANAGEMENT ASPECTS OF ON-FARM ALLEY CROPPING  
TRIALS**

**PROJET FSR A L'ISAR-KARAMA, RWANDA  
XA/RW EN pp. 1-17**

Farming systems research project at the ISAR-Karama research station in southeastern Rwanda, which is supported by the World Bank with technical assistance from IITA.

*Technology Evaluation*: Based on experiences with agroforestry field research in Rwanda, the authors discuss factors to be considered during each step of the agroforestry research design process: selection of representative farms and treatments, number and distribution of replications, field plot design and plot size. Parameters to be monitored during implementation are identified. These include: crop yields, soil fertility, labour requirements, input use, compatibility with existing cropping patterns

and farmer response. No information is provided about the methodology, frequency and timing of measurements.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT
2. SITE SELECTION; TECHNOLOGY DESIGN
3. ON-FARM EXPERIMENTS; TRIAL MANAGEMENT
5. ALLEY CROPPING; CONTOUR PLANTING

013

09702

A1

BARROW, E.G.C. (1987)

**RESULTS AND FINDINGS FROM A SURVEY ON "EKWAR" CARRIED OUT FROM NOVEMBER 1986 TO JULY 1987**

FORESTRY DEPARTMENT TURKANA DISTRICT, LODWAR, KENYA

XA/KE EN pp. 1-27

The Turkana Rural Development Project in northern Kenya is supported by NORAD. The forestry component is implemented by the Kenya Forestry Department. *Technology Planning/Design*: Mid-project, informal survey of traditional woodland management practices by semi-nomadic pastoralists to improve project interventions. A description of the methodology and results is included. The sample selection illustrates the problems related to sampling of semi-nomadic populations.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
2. TRADITIONAL AGROFORESTRY; INFORMAL FARMER SURVEYS
5. NATURAL WOODLAND MANAGEMENT

014

09308

A1

BEER, J.W. (1988)

**PROPOSAL FOR THE SELECTION, ESTABLISHMENT AND MAINTENANCE OF AGROFORESTRY RESEARCH/DEMONSTRATION PLOTS IN FIJI**

CATIE, TURRIALBA, COSTA RICA

XL/CR EN pp. 1-50

Proposal for the adaptation of the on-farm research methodology developed by the CATIE/GTZ agroforestry project in Costa Rica to a GTZ development project in Fiji.

*Technology Evaluation*: The author provides guidelines for each step of the on-farm agroforestry research process, including: site and farmer selection through informal surveys with farmers, according to a set of specific criteria; review of secondary information and assessment of farmer needs, interests and priorities (see Segleau and

Mora Fernández 1987); a written agreement between farmers and researchers; site preparation and trial establishment; trial maintenance; documentation, record keeping and evaluation. The importance of recording observations throughout the research process is emphasized.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT
2. SITE SELECTION; FARMER SELECTION; NEEDS ASSESSMENT; TECHNOLOGY DESIGN; INFORMAL FARMER SURVEYS; SECONDARY DATA
3. ON-FARM EXPERIMENTS; RECORD KEEPING; TRIAL MANAGEMENT

015  
01823  
A1

BEER, J.W.; CLARKIN, K.L.; DE LAS SALAS, G.; GLOVER, N.L. (1979)  
**A CASE STUDY OF TRADITIONAL AGROFORESTRY PRACTICES IN A WET TROPICAL ZONE: THE "LA SUIZA" PROJECT**  
CATIE, TURRIALBA, COSTA RICA  
XL/CR EN pp. 1-27

Case study from an agroforestry research project at CATIE in Costa Rica.  
*Technology Evaluation:* Performance assessment for traditional mixed intercropping systems of coffee, sugarcane and pastures with trees. The analysis of the traditional agroforestry systems was based on field observations and measurements. Biophysical data collected to estimate growth and yield were tree density, basal area, standing volume and minimal annual volume increments. Crop yields were compared with and without tree component.

1. AGROFORESTRY; ON-FARM RESEARCH; PROJECT
3. EXISTING TECHNOLOGIES; TECHNOLOGY PERFORMANCE; OBSERVATIONAL METHODS; MEASUREMENTS

016  
07897  
A1

BEKKERING, T.D.; RUSMANHADI (1987)  
**PROPOSAL FOR A VILLAGE FOREST**  
WORKING PAPER NO. 10  
DHV CONSULTING ENGINEERS, MALANG, INDONESIA  
XP/ID EN pp. 1-30

The Konto River Project is a Dutch-funded rural development project with agroforestry component in Malang, Indonesia, which is implemented by DHV Consulting Engineers.

*Technology/Planning/Design:* Formal farmer survey to collect socio-economic background data for the design of a village forest programme to meet people's fuelwood needs. A description of the sampling methodology and a questionnaire are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
2. SOCIO-ECONOMIC DATA; FORMAL FARMER SURVEYS

017

10066

A1

BERG, C. (1987)

**PRIVATE PLANTING IN PALPA DISTRICT: PLANTING TREES FROM FOREST NURSERIES**

TINAU WATERSHED PROJECT, PALPA, NEPAL

XP/NP EN pp. 1-25

The Tinau Watershed Project is an externally funded rural development project with agroforestry component in the Palpa region of Nepal, which is jointly implemented by His Majesty's Government of Nepal, Helvetas and GTZ.

*Technology Evaluation:* Formal, single visit survey to determine survival rates of seedlings planted on private land and to identify problems related to the tree planting programme. Data collection also included socio-economic variables, planting sites, condition and utilization of trees, farmer satisfaction with species availability, and species demand. Survival rates were correlated with other variables to determine factors influencing tree survival. The paper includes a brief description of the survey methodology, but provides no information about the timing of the survey in relation to tree planting. A questionnaire is included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; FARMER EVALUATION; MPTS MANAGEMENT; FORMAL FIELD SURVEYS

018

10022

A1

BHATTARAI, T.N.; CAMPBELL, J.G. (1984)

**DATA COLLECTION GUIDELINES FOR MONITORING AND EVALUATION OF COMMUNITY FORESTRY ACTIVITIES IN NEPAL**

FIELD DOCUMENT NO 12B

HMG/UNDP/FAO COMMUNITY FORESTRY PROJECT, KATHMANDU, NEPAL

XP/NP EN pp. 1-123

M&E manual of the UNDP/FAO-supported Community Forestry Project in Nepal with guidelines for the implementation of the M&E system, prototype data collection forms and questionnaires. The M&E system is adopted from the Social Forestry Project in India (see Slade and Campbell 1986). The community forestry programme includes planting on private land, but planting configurations are not specified.

*Technology Evaluation:* The "biennial private planting survey" is a formal, multi-visit survey at tree establishment and management stages to monitor the extent of tree planting, tree survival and growth, planting locations, tree management and farmer satisfaction with species. A questionnaire and detailed description of the sampling methodology are included. The "species preference survey" to determine species demand by farmers is an optional component of the M&E system and no sampling methodology is provided. Other methods used are reports and informal methods such as field trips, staff and village meetings, seminars and correspondence.

1. SOCIAL FORESTRY; PROJECT; M&E SYSTEM; AGROFORESTRY
3. MPTS PERFORMANCE; MPTS MANAGEMENT; FARMER EVALUATION; FORMAL FARMER SURVEYS; FARM VISITS; RECORD KEEPING; FARMER MEETINGS
5. ON-FARM TREE PLANTING

019

09317

A1

BIZIMANA, S. (1988)

**APPROACH TO AGROFORESTRY EXTENSION**

APPROCHE A LA VULGARISATION DE L'AGROFORESTERIE

TECHNICAL REPORT NO 7

RRAM PROJECT, RUHENGERI, RWANDA

XA/RW FR pp. 1-20

The Ruhengeri Resource Analysis and Management (RRAM) project is a USAID-supported research and extension project with agroforestry component in the higher altitude areas of northwestern Rwanda. Project interventions are based on traditional agroforestry practices, but the paper does not specify technologies.

*Technology Evaluation:* Formal, single visit survey during the first year after tree establishment to monitor tree performance and farmer interest. Information collection included agroforestry configurations, planting locations, spacings, intended utilization of trees, species demand, farmer interest in agroforestry and perceived impact of trees on crops. A description of the sampling methodology and a questionnaire are included.

1. NATURAL RESOURCES MANAGEMENT; AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
3. MPTS ARRANGEMENTS; MPTS MANAGEMENT; FARMER EVALUATION; FORMAL FARMER SURVEYS

020  
03085

A1

BOGNETTEAU-VERLINDEN, E. (1980)  
**STUDY ON IMPACT OF WINDBREAKS IN MAJJIA VALLEY, NIGER  
INCREASING AGRICULTURAL FOOD PRODUCTION THROUGH  
SELECTED TREE PLANTING TECHNIQUES: A SUMMARY MEMORANDUM  
WITH SELECTED REFERENCES (GULICK, F.A.)**  
USAID, WASHINGTON, D.C., USA  
XA/NE EN pp. 13-42

CARE-supported development project to establish windbreaks for erosion control and increased wood supply in the semi-arid Majjia Valley of Niger.

*Technology Evaluation:* Preliminary study evaluating the influence of mature windbreaks on wind velocity, available soil moisture and crop yields. Field measurements were taken in statistically selected sample plots in farmers fields. A detailed description of the methodology is included.

1. AGROFORESTRY; PROJECT
3. TECHNOLOGY PERFORMANCE; ON-FARM PLOT MONITORING;  
MEASUREMENTS
5. WINDBREAKS

021  
10025

A1

BRADLEY, P.N. (1984)  
**THE DISTRICT RESOURCE ANALYSIS AS APPLIED TO KAKAMEGA DISTRICT  
WORKING PAPER NO 2**  
KWDP, NAIROBI, KENYA  
XA/KE EN pp. 1-11

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Planning/Design:* District resource analysis of Kakamega District to establish baseline data on land use, farm sizes and woody biomass cover, and to identify priority areas for project interventions. Methods used were low-altitude aerial photography and secondary data collection, on the basis of which thematic maps were developed. A detailed description of the methodology is included.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
2. BASELINE DATA; EXISTING NATURAL RESOURCES; GRAPHIC  
METHODS; SECONDARY DATA

022  
10029  
A1

BRADLEY, P.N.; KUYPER, J.B.H. (1985)  
**WOODY BIOMASS SURVEY OF KAKAMEGA DISTRICT**  
WORKING PAPER NO 9  
KWDP, NAIROBI, KENYA  
XA/KE EN pp. 1-81

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Planning/Design:* Based on a District resource analysis (see Bradley 1984), a formal survey of woody biomass yields on farms in Kakamega District was carried out to estimate current woodfuel production from natural vegetation, planted stands and individual trees. Data were collected through field measurements and destructive sampling. A detailed description of the sampling methodology is included.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
2. EXISTING NATURAL RESOURCES; FORMAL FIELD SURVEYS; MEASUREMENTS; DESTRUCTIVE SAMPLING

023  
10026  
A1

BRADLEY, P.N.; CHAVANGI, N.; VAN GELDER, A. (1985)  
**DEVELOPMENT AND ENERGY PLANNING IN KENYA**  
AMBIO Vol 14, No 4  
XA/KE EN pp. 228-236

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry. The article presents a case study of the development and application of KWDP's research methodology in Kakamega District.

*Technology Planning/Design:* Methods used included a District resource analysis using low altitude aerial photography, secondary data and thematic maps produced from aerial photos; a formal questionnaire survey of traditional agroforestry practices; and an informal cultural survey of attitudes and socio-cultural factors governing tree planting practices (through structured farmer group discussions). The article includes a detailed description of the sampling techniques and data collection methods used for each component.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT; CASE STUDY
2. EXISTING NATURAL RESOURCES; TRADITIONAL AGROFORESTRY; SOCIO-ECONOMIC DATA; GRAPHIC METHODS; FORMAL FARMER SURVEYS; INFORMAL FARMER SURVEYS; SECONDARY DATA

024  
09318  
A2

BREITSCHUH, U. (1988)

**RESULTS OF THE AGROFORESTRY SURVEY 1987/88: PRELIMINARY  
VERSION FOR USE BY PROJECT STAFF AND COMMUNES**  
RESULTATS D'ENQUETE AGROFORESTERIE 1987/88: VERSION  
PRELIMINAIRE A L'UTILISATION DES AGENTS DU PROJET/COMMUNES  
PROJET AGROPASTORAL, NYABISINDU, RWANDA (UNPUBLISHED  
DRAFT)

XA/RW FR pp. 1-19

The Projet Agro-Pastoral is a GTZ-supported agroforestry research and extension project in Rwanda.

*Combined Technology and Impact Evaluation:* Formal questionnaire survey of agroforestry practices by farmers in the project area to evaluate the impact of agroforestry extension on the extent of on-farm tree planting. Data were collected on numbers and types of trees planted, agroforestry configurations, tree management and utilization, and farmer opinions. The report includes a brief description of the methodology and preliminary survey results, but the questionnaire is missing.

1. AGROFORESTRY; PROJECT; EXTENSION; RESEARCH
3. MPTS ARRANGEMENTS; MPTS MANAGEMENT; FARMER  
EVALUATION; FORMAL FARMER SURVEYS
4. TREES PLANTED; FORMAL FARMER SURVEYS
5. BOUNDARY PLANTING; CONTOUR PLANTING; ON-FARM  
WOODLOTS; TREES AROUND HOMESTEADS; MIXED  
INTERCROPPING

025  
09628  
A2

BUSCH, D. (1988)

**SMALL SCALE FARMERS' ATTITUDE TOWARDS SOIL EROSION AND  
DEFORESTATION**

DEPARTMENT OF AGRICULTURE, LUSAKA, ZAMBIA

XA/ZM EN pp. 1-22

Case study of the SIDA-supported soil conservation and agroforestry programme in Petanke District of Zambia.

*Project Impact:* Formal questionnaire survey to determine the impact of the programme on farmers' attitudes toward agroforestry and soil conservation. The survey also included information on the extent of on-farm tree planting and agroforestry configurations. The methodology is not explained, but a questionnaire is included.

1. SOIL CONSERVATION; AGROFORESTRY; PROJECT; CASE STUDY
4. FARMER ATTITUDES; TREES PLANTED; FORMAL FARMER SURVEYS

026  
05628

A1

CARE INTERNATIONAL (1983)

**PROPOSAL FOR AN EVALUATION STUDY OF CARE'S MAJJIA VALLEY  
WINDBREAK PROJECT**

CARE INTERNATIONAL, NEW YORK, USA

XA/NE EN pp. 1-45

CARE-supported development project to establish windbreaks in the semi-arid Majjia Valley of Niger for erosion control and increased wood supply.

*Project Impact:* The paper describes the proposed methodology for evaluating the project's biophysical and socio-economic impact. The technical evaluation includes the assessment of the impact of windbreaks on crop production, wind erosion, soil moisture and meteorological influences through field measurements. Production and utilization of wood from windbreaks are to be determined through measurements and destructive sampling. The socio-economic evaluation consists of an economic analysis, collection of secondary data and a formal questionnaire survey to assess sociological impact.

1. AGROFORESTRY; PROJECT; EVALUATION
4. ENVIRONMENTAL IMPACT; BENEFIT DISTRIBUTION; FARMER ATTITUDES
5. WINDBREAKS

027  
08189

A2

CARE INTERNATIONAL (1986)

**MAJJIA VALLEY WINDBREAK STUDY WORKSHOP, 5-10 MAY 1986**

JOURNEES DE TRAVAIL SUR L'ETUDE DES BRISE-VENT DE LA MAJJIA,  
5-10 MAY 1986

CARE INTERNATIONAL, NIAMEY, NIGER

XA/NE FR pp. 1-59

Report of a workshop on the impact evaluation study for the Majjia Valley Project, a CARE-supported development project in Niger to establish windbreaks for erosion control and increased wood supply.

*Project Impact:* The report describes the components and results of the impact evaluation study with a general overview of the methodology: (1) Sociological evaluation: questionnaire survey on farmers' perceptions of windbreak impact on agricultural production, erosion, fuelwood availability, wood ownership, advantages and disadvantages of windbreaks. (2) Technical evaluation: study of the impact on agricultural production and microclimate through field measurements in statistical sample plots; inventory of windbreaks; experimental harvesting and regeneration study.

1. AGROFORESTRY; PROJECT; EVALUATION; WORKSHOP

3. ON-FARM PLOT MONITORING; MEASUREMENTS; DESTRUCTIVE SAMPLING
4. ENVIRONMENTAL IMPACT; BENEFIT DISTRIBUTION; FARMER ATTITUDES; FORMAL FARMER SURVEYS

028

10052

A1

CARTER, A.S.; GILMOUR, D.A. (1989)

**THE DYNAMIC NATURE OF TREES ON PRIVATE FARM LAND IN CENTRAL NEPAL**

MOUNTAIN RESEARCH AND DEVELOPMENT (IN PRESS)

XP/NP EN pp. 1-29

The Nepal-Australia Forestry Project is a bilateral community forestry project of the Australian International Development Assistance Bureau and His Majesty's Government of Nepal, managed by ANUTECH.

*Technology Planning/Design:* Formal survey of private, not project-related tree planting initiatives by farmers through quantitative assessment of changes in tree cover on agricultural land between 1964 (based on aerial photography) and 1988 (based on ground surveys). A detailed description of the survey methodology, results and a discussion of implications for forestry extension are included.

1. SOCIAL FORESTRY; PROJECT; AGROFORESTRY
2. TRADITIONAL TREE GROWING; FORMAL FIELD SURVEYS; GRAPHIC METHODS
5. ON-FARM TREE PLANTING

029

05115

A2

CHAVANGI, N.A.; ENGELHARD, R.J.; JONES, V. (1985)

**CULTURE AS A BASIS FOR IMPLEMENTING SELF-SUSTAINING DEVELOPMENT PROGRAMMES**

KWDP, NAIROBI, KENYA

XA/KE EN pp. 1-25

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Planning/Design:* After a District resource analysis and a survey of traditional agroforestry practices, the cultural survey was the third component of the planning/design process for Kakamega District. The survey consisted of structured

discussions with farmers on cultural attitudes, access to and control of resources, division of labour and responsibilities, tree utilization and land tenure. The paper examines the survey results in light of their implications for extension strategy development and technology design. Limited information is provided on the methodology of the survey.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
2. SOCIO-ECONOMIC DATA; INFORMAL FARMER SURVEYS

030

09255

A2

CHAVANGI, N.A.; NGUGI, A.W. (1987)

**INNOVATIVE PARTICIPATION IN PROGRAMME DESIGN: TREE PLANTING FOR INCREASED FUELWOOD SUPPLY FOR RURAL HOUSEHOLDS IN KENYA**  
PAPER PRESENTED AT WORKSHOP ON FARMERS AND AGRICULTURAL RESEARCH: COMPLEMENTARY METHODS, 26-31 JULY, INSTITUTE OF DEVELOPMENT STUDIES, BRIGHTON, UK  
KWDP, NAIROBI, KENYA  
XA/KE EN pp. 1-34

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension programme in Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry. The workshop paper gives an overview of the extension and M&E approach with emphasis on participatory aspects of the methodology. M&E tools used by KWDP are periodic questionnaire surveys, structured and informal discussions, field visits and special research studies on selected topics.

*Technology Planning/Design:* District resource analysis (aerial photographs, secondary data); formal farmer survey of traditional agroforestry practices (questionnaire); informal survey of cultural aspects (structured discussions).

*Technology Evaluation:* On-farm trials to test the performance and acceptability of agroforestry species, monitored through field measurements, observations and farmer discussions.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT; CASE STUDY; WORKSHOP
2. EXISTING NATURAL RESOURCES; TRADITIONAL AGROFORESTRY; SOCIO-ECONOMIC DATA; GRAPHIC METHODS; FORMAL FARMER SURVEYS; FORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; FARMER EVALUATION; ON-FARM EXPERIMENTS; MEASUREMENTS; OBSERVATIONAL METHODS; FARMER MEETINGS

031  
09324  
A2

CIAT (1988)

**TERMS OF REFERENCE TO ASSESS POTENTIAL IMPACT OF IMPROVED  
AGROSILVOPASTORAL TECHNOLOGY ON HUMID TROPICS  
SMALLHOLDERS IN NAPO, ECUADOR**

CIAT, CALI, COLOMBIA

XL/EC EN pp. 1-4

Study by CIAT for the USAID-supported Subproyecto Agroforestal del Noriente in Ecuador to quantify technical and economic parameters of the project's agroforestry component, to monitor trends in adoption of improved technologies by farmers, and to assess the technical and economic feasibility of improved agroforestry technologies at the farm and regional level.

*Technology Evaluation:* Intensive monitoring of a limited number of farms through field measurements at plot and farm levels. Data were collected of livestock stocking rates, tree growth and yield, coffee and pasture production, labour and input use. Repeated sample surveys of the same farms were carried out to monitor adoption of technologies. The methodology is not explained in the report.

*Project Impact:* Evaluation of changes in the socio-economic environment and of distribution of project impacts between different farmer groups and consumers. No further details on evaluation methods are provided.

1. AGROFORESTRY; PROJECT
3. TECHNOLOGY PERFORMANCE; ON-FARM PLOT MONITORING;  
MEASUREMENTS
4. TECHNOLOGY ADOPTION; SOCIO-ECONOMIC CHANGES;  
DISTRIBUTION OF BENEFITS
5. TREES IN GRAZING LAND; MIXED INTERCROPPING

032  
09313  
A2

CLAUSEN, R. (1987)

**SECOND PROGRESS REPORT RUMONGE AGROFORESTRY PROJECT  
CATHOLIC RELIEF SERVICES, BUJUMBURA, BURUNDI**

XA/BI EN pp. 1-29

Progress report for an agroforestry extension project in Rumonge, Burundi, which is supported by Catholic Relief Services (CRS).

*Technology Evaluation:* On-farm monitoring of tree maintenance and pest/disease problems through field observations; demonstration plots of alley cropping systems with different tree species adjacent to nurseries, monitored through field observations and measurements. The report provides no further details on specific methods.

1. AGROFORESTRY; EXTENSION; PROJECT

3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE;  
DEMONSTRATION PLOT MONITORING; OBSERVATIONAL METHODS;  
MEASUREMENTS
5. LIVE FENCES; CONTOUR PLANTING; BOUNDARY PLANTING; ON-  
FARM WOODLOTS; ALLEY CROPPING

033

07372

A1

CONWAY, F.J. (1986)

**THE DECISION-MAKING FRAMEWORK FOR TREE PLANTING IN THE  
AGROFORESTRY OUTREACH PROJECT**

UNIVERSITY OF MAINE, ORONO, USA

XL/HT EN pp. 1-45

USAID-supported agroforestry extension project in Haiti, implemented through CARE, ODH and PADF.

*Technology Evaluation:* Double visit, informal survey using an interview guide, structured discussions and field observations to evaluate adoption and farmer adaptation of agroforestry technologies. Data were collected on agroforestry configurations, reasons for planting, planting arrangements, tree management, harvesting and marketing, and perceptions of tree effects on soil fertility. Seasonal variations were recorded during the second visit. A description of the survey methodology is included.

1. AGROFORESTRY; EXTENSION; PROJECT
3. MPTS ARRANGEMENTS; MPTS MANAGEMENT; FARMER  
EVALUATION; INFORMAL FARMER SURVEYS; OBSERVATIONAL  
METHODS
5. MIXED INTERCROPPING; TREES IN GRAZING LAND; TREES  
AROUND HOMESTEADS; CONTOUR PLANTING; BOUNDARY  
PLANTING

034

09304

A1

CORTEZ, H.; TERAN, J.; GRAEFE, W. (1988)

**SILVO-PASTORAL SYSTEM TECHNICAL REPORT**

SISTEMA SILVO-PASTORIL - INFORME TECNICO

PROYECTO DESARROLLO AGROFORESTAL DEL VALLE DE TARIJA,  
BOLIVIA

XL/BO ES pp. 1-40

Technical report from the silvo-pastoral component of a GTZ-supported agroforestry development project in the Tarija Valley, Bolivia.

*Technology Evaluation:* Silvo-pastoral research plots with leguminous and fast growing timber species: elimination trials with 18 species, followed by longer term trials with seven species during which tree survival and growth were monitored. In addition, an inventory of natural forage species was carried out. A description of the methodology and results is included.

1. AGROFORESTRY; PROJECT; RESEARCH
3. MPTS PERFORMANCE; RESEARCH PLOT EXPERIMENTS

035

10063

A1

CRAIG, I.A.; SASITHORN WASUNAN; MANIT SAENLAO (1988)  
**EFFECTS OF PADDY-BUND-PLANTED EUCALYPTUS TREES ON THE  
PERFORMANCE OF FIELD CROPS**  
WORKING PAPER NO 21  
NERAD PROJECT, KHON KAEN, THAILAND  
XP/TH EN pp. 1-10

The North East Rainfed Agricultural Development (NERAD) project is a USAID-supported rural development project with agroforestry component in northeastern Thailand.

*Technology Evaluation:* Experiments on research plots to evaluate the effect of *Eucalyptus* on crop yields and soil fertility. Crop performance (plant height and biomass yield) was monitored through measurements and observations. A description of the methodology and discussion of results are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. TECHNOLOGY PERFORMANCE; RESEARCH PLOT EXPERIMENTS;  
MEASUREMENTS; OBSERVATIONAL METHODS
5. BOUNDARY PLANTING

036

09666

A1

DAVIS-CASE, D. (1988)  
**A CASE STUDY OF THE CARE KENYA AGROFORESTRY EXTENSION  
PROJECT**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)  
XA/KE EN pp. 1-72

Case study of development and application of extension strategy and M&E methods in the CARE-supported Agroforestry Extension Project in Siaya and South Nyanza Districts of western Kenya. The case study was conducted for the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP).

*Technology Planning/Design:* The project adapted the ICRAF D&D methodology to the needs of an extension project by emphasizing farmer participation. Methods used included a farming systems problem identification survey, group interviews, and problem diagnosis and technology design with individual farmers. In addition, formal, single visit questionnaire surveys were conducted with individuals and groups to establish baseline data.

*Technology Evaluation:* Tree survival survey with field measurements; controlled research plots to test tree species suitability and performance in different agroforestry configurations, monitored through field measurements and observations.

Problems identified in the case study are related to consistency of methods, survey design, quantity of data collected in formal surveys and data analysis.

1. AGROFORESTRY; EXTENSION; PROJECT; M&E SYSTEM; CASE STUDY
2. D&D; PROBLEM IDENTIFICATION; BASELINE DATA; TECHNOLOGY DESIGN; INFORMAL FARMER SURVEYS; FORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; FORMAL FIELD SURVEYS; RESEARCH PLOT EXPERIMENTS; MEASUREMENTS; OBSERVATIONAL METHODS
5. ALLEY CROPPING; BOUNDARY PLANTING; MIXED INTERCROPPING; LIVE FENCES; ON-FARM WOODLOTS; FRUIT TREES; FODDER BANKS; WINDBREAKS

037

09651

A1

DAVIS-CASE, D. (1988)

**OASIS IN THE SANDS: A CASE STUDY OF THE KORDOFAN AGROFORESTRY EXTENSION PROJECT**

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED DRAFT)

XA/SD EN pp. 1-58

Case study of development and application of extension strategy and M&E methods in the CARE-supported Kordofan Agroforestry Extension Project in Sudan. The case study was prepared for the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP).

*Technology Planning/Design:* Informal site (village) selection surveys using socio-economic and biophysical criteria.

*Technology Evaluation:* Formal tree survival survey six months after planting, which included information on site conditions, planting techniques and tree configurations. Formal questionnaire survey at tree establishment stage evaluating nurseries, household and farmland planting, seed collection and sowing, and farmer opinions.

1. AGROFORESTRY; EXTENSION; PROJECT; M&E SYSTEM; CASE STUDY
2. SITE SELECTION; INFORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; FARMER EVALUATION; FORMAL FARMER SURVEYS
5. MIXED INTERCROPPING; TREES AROUND HOMESTEADS; LIVE FENCES

038

08099

A1

DELEHANTY, J.; HOSKINS, M.; THOMSON, J.T. (1985)

**MAJJIA VALLEY EVALUATION STUDY: SOCIOLOGICAL REPORT**

**ETUDE D'EVALUATION DE LA VALLEE DE LA MAJJIA: RAPPORT SOCIOLOGIQUE**

CARE INTERNATIONAL, NIAMEY, NIGER

XA/NE FR pp. 1-112

Project impact evaluation study for the CARE-supported windbreak establishment project in the semi-arid Majjia Valley of Niger.

*Project Impact:* Evaluation of perceptions and opinions of project participants concerning the performance and impact of windbreaks. Data collection methods included: review of secondary data; interviews and discussions with key informants; single visit, formal questionnaire survey; and field observations. The questionnaire survey contained data on tree species demand, tree planting practices before and during the project, perceived advantages and disadvantages of windbreaks and their effects on animal husbandry, crop production, erosion and wood availability, extent of windbreaks and ownership. A detailed description of the survey methodology and a questionnaire are included, as well as a discussion of results and implications for the project.

1. AGROFORESTRY; PROJECT; EVALUATION
4. FARMER ATTITUDES; BENEFIT DISTRIBUTION; INFORMAL FARMER SURVEYS; SECONDARY DATA; OBSERVATIONAL METHODS; FORMAL FARMER SURVEYS

039

07977

A2

YAMOAH, C.F.; GROSZ, R. (1988)

**LINKING ON-STATION RESEARCH WITH ON-FARM TESTING: THE CASE OF AGROFORESTRY AND ORGANIC MATTER BASED CROPPING SYSTEMS FOR THE RWANDA FARMING SYSTEMS RESEARCH PROJECT**

AGROFORESTRY SYSTEMS Vol 6

XA/RW EN pp. 271-281

Case study of agroforestry research-extension linkages in the USAID-supported Farming Systems Research Project in northwestern Rwanda.

*Technology Planning/Design:* A diagnosis of farming systems problems was carried out through review of secondary data, exploratory surveys with farm families and consultations with scientists and key informants. No information is provided on methods.

*Technology Evaluation:* Research and demonstration plots were established to test the performance of selected agroforestry species under different agroecological conditions. Farmer field days were organized to identify, together with farmers, soil fertility management problems and possible solutions, to expose farmers to agroforestry demonstrations and select participants for on-farm research. Farmer evaluation of demonstrated agroforestry technologies was used as a basis for technology improvements and on-farm experiments were identified, established and managed by farmers under the supervision of researchers. No information is provided on types of data collected from the on-farm trials and methods used.

1. AGROFORESTRY; FARMING SYSTEMS APPROACH; PROJECT; RESEARCH; EXTENSION; CASE STUDY
2. PROBLEM IDENTIFICATION; FARMING SYSTEMS DESCRIPTION; SECONDARY DATA; INFORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; FARMER EVALUATION; TECHNOLOGY PERFORMANCE; FARMER FIELD DAYS; DEMONSTRATION PLOT MONITORING; ON-FARM EXPERIMENTS
5. ALLEY CROPPING; CONTOUR PLANTING

040

B04964

A1

DEPARTMENT OF FORESTRY (1987)

**B.A.T. (KENYA) LTD. WOODLOT APPRAISAL PROJECT: FINAL REPORT**

MOI UNIVERSITY, ELDORET, KENYA

XA/KE EN pp. 1-54

Study conducted by Moi University for the B.A.T. woodlot programme in Kenya to assess the production capacities and management of B.A.T. nurseries and to evaluate woodlot management by farmers, woodlot production, fuelwood supply and demand, farmers' species preferences and potential for growing indigenous trees in woodlots.

*Technology Evaluation:* Formal questionnaire survey of fuelwood demand and woodlot management by farmers. Field observations and measurements were used to assess tree survival and growth performance. A description of the methodology used to measure survival of different age classes of trees, a discussion of results and a questionnaire are included.

1. AGROFORESTRY; PROJECT
3. MPTS MANAGEMENT; MPTS PERFORMANCE; FORMAL FARMER SURVEYS; FORMAL FIELD SURVEYS; MEASUREMENTS; OBSERVATIONAL METHODS
5. ON-FARM WOODLOTS

041  
09307

A1

DESMOND, D. (1987)

**EXISTENCE, UTILIZATION AND PREFERENCES FOR WOODY SPECIES IN SARAGURO, LOJA: RESULTS OF A SURVEY**

EXISTENCIA, USOS Y PREFERENCIAS DE ESPECIES LENOSAS EN

SARAGURO, LOJA: RESULTADOS DE UNA ENUESTA

CARE INTERNATIONAL, CUENCA, ECUADOR

XL/EC ES pp. 1-24

Report by the CARE-supported Community Forestry and Community Land Use Management Projects in Loja Province of Ecuador.

*Technology Planning/Design:* Single visit, formal questionnaire survey with farmers about existing woody vegetation on their farms. Information was collected on tree species, location, numbers of trees and their utilization in farm plots close to and distant from the homestead, and species preferences for different uses. The author discusses problems of survey design and implementation and makes species and design recommendations for agroforestry technologies. The establishment of demonstration and research plots is suggested, as well as periodic technical evaluations of the agroforestry component in terms of species selection, configurations, tree establishment and management.

1. SOCIAL FORESTRY; PROJECT; AGROFORESTRY
2. EXISTING NATURAL RESOURCES; FORMAL FARMER SURVEYS

042  
10050

A1

DE WOLF, C. (1988)

**MONITORING AND EVALUATION OF THE DRYLAND FARMING SYSTEMS PROJECT**

CARE INTERNATIONAL, JAKARTA, INDONESIA (UNPUBLISHED DRAFT)

XP/ID EN pp. 1-10

The paper describes the development of the agroforestry technology monitoring system for the CARE-supported Dryland Farming Systems Project on Lombok Island in Indonesia.

*Technology Evaluation:* Multiple visit, informal surveys to monitor adoption and performance of technologies on-farm. Information collection included length of tree hedges, condition, management and utilization. Data collection forms are included.

1. FARMING SYSTEMS APPROACH; AGROFORESTRY; PROJECT; M&E SYSTEM
3. TECHNOLOGY PERFORMANCE; MPTS MANAGEMENT; INFORMAL FARMER SURVEYS
5. CONTOUR PLANTING; ALLEY CROPPING

043  
07374  
A1

EHRlich, M. (1986)  
**FUELWOOD AND BIOMASS YIELD TABLES FOR *LEUCAENA*  
*LEUCOCEPHALA*, *CASSIA SIAMEA*, *AZADIRACHTA INDICA*, *COLUBRINA*  
*ARBORESCENS*, *EUCALYPTUS CAMALDULENSIS*, *PROSOPIS JULIFLORA***  
UNIVERSITY OF MAINE, ORONO, USA  
XL/HT EN pp. 1-54

Research study conducted for the USAID-sponsored Agroforestry Outreach Project in Haiti, which is implemented by CARE, PADF and ODH.

*Technology Evaluation:* Special study to determine fuelwood, biomass and polewood potential of six MPTS species and to develop yield tables. Field measurements of tree heights and diameters in different ecological zones and destructive sampling were used to determine volume production and wood characteristics of each species. The report includes a detailed description of the research methodology.

1. AGROFORESTRY; PROJECT
3. MPTS PERFORMANCE; MEASUREMENTS; DESTRUCTIVE SAMPLING

044  
09316  
A1

ERDMANN, T. (1988)  
**AGROFORESTRY ACTIVITIES OF THE RRAM PROJECT IN RUHENGERI  
PREFECTURE, APRIL 1987 - SEPTEMBER 1988**  
RRAM PROJECT, RUHENGERI, RWANDA  
XA/RW EN pp. 1-52

Ruhengeri Resource Analysis and Management (RRAM) is a USAID-supported research and development project to evaluate natural resource problems and make recommendations for future resource management in Ruhengeri District of northwestern Rwanda. The second project phase includes an applied research component for soil conservation and agroforestry.

*Technology Evaluation:* Research plots to test species performance and effects of altitude, with measurements of tree heights, biomass production from pruning, crop yields and soil profiles. On-farm tree performance was monitored through field measurements. A description of methods is included.

1. NATURAL RESOURCES MANAGEMENT; AGROFORESTRY; PROJECT; RESEARCH
3. MPTS PERFORMANCE; RESEARCH PLOT EXPERIMENTS; MEASUREMENTS
5. CONTOUR PLANTING; ON-FARM WOODLOTS; LIVE FENCES

045  
09303  
A1

ESTRADA, R.D.; SERE, C.; LUZURIAGA, H. (1988)  
**AGRO-SILVO-PASTORAL PRODUCTION SYSTEMS IN THE LOWLAND FOREST  
AREAS OF NAPO PROVINCE, ECUADOR**  
SISTEMAS DE PRODUCCION AGROSILVOPASTORILES EN SELVA BAJA DE  
LA PROVINCIA DEL NAPO, ECUADOR  
CIAT, CALI, COLOMBIA  
XL/EC ES pp. 1-108

Report of a collaborative project between CIAT and development agencies to quantitatively characterize the predominant production systems in the Canton Francisco de Orellana of Ecuador, their spatial distribution and their dynamics over time.

*Technology Planning/Design:* Formal, single visit diagnostic survey of existing agroforestry systems, also including information on socio-economic aspects and tree and pasture management. Farm sketches were prepared for major land use types. The survey methodology is explained in detail and a questionnaire is included.

1. AGROFORESTRY; PROJECT
2. TRADITIONAL AGROFORESTRY; SOCIO-ECONOMIC DATA; FORMAL FARMER SURVEYS; GRAPHIC METHODS

046  
08100  
A2

FRANCIS, P.A.; ATTA-KRAH, A.N. (1988)  
**SOCIOLOGICAL AND ECOLOGICAL FACTORS IN TECHNOLOGY ADOPTION:  
FODDER TREES IN SOUTHEAST NIGERIA**  
ILCA, IBADAN, NIGERIA  
XA/NG EN pp. 1-13

The paper describes the evolution of the ILCA on-farm agroforestry research programme in southeastern Nigeria, which was designed to assess the technical feasibility of fodder banks and to test their acceptability and viability under farmer management. The importance of farmer-managed trials to identify sociological and institutional factors in farmer decision making is emphasized in the report.

*Technology Evaluation:* Researcher-managed fodder bank plots to introduce and demonstrate the technology to farmers, followed by farmer meetings to discuss their interest in fodder banks. After farmers indicated their preference for incorporating trees into cropland, farmer-managed alley cropping trials were established with regular monitoring by researchers of condition, management and utilization of trees, types of crops planted in alleys and farmer opinions about the technology. A description of the research methodology is included.

1. AGROFORESTRY; PROJECT

3. TECHNOLOGY PERFORMANCE; FARMER EVALUATION; ON-FARM EXPERIMENTS; ON-FARM PLOT MONITORING; FARMER MEETINGS
5. FODDER BANKS; ALLEY CROPPING

047

09641

A2

FREEMANN, P.H.; TEJADA, F. (1988)

**COMPREHENSIVE REPORT AND EVALUATION, CEREALS PRODUCTION II (685-0235) PROJECT EXTENSION (MARCH 1985-1987), USAID/SENEGAL**  
 LABAT ANDERSON, INC., ARLINGTON, USA  
 XA/SN EN pp. 1-77

USAID-supported pilot project for agroforestry and soil conservation research and extension in the semi-arid Thies and Djourbel regions of Senegal. The report of an external end-of-project evaluation includes brief descriptions of parameters monitored by the project, but limited information on specific M&E methods. The evaluation concluded that the project had focused mostly on agroforestry extension while the research component did not receive sufficient attention.

*Technology Evaluation:* Regular monitoring of agroforestry configurations and tree survival through field measurements and observations (monitoring form included). Special studies on survival, tree protection, soil fertility and soil degradation.

*Project Impact:* Special study on participants' attitudes toward project interventions.

1. AGROFORESTRY; PROJECT; EVALUATION
3. MPTS PERFORMANCE; MPTS ARRANGEMENTS; FORMAL FIELD SURVEYS; MEASUREMENTS; OBSERVATIONAL METHODS
4. FARMER ATTITUDES
5. WINDBREAKS; BOUNDARY PLANTING; FRUIT TREES; TREES AROUND HOMESTEADS; ON-FARM WOODLOTS

048

07929

A1

GIBSON, D.C.; MUELLER, E.U. (1987)

**DIAGNOSTIC SURVEYS AND MANAGEMENT INFORMATION SYSTEMS IN AGROFORESTRY PROJECT IMPLEMENTATION: A CASE STUDY FROM RWANDA**

WORKING PAPER NO 49

ICRAF, NAIROBI, KENYA

XA/RW EN pp. 1-81

The Gituza Forestry Project is a CARE-supported forestry development project with agroforestry component in northeastern Rwanda. The Working Paper discusses the

development of the project's M&E system, initial results and their implications for agroforestry extension.

*Technology Planning/Design:* Formal, single visit questionnaire survey to identify farming systems problems and establish baseline data on traditional agroforestry and tree planting practices. A detailed description of the survey methodology and a questionnaire are included.

*Technology Evaluation:* Research plots to test species performance in agroforestry configurations and their effects on crop yields and soil fertility; formal survey to monitor species demand, tree survival at tree establishment stage (3-4 months after planting), condition of trees and agroforestry configurations.

1. AGROFORESTRY; EXTENSION; PROJECT; CASE STUDY; M&E SYSTEM
2. BASELINE DATA; PROBLEM IDENTIFICATION; TRADITIONAL AGROFORESTRY; FORMAL FARMER SURVEYS
3. TECHNOLOGY PERFORMANCE; MPTS PERFORMANCE; FARMER EVALUATION; RESEARCH PLOT EXPERIMENTS; FORMAL FIELD SURVEYS
5. CONTOUR PLANTING; BOUNDARY PLANTING; LIVE FENCES; ON-FARM WOODLOTS; MIXED INTERCROPPING; TREES AROUND HOMESTEADS; FRUIT TREES

049

10072

A1

GLAUNAR, J. (1986)

**A FIRST CONTRIBUTION TO FARMING SYSTEMS RESEARCH AT PALPA DISTRICT, WESTERN NEPAL: CASE STUDY ON TWO DIFFERENT SITES WITH 16 HOUSEHOLDS**

TINAU WATERSHED PROJECT, PALPA, NEPAL

XP/NP EN pp. 1-91

The Tinau Watershed Project is a rural development project with agroforestry component in the Palpa District of Nepal. It is jointly implemented by His Majesty's Government of Nepal, Helvetas and GTZ. The paper presents a case study of farming systems analysis conducted to gain a better understanding of hill slope farming and to identify development potentials based on needs and interests of farmers.

*Technology Planning/Design:* Questionnaire survey with 16 families, collecting information on household characteristics, cropping and livestock practices, the labour economy, the economic situation, perceived constraints and potentials. On the basis of the survey results, farming systems were described and on-farm research suggested to test possible solutions under farm conditions. A detailed description of the survey methodology is included, but no questionnaire.

1. RURAL DEVELOPMENT; AGROFORESTRY; PROJECT; FARMING SYSTEMS APPROACH; CASE STUDY
2. FARMING SYSTEMS DESCRIPTION; INFORMAL FARMER SURVEYS

050  
09631  
A1

**GOSSAGE, S.J.; KOLALA, L.M.; SINAZONGWE, C.B. (1987)**  
**EVALUATION OF THE EASTERN PROVINCE SOIL CONSERVATION AND**  
**AGROFORESTRY PROGRAMME 1985 TO 1987**  
DEPARTMENT OF AGRICULTURE, CHIPATA, ZAMBIA  
XA/ZM EN pp. 1-75

Evaluation study of the performance and impact of the Soil Conservation and Agroforestry Programme in the Eastern Province of Zambia, based on three surveys. *Technology Evaluation:* In a yearly tree planting and soil conservation monitoring survey with all farmers, information was collected on tree planting, survival after 1-2 months, reasons for mortality, condition of trees, site condition, planting configurations and intended utilization. The survey forms are not included. *Project Impact:* Single visit, formal questionnaire survey evaluating farmers' attitudes, knowledge and soil conservation and tree planting practices. A detailed description of the survey methods and a questionnaire are included.

1. SOIL CONSERVATION; AGROFORESTRY; PROJECT; EVALUATION
3. MPTS PERFORMANCE; MPTS ARRANGEMENTS; FORMAL FARMER SURVEYS
4. FARMER ATTITUDES; TREES PLANTED; FORMAL FARMER SURVEYS
5. CONTOUR PLANTING; LIVE FENCES; BOUNDARY PLANTING; ON-FARM WOODLOTS; MIXED INTERCROPPING; TREES AROUND HOMESTEADS

051  
10065  
A1

**HOEY, P.M.; TEP SARN, S.; THUAMCHAROEN, S. (1987)**  
**THE USE OF FARMING SYSTEMS METHODS TO DEVELOP STABLE**  
**AGRICULTURAL SYSTEMS FOR THE HIGHLANDS: THE HASD EXPERIENCE**  
PAPER PREPARED FOR THE SEMINAR TOWARDS STABLE  
AGRICULTURAL SYSTEMS IN THE NORTHERN THAI HIGHLANDS,  
CHIANGMAI, 18-19 JUNE 1987  
HIGHLAND AGRICULTURAL AND SOCIAL DEVELOPMENT PROJECT,  
CHIANGMAI, THAILAND  
XP/TH EN pp. 1-14

The Highland Agricultural and Social Development (HASD) project is an Australian-funded research and development project to promote sustainable alternatives to current farming practices in the highlands of northern Thailand. *Technology Evaluation:* On-farm trials to test the effectiveness of tree and grass strips for erosion control. Data were collected on runoff, soil loss, crop yields and cost effectiveness of interventions. A description of the methodology and discussion of results are included.

1. AGRICULTURE; RESEARCH; EXTENSION; AGROFORESTRY; PROJECT
3. TECHNOLOGY PERFORMANCE; ON-FARM EXPERIMENTS
5. CONTOUR PLANTING

052

09560

A1

HOLDEN, S.T. (1988)

**FARMING SYSTEMS AND HOUSEHOLD ECONOMY IN YUNGE, NEW CHEMBESHI AND OLD CHEMBESHI VILLAGES NEAR KASAMA, NORTHERN PROVINCE, ZAMBIA: AN AGROFORESTRY BASELINE STUDY**

OCCASIONAL PAPER SERIES A, NO 9

AGRICULTURAL UNIVERSITY OF NORWAY, AAS, NORWAY

XA/ZM EN pp. 1-104

The study was conducted in conjunction with the Soil Productivity Research Programme at Misamfu Research Station in Zambia. Objectives were to evaluate the potential for improving farming systems through agroforestry, to collect baseline data for economic analysis of agroforestry interventions, and to establish a network of representative contact farmers for technology design and on-farm testing.

*Technology Planning/Design:* D&D with ICRAF; informal meetings and interviews at household level; formal, single visit questionnaire survey of household composition, farming systems (including tree planting practices), on- and off-farm activities and income/expenditures. The subsequent problem identification and technology design were based on survey results and were verified through discussions at village level.

The report includes a description of the methodology, but no questionnaire.

*Technology Evaluation:* On-farm research programme based on survey results to test tree species under farm conditions and to monitor farmer response; observational trials of fast-growing tree species for mulch production.

1. AGROFORESTRY; PROJECT
2. D&D; FARMING SYSTEMS DESCRIPTION; BASELINE DATA; PROBLEM IDENTIFICATION; TECHNOLOGY DESIGN; FARMER MEETINGS; INFORMAL FARMER SURVEYS; FORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; FARMER EVALUATION; ON-FARM EXPERIMENTS
5. ALLEY CROPPING; FODDER BANKS; CONTOUR PLANTING; IMPROVED FALLOWS

053  
09635  
A1

HOLDEN, S.T. (1988)  
**ON-FARM ALLEY CROPPING AND PIGEON PEA CULTIVAR TRIALS**  
MISAMFU RESEARCH STATION, KASAMA, ZAMBIA (UNPUBLISHED  
DRAFT)

XA/ZM EN pp. 1-7

Agroforestry on-farm research in conjunction with the Soil Productivity Research Programme at Misamfu Research Station in Zambia.

*Technology Evaluation:* On-farm trials to test species performance under different site conditions and to monitor farmer response to alley cropping. Measurements of biomass production from pruning were carried out to compare productivity. The report includes a description of the methodology used for trial establishment and a discussion of initial results, but provides no information on monitoring of farmer responses.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
3. MPTS PERFORMANCE; FARMER EVALUATION; ON-FARM EXPERIMENTS; MEASUREMENTS
5. ALLEY CROPPING; FODDER BANKS; CONTOUR PLANTING; IMPROVED FALLOWS

054  
09625  
A1

HOLDING, C. (1988)  
**SUMMARY OF FINDINGS FROM END-OF-PROJECT ATTITUDE SURVEY: CARE**  
**EASTERN REFUGEE REFORESTATION PROJECT**  
CARE INTERNATIONAL, KHARTOUM, SUDAN

XA/SD EN pp. 1-16

CARE-supported forestry development project in eastern Sudan.

*Project Impact:* Survey to evaluate changes in awareness and attitudes of people in the project area, which are due to project extension activities. Interviews were conducted in selected households using a list of positive and negative statements respondents could either accept or reject. A description of the survey methodology and discussion of results is included.

1. FORESTRY; PROJECT; AGROFORESTRY; EVALUATION
4. FARMER ATTITUDES; INFORMAL FARMER SURVEYS

055  
09309

A2

IMELOKO (1988)

**AGROFORESTRY PROGRESS REPORTS**

IMELOKO, LOKO-BUSINGA, ZAIRE

XA/ZR EN pp. 1-8

Agroforestry extension project in the Loko-Businga area of Zaire, supported by HOPE International and implemented by the Institut Médical Evargélique Loko (IMELOKO).

*Technology Evaluation:* Species screening trials at project nursery and arboretum with over 300 fruit, nut and other tree species. The objective of the trials was to select species adapted to site conditions for testing by the local population. Data were collected on germination, growth, fruiting habits, and potential uses. Species trials with leguminous trees not included in the screening were monitored through field observations. Adoption and maintenance of agroforestry technologies established on farms were evaluated through field observations after the first year. In the case of positive evaluation, incentives were paid to farmers. No further information is provided on data collection and evaluation methods.

1. AGROFORESTRY; EXTENSION; PROJECT
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; RESEARCH PLOT MONITORING; OBSERVATIONAL METHODS
5. ON-FARM WOODLOTS; ORCHARDS; MIXED INTERCROPPING; ALLEY CROPPING; BOUNDARY PLANTING

056  
04383

A2

JONES, J.R. (1984)

**EVALUATION OF FARMER GOAL AND PROJECT GOAL COMPATIBILITY:**

**VALIDATION, NATIONAL TECHNOLOGIES AND TECHNOLOGY EVALUATION**

PAPER PRESENTED AT THE SHORT COURSE ON AGROFORESTRY FOR

THE HUMID TROPICS, APRIL 24 TO MAY 4 AT CATIE

CATIE, TURRIALBA, COSTA RICA

XP/CR EN pp. 1-19

Case study of farmer evaluation of demonstrated agroforestry technologies used for on-farm technology design by the CATIE/ROCAP Mixed Systems for Small Farmers Project in Cariari, Costa Rica and Comayagua, Honduras.

*Technology Planning/Design:* Farmer visits to demonstration farms with new technologies were followed by a discussion of technological requirements for on-farm applications of the demonstrated technologies with respect to labour intensity, costs, profitability and general desirability. Farmers' needs, goals and technological requirements were evaluated in terms of scale of operations, labour and need for farm/labour reallocation. A description of the methodology is included.

1. AGROFORESTRY; PROJECT; CASE STUDY
2. FARMER EVALUATION OF PROPOSED TECHNOLOGIES; FARMER FIELD DAYS; FARMER MEETINGS

057

09674

A1

KERKHOF, P. (1987)

**SOUTH NYANZA DISTRICT AFFORESTATION PROGRAMME: REPORT ON THE AGROFORESTRY COMPONENT**

FORESTRY DEPARTMENT/DANIDA, HOMA BAY, KENYA

XA/KE EN pp. 1-143

DANIDA-supported forestry project with agroforestry extension component in South Nyanza District of Kenya.

*Technology Planning/Design:* Formal questionnaire survey of problem areas to collect basic socio-economic, agricultural and wood consumption data and to identify existing agroforestry practices. A second survey was conducted with a sub-sample of farmers for more in-depth information on farming systems problems and tree planting. Survey results were to serve as a basis for the design of agroforestry interventions. A detailed description of the survey methodology and a questionnaire are included.

*Technology Evaluation:* Proposal for on-farm research trials with a sub-sample of survey respondents, selected on the basis of farm size, gender and major tree establishment problems. The research plan included the introduction of different tree species and management systems, on-farm nurseries, fruit tree propagation and direct seeding trials. The trials were to be monitored through measurements of tree growth and biomass production, observations on growth and canopy form, regeneration and pest/disease problems, as well as evaluation of crop performance by farmers.

1. AGROFORESTRY; PROJECT; EXTENSION; ON-FARM RESEARCH
2. BASELINE DATA; TRADITIONAL AGROFORESTRY; PROBLEM IDENTIFICATION; FORMAL FARMER SURVEYS
3. MPTS PERFORMANCE; MPTS MANAGEMENT; ON-FARM EXPERIMENTS; MEASUREMENTS; OBSERVATIONAL METHODS

058

10034

A1

KISHEWITCH, S. (1987)

**AGROFORESTRY ADAPTATION AND ADOPTION IN COAST PROVINCE, KENYA**

YORK UNIVERSITY, TORONTO, CANADA (UNPUBLISHED DRAFT)

XA/KE EN pp. 1-50

Special study conducted for the Kenya Renewable Energy Development Project's Agroforestry/Energy Centre in Mtwapa, Coast Province of Kenya.

*Project Impact:* Informal survey with farmers who had attended an agroforestry course at the Centre to determine the effect of agroforestry training, assess farmers' problems, solutions and technology adaptations, and to evaluate the effectiveness of the research and extension programme. Topics discussed during the interview were crop planting patterns and intercropping, use of fire, soil fertility management, livestock, indigenous uses of trees, labour, land ownership, cash crop markets, access to resources and markets, erosion and pest/disease problems. A description of the survey methodology is included.

1. AGROFORESTRY; RESEARCH; EXTENSION; PROJECT
4. FARMER ATTITUDES; SOCIO-ECONOMIC CHANGES; TECHNOLOGY ADOPTION; INFORMAL FARMER SURVEYS

059

09251

A1

KUYPER, J.B.H. (1988)

**ON-FARM AGROFORESTRY TRIALS IN KISII**

WORKING PAPER NO 12

KWDP, NAIROBI, KENYA

XA/KE EN pp. 1-80

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry. The paper describes the methodology used and results obtained during different phases of the on-farm research process.

*Technology Evaluation:* On-farm research trials to test agroforestry technologies for on-farm fuelwood production. Specific objectives were to investigate growth rates and wood production of selected tree species under existing management practices and their potential for integration into the farming system, and to develop a methodology for design, establishment and monitoring of on-farm trials with active farmer participation. The on-farm trials were designed through discussions with farmers and subsequent design adaptations were based on field measurements, observations and regular feedback from farmers.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
3. MPTS PERFORMANCE; MPTS MANAGEMENT; FARMER EVALUATION; ON-FARM EXPERIMENTS; ON-FARM PLOT MONITORING; MEASUREMENTS; OBSERVATIONAL METHODS; FARMER MEETINGS

060  
02928  
A1

LAGEMANN, J.; HEUVELDOP, J. (1982)  
**CHARACTERIZATION AND EVALUATION OF AGROFORESTRY SYSTEMS: THE  
CASE OF ACOSTA PURISCAL, COSTA RICA**  
CATIE, TURRIALBA, COSTA RICA  
XL/CR EN pp. 1-19

Case study of the methodology used by a CATIE/GTZ agroforestry research project in Costa Rica to characterize and evaluate traditional agroforestry systems.

*Technology Planning/Design:* Identification of major land use types; area stratification according to topography and climate; analysis of agroforestry practices through systems approach: classification of production systems and identification of system elements; relationship between system elements (effect of trees on soil fertility, waterholding capacity, crops); system performance and stability (inputs and outputs, yields and income related to production resources). The data were collected through multi-visit field surveys over a period of one year.

1. AGROFORESTRY; RESEARCH; PROJECT; CASE STUDY
2. TRADITIONAL AGROFORESTRY; FORMAL FIELD SURVEYS

061  
07825  
A1

LAMFALUSSY, L.; DELINCE, J. (1987)  
**AGROFORESTRY SURVEY IN KIRUNDO PROVINCE**  
ENQUETE AGROFORESTIERE REALISEE DANS LA PROVINCE DE  
KIRUNDO  
PROJET REBOISEMENT BANQUE MONDIALE-FAC, BUJUMBURA,  
BURUNDI  
Vol. I and II  
XA/BI FR pp. 1-126

The Projet Reboisement Banque Mondiale-FAC is a World Bank supported forestry development project in Burundi.

*Technology Planning/Design:* Formal, single visit questionnaire survey to obtain information on farming systems and to identify traditional tree management and utilization by farmers. Information was collected on household composition, site characteristics of farms, crop and livestock components, role of trees, species, regeneration, management, utilization and effect on crops. A description of the survey methodology and discussion of results are included. The questionnaire is appended in Volume II.

1. FORESTRY; PROJECT; AGROFORESTRY
2. FARMING SYSTEMS DESCRIPTION; TRADITIONAL TREE GROWING;  
FORMAL FARMER SURVEYS
5. ON-FARM TREE PLANTING

062  
10046  
A1

LASCO, R.D. (1988)  
**A COMPARATIVE STUDY OF TWO AGROFORESTRY SYSTEMS IN  
PAGKALINAURAU, JALAJALA, RIZAL**  
OCCASIONAL PAPERS ON SOCIAL FORESTRY  
UNIVERSITY OF THE PHILIPPINES, COLLEGE, LAGUNA  
XP/PH EN pp. 1-28

Special study conducted in the context of the Social Forestry Programme at the University of the Philippines, comparing and evaluating two agroforestry systems in terms of their suitability for application in the Pagkalinaurau upland ecosystems in Rizal.

*Technology Evaluation:* On-farm research trials in existing agroforestry systems. Data were collected of surface runoff, soil loss and economic costs and revenues through field experiments, measurements and interviews. A detailed description of the research methodology and discussion of results are included.

1. AGROFORESTRY; CASE STUDY; ON-FARM RESEARCH
3. EXISTING TECHNOLOGIES; ON-FARM EXPERIMENTS;  
MEASUREMENTS; OBSERVATIONAL METHODS; INFORMAL FARMER  
SURVEYS
5. CONTOUR PLANTING

063  
09672  
A1

MEYERHOFF, E. (1988)  
**SOCIO-ECONOMIC CHANGES IN THE KAMPI YA SAMAKI AREA, BARINGO:  
EFFECTS OF BARINGO FUEL AND FODDER PROJECT DEVELOPMENT  
ACTIVITIES**  
FUEL AND FODDER PROJECT, BARINGO, KENYA  
XA/KE EN pp. 1-36

The Baringo Fuel and Fodder Project is an externally funded land rehabilitation project with agroforestry component in the semi-arid Baringo District of Kenya.

*Project Impact:* Socio-economic data were collected throughout project implementation, using the following methods: individual interviews with men, women and local leaders; field trips with local residents and officials to discuss the importance of land rehabilitation; survey of households in one sub-location; community meetings; follow-up for trees planted on-farm; and collection of indigenous plants. Meetings and discussions were sometimes recorded on tape. A special socio-economic evaluation study was conducted of household composition and economics, local perceptions and understanding of the project, perceptions of environmental changes and awareness of tree planting. Data were collected through informal and structured discussions with an interview guide. A description of the methodology, discussion of results and interview guide are included.

1. AGROFORESTRY; PROJECT
4. SOCIO-ECONOMIC CHANGES; FARMER ATTITUDES; INFORMAL FARMER SURVEYS

064

10055

A2

MONITORING AND EVALUATION UNIT HIMACHAL PRADESH SOCIAL FORESTRY PROJECT (1987)

**FARM FORESTRY SURVEY REPORT FOR THE YEAR 1986-1987**

DEPARTMENT OF FOREST FARMING AND CONSERVATION HIMACHAL PRADESH, INDIA

XP/IN EN pp. 1-51

Social Forestry Project in the State of Himachal Pradesh in India. The survey methodology used by the project is described in the "Operational Guide for Monitoring and Evaluation of Social Forestry in India" (Slade and Campbell 1986). *Technology Evaluation*: Formal questionnaire survey to determine tree survival rates, species preferences, planting purpose and planting techniques. A summary of the survey results is included.

1. SOCIAL FORESTRY; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; FARMER EVALUATION; FORMAL FARMER SURVEYS
5. ON-FARM WOODLOTS; BOUNDARY PLANTING; TREES AROUND HOMESTEADS

065

09320

A1

MUELLER, E.U. (1988)

**CASE STUDY OF THE CARE GITUZA FORESTRY PROJECT IN RWANDA**

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED DRAFT)

XA/KE EN pp. 1-52

Case study of development and application of extension strategy and M&E system in the CARE-supported Gituza Forestry Project in northeastern Rwanda. The case study was prepared for the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP).

*Technology Planning/Design*: Formal, single visit questionnaire survey to identify farming systems problems and establish baseline data on traditional agroforestry practices. A detailed description of the methodology is included. Technology design in pilot extension areas was based on farm visits and informal discussions with individual farmers.

*Technology Evaluation:* Research plots to test species performance in agroforestry configurations and their effect on crop yields and soil fertility; multiple visit survey at tree establishment stage to monitor species demand, tree survival after 3-4 months, condition of trees and agroforestry configurations.

1. AGROFORESTRY; PROJECT; M&E SYSTEM; CASE STUDY
2. BASELINE DATA; FARMING SYSTEMS DESCRIPTION; PROBLEM IDENTIFICATION; TRADITIONAL AGROFORESTRY; TECHNOLOGY DESIGN; FORMAL FARMER SURVEYS; FARM VISITS; FARMER MEETINGS
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; MPTS ARRANGEMENTS; FARMER EVALUATION; RESEARCH PLOT EXPERIMENTS; FORMAL FIELD SURVEYS
5. CONTOUR PLANTING; BOUNDARY PLANTING; LIVE FENCES; ON-FARM WOODLOTS; MIXED INTERCROPPING; TREES AROUND HOMESTEADS; FRUIT TREES

066

08150

A1

MUKHEBI, A.W.; ONIM, J.F.M.; OYUGI, L. (1985)  
**ECONOMICS OF INTERCROPPING MAIZE WITH FORAGE CROPS IN SMALL-SCALE FARMING SYSTEMS IN WESTERN KENYA**  
ANIMAL FEED RESOURCES FOR SMALL-SCALE LIVESTOCK PRODUCERS. PROCEEDINGS OF THE SECOND PANESA WORKSHOP, 11-15 NOVEMBER, NAIROBI, KENYA  
XA/KE EN pp. 220-230

Case study from a USAID-sponsored small ruminants research project in western Kenya. The project's feed resources component includes on-station and on-farm agroforestry research.

*Technology Evaluation:* On-station and on-farm experiments with alley cropping technologies to quantify the economic costs of intercropping with forage crops, assess the economic impact of fertilizer application and to identify the most promising maize forage intercrops. Trials were monitored through periodic measurements of forage and crop yields and subsequent calculation of cost-benefit ratio. A description of the research methodology and a summary of results are included.

1. AGROFORESTRY; PROJECT; RESEARCH; CASE STUDY
3. TECHNOLOGY PERFORMANCE; ON-FARM EXPERIMENTS; ON-STATION EXPERIMENTS
5. ALLEY CROPPING

067  
10030  
A1

MUNG'ALA, P. (1985)  
**PROGRESS REPORT ON SEED PRODUCTION UNITS. ONE YEAR'S  
EXPERIENCE ON THE GROUND**  
WORKING PAPER NO 8  
KWDP, NAIROBI, KENYA  
XA/KE EN pp. 1-31

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Evaluation:* Tree seed production units established on farms and on public land were used to investigate agroforestry species adaptability, growth, seeding characteristics, seed viability, resistance to pests/diseases, production potential and site condition/growth rate relationships. Data were periodically collected of tree height, diameter, volume and biomass production. A description of the methodology and discussion of problems and results are included.

1. AGROFORESTRY; PROJECT; RESEARCH; EXTENSION
3. MPTS PERFORMANCE; RESEARCH PLOT EXPERIMENTS;  
MEASUREMENTS
5. MIXED INTERCROPPING; BOUNDARY PLANTING; CONTOUR  
PLANTING; ON-FARM WOODLOTS; TREES IN GRAZING LAND; TREES  
AROUND HOMESTEADS; LIVE FENCES; ALLEY CROPPING

068  
10028  
A2

MUNG'ALA, P.; KIMWE, S.; KIMA, F.; KUYPER, J.B.H. (1986)  
**KAKAMEGA DISTRICT CASE STUDY: RESULTS OF THE FIRST TWO YEARS  
OF KWDP INTERVENTION**  
KWDP, NAIROBI, KENYA (UNPUBLISHED DRAFT)  
XA/KE EN pp. 1-21

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Evaluation:* Survey with 25 contact farmers at tree establishment stage to evaluate tree performance and farmer opinions about agroforestry species provided by KWDP and planted on-farm. Data were collected through on-farm observations and informal interviews using an interview guide. Topics covered were nursery establishment, mortality of planted seedlings, reasons for not planting, tree spacing and configurations, pest/disease problems, seed and wildling collection, tree management, harvesting methods, uses and species preferences for different

configurations. A description of the methodology and a summary of results are included.

1. AGROFORESTRY; PROJECT; RESEARCH; EXTENSION
3. MPTS PERFORMANCE; FARMER EVALUATION; MPTS MANAGEMENT; MPTS ARRANGEMENTS; INFORMAL FARMER SURVEYS
5. MIXED INTERCROPPING; BOUNDARY PLANTING; CONTOUR PLANTING; ON-FARM WOODLOTS; TREES IN GRAZING LAND; TREES AROUND HOMESTEADS; LIVE FENCES; ALLEY CROPPING

069

10031

A2

MUNG'ALA, P. (1987)

**KWDP'S FIELD RESEARCH PROJECTS**

KWDP, NAIROBI, KENYA

XA/KE EN pp. 1-10

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry. The paper gives an overview of the objectives and methodology used for on-farm trials in Kakamega and Kisii.

*Technology Evaluation:* In Kisii the on-farm trials were designed to develop appropriate agroforestry technologies for different categories of farmers. Site and farmer selection were carried out through informal discussions with farmers on species preferences, planting sites, configurations and tree protection, as well as farmer field days at the research station to discuss species selection. After tree establishment on-farm, tree growth and management by farmers were monitored. The trials in Kakamega were established to test the concept of fuel self-sufficiency on-farm, technical options of tree regeneration and agroforestry configurations. Tree seed and wood production and changes in farmer attitudes toward new species were monitored. A summary discussion of preliminary results is included.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
3. MPTS PERFORMANCE; MPTS MANAGEMENT; FARMER EVALUATION; FARMER FIELD DAYS; FARMER MEETINGS; OBSERVATIONAL METHODS

070

07901

A1

MUNNEKE, H.H.; VAN OYEN, E.V. (1987)

**SOCIO-ECONOMIC CONDITIONS IN THE HAMLET CHUKAL: A STUDY ON THE IMPACT OF THE BENDOSARI AGROFORESTRY SCHEME**

WORKING PAPER NO 11

KONTO RIVER PROJECT, MALANG, INDONESIA

XP/ID EN pp. 1-112

The Konto River Project is a Dutch-funded integrated rural development project with agroforestry component in Malang, Indonesia, and is implemented through DHV Consulting Engineers.

*Technology Evaluation:* Agroforestry trials were carried out with the objective of testing a production system on forest land that is managed by the local population, to develop appropriate soil conservation techniques, and to determine cropping patterns and plot sizes for adequate, sustained production and income.

*Project Impact:* Multi-visit, formal survey to evaluate the socio-economic impact of agroforestry technologies at the household level. Data were collected on inputs and benefits, distribution of labour, influence of participation in trials on socio-economic position, as well as opinion of participants and non-participants about the trials. A description of the methodology, discussion of results and questionnaire are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. TECHNOLOGY PERFORMANCE; ON-FARM EXPERIMENTS
4. SOCIO-ECONOMIC CHANGES; BENEFIT DISTRIBUTION; FARMER ATTITUDES; FORMAL FARMER SURVEYS
5. TAUNGYA AFFORESTATION; CONTOUR PLANTING

071

B05509

A1

DE WOLF, C. (1988)

**CARE'S DRYLAND FARMING SYSTEMS PROJECT: THE CONTRIBUTION OF AGROFORESTRY TO RURAL DEVELOPMENT IN THE HILLSIDES OF LOMBOK, INDONESIA**

FONC PROJECT COMMUNICATIONS NO. 1988 - 3

FACULTAS KEHUTANANA UNIVERSITAS GADJAL MADA, YOGYAKARTA, INDONESIA

XP/ID EN pp. 1-144

Impact evaluation case study of the CARE Dryland Farming Systems project in Lombok, Indonesia, conducted in the context of a M.Sc. thesis for Wageningen Agricultural University in the Netherlands.

*Project Impact:* Evaluation of the impact of project interventions on two villages representing different farming systems, and assessment of the project's contribution to rural development in the region. Multi-visit, informal surveys were conducted with a limited sample of participating and non-participating farmers, which was stratified

according to wealth. The survey was supplemented with field observations and had the objective to evaluate farmers' perceptions and motivations for adopting project technologies. Results for the two villages were compared and project impact was evaluated against the background of general regional developments.

1. AGROFORESTRY; FARMING SYSTEMS APPROACH; PROJECT; CASE STUDY
4. TECHNOLOGY ADOPTION; INFORMAL FARMER SURVEYS; SECONDARY DATA; OBSERVATIONAL METHODS
5. ALLEY CROPPING; CONTOUR PLANTING

072

10060

A1

NGAMSOMSUKE, K.; PRASAT SAENCHAI; PANOMSAK PROMBURON;  
BUNTHAM SURAPORN (1987)

**FARMERS' ATTITUDES TOWARD FOREST, PLANTATION AND  
CONSERVATION FARMING IN SELECTED VILLAGES OF THE PHU WIANG  
VALLEY, KHON KAEN**

**INTEGRATED DEVELOPMENT OF PHU WIANG WATERSHED PROJECT,  
KHON KAEN, THAILAND**

XP/TH EN pp. 1-156

UNDP-supported integrated rural development project in the Phu Wiang Watershed in Khon Kaen, Thailand.

*Technology Planning/Design:* Survey of farmer attitudes to obtain information for the planning of viable, integrated rural development and extension programmes. Methods used were rapid rural appraisal and a formal, single visit questionnaire survey of knowledge, perceptions and expectations of villagers. The survey addressed issues of natural forest usage, soil erosion, conservation farming, tree planting and implementation of project activities. A detailed description of the methodology, including comments on the combination of informal and formal survey techniques, as well as a summary of the results and a questionnaire are included.

1. RURAL DEVELOPMENT; PROJECT
2. FARMER ATTITUDES; RAPID RURAL APPRAISAL; FORMAL FARMER SURVEYS

073  
07900  
A1

NIBBERING, W. (1987)

**THE AGROFORESTRY TRIALS IN THE KONTIO RIVER PROJECT:  
EXPERIENCES AND ISSUES**

KONTO RIVER PROJECT, MALANG, INDONESIA

XP/ID EN pp. 1-172

The Kontio River Project is a Dutch-funded integrated rural development project with agroforestry component in Malang, Indonesia and is implemented through DHV Consulting Engineers.

*Technology Evaluation:* Agroforestry trials were carried out on forest land managed by landless farmers, with the objective of developing technically, socio-economically and institutionally sound land use systems. Agroforestry technologies to be tested were prescribed by the project and their performance under farmer management was monitored. Tree densities, crop yields, tree survival after 2-3 months and soil erosion were measured, while farmer response was assessed through informal discussions. A description of each method, biophysical results and a discussion of experiences are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY; ON-FARM RESEARCH
3. MPTS MANAGEMENT; FARMER EVALUATION; ON-FARM EXPERIMENTS; MEASUREMENTS; INFORMAL FARMER SURVEYS
5. MIXED INTERCROPPING; ON-FARM WOODLOTS; CONTOUR PLANTING

074  
09661  
A1

NYAMAI, D.; KIMONDO, J. (1988)

**TREE SURVIVAL COUNT: CARE AGROFORESTRY EXTENSION  
PROJECT(AEP), A SURVEY CONDUCTED IN SIAYA AND SOUTH NYANZA  
DISTRICTS**

KENYA FORESTRY RESEARCH INSTITUTE, NAIROBI, KENYA

XA/KE EN pp. 1-22

Report of a tree survival survey conducted by the Kenya Forestry Research Institute (KEFRI) for the CARE-supported Agroforestry Extension Project in western Kenya.

*Technology Evaluation:* Formal, questionnaire-based survival survey of trees planted during the 1986 and 1987 planting seasons to determine factors affecting tree survival on-farm. Data were collected on pre-and post-planting treatments, planting material and methods, species and agroforestry configurations. Computerized data analysis was carried out to determine tree survival rates by species and agro-ecological zone and to establish correlations with other variables. Data collection forms and results are included.

1. AGROFORESTRY; PROJECT; EXTENSION
3. MPTS PERFORMANCE; FORMAL FARMER SURVEYS
5. ALLEY CROPPING; BOUNDARY PLANTING; MIXED INTERCROPPING; LIVE FENCES; WOODLOTS; FRUIT TREES; FODDER BANKS; WINDBREAKS

075  
10049  
A1

OBERHOLZER, E. (1984)  
**CHARACTERIZATION OF THE TRADITIONAL AGROFORESTRY SYSTEM IN PALPA DISTRICT: THE STUDY OF KOKAL AND GOFEK TINAU WATERSHED PROJECT, PALPA, NEPAL**  
XP/NP EN pp. 1-43

The Tinau Watershed Project is an externally funded rural development project with agroforestry component in Palpa District of Nepal. It is jointly implemented by His Majesty's Government of Nepal, Helvetas and GTZ.

*Technology Planning/Design:* Formal survey of traditional agroforestry practices in two selected villages of the project area. Data were collected on social characteristics, land tenure, land use, crops, livestock, labour, water, and inputs and outputs of the production systems. Data collection methods included a questionnaire survey with 100 percent sample of households, field observations, random sampling of tree vegetation and preparation of maps of the study area based on aerial photographs. A description of the methodology, discussion of results and a questionnaire are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
2. TRADITIONAL AGROFORESTRY; FORMAL FARMER SURVEYS; GRAPHIC METHODS; RESOURCE INVENTORY; OBSERVATIONAL METHODS

076  
07066  
A1

OJEDA, J.M. (1984)  
**FARMER PARTICIPATION IN PLANTING MAHOGANY (*SWIETENIA MACROPHYLLA*) IN ASSOCIATION WITH AGRICULTURAL CROPS IN YARACANI, SANTA CRUZ**  
PARTICIPACION DE AGRICULTORES EN LA PLANTACION DE MORA (*SWIETENIA MACROPHYLLA*) EN ASOCIACION CON CULTIVOS AGRICOLAS EN YARACANI, SANTA CRUZ  
PNUD/FAO/BOL/83/003 DOCUMENTO DE CAMPO NO 4  
GOBIERNO DE BOLIVIA/FAO, LA PAZ, BOLIVIA  
XL/BO ES pp. 1-12

The Proyecto Desarrollo Agropecuario in Bolivia is an FAO-supported rural development project with agroforestry component for the establishment of improved production systems based on management and conservation of soils and other resources.

*Technology Evaluation:* On-farm testing of taungya systems with pilot farmers. Field measurements of tree heights and survival were taken after 12 months and labour requirements were monitored on a regular basis. A description of the methodology and results is included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; ON-FARM EXPERIMENTS; MEASUREMENTS
5. TAUNGYA AFFORESTATION

077

06128

A2

OKALI, C.; CASSADAY, K. (1985)

**COMMUNITY RESPONSE TO A PILOT FARMING PROJECT IN NIGERIA**

DISCUSSION PAPER NO 10

AFRICAN-AMERICAN ISSUES CENTRE, BOSTON, USA

XA/NG EN pp. 1-28

Study of community responses to an on-farm alley cropping research programme in southwestern Nigeria, in conjunction with ILCA's small ruminant production improvement programme for the humid tropics of West Africa.

*Project Impact:* The socio-economic study had the following components: a survey of the community as a whole; intensive interviews with individuals and groups about reasons why certain categories of people were under-represented in the alley farming population; collection of information on male and female participants; recording of farming events throughout the year; and regular farm visits to evaluate their potential as alley farms. A general discussion of the methodology, results and implications for further research is included.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
4. SOCIO-ECONOMIC CHANGES; FARMER ATTITUDES; BENEFIT DISTRIBUTION; FORMAL FARMER SURVEYS; INFORMAL FARMER SURVEYS; FARM VISITS
5. ALLEY CROPPING

078  
08144  
A1

**ONIM, J.F.M.; SEMENYE, P.P.; FITZHUGH, H.A.; MATHUVA, M. (1985)**  
**RESEARCH ON FEED RESOURCES FOR SMALL RUMINANTS ON**  
**SMALLHOLDER FARMS IN WESTERN KENYA**  
ANIMAL FEED RESOURCES FOR SMALL-SCALE LIVESTOCK PRODUCERS.  
PROCEEDINGS OF THE SECOND PANESA WORKSHOP, 11-15 NOVEMBER  
1985, NAIROBI, KENYA  
XA/KE EN pp. 149-158

The Collaborative Research Support Project is a USAID-sponsored small ruminants research project in western Kenya. The report describes research activities and findings of the project's feed resources component, which includes on-station and on-farm agroforestry research.

*Technology Planning/Design:* A survey was conducted to estimate the productivity and quality of pastures on roadsides and fallow land. Data were collected through random sampling along an altitudinal transect and weighing of fresh and oven-dry vegetation. Periodic surveys of on-farm pastures were carried out during one year to estimate the production of alternative feed resources such as crop residues, fence and hedgerow cut and carry, crop thinnings and leaf strippings. Goat grazing patterns and forage preferences were monitored through field observations and a survey was carried out to identify fodder types sold at local markets. A description of the methodology and results for each activity are included.

1. AGROFORESTRY; PROJECT; RESEARCH
2. EXISTING NATURAL RESOURCES; FORMAL FIELD SURVEYS;  
RESOURCE INVENTORY; OBSERVATIONAL METHODS;  
MEASUREMENTS
5. TREES IN GRAZING LAND; FODDER BANKS; MIXED  
INTERCROPPING; LIVE FENCES; ALLEY CROPPING; BOUNDARY  
PLANTING

079  
08006  
A1

**NIANG, A.I. (1987)**  
**PROVISIONAL DIAGNOSTIC SURVEY GUIDELINES**  
**GUIDE PROVISOIRE D'ENQUETE DIAGNOSTIQUE**  
SAFGRAD, BURKINA FASO  
XA/BF EN pp. 1-13

*Technology Planning/Design:* Diagnostic survey for the National Programme for Research on Agricultural Production Systems in Burkina Faso to identify farming systems problems and agroforestry research needs and potentials. The data were collected through semi-structured interviews using an interview guide. The survey covered land use history, resources (land, labour, water, crops, trees, livestock), expenditures and income sources, savings and investments, crop and livestock

production strategies, problems and constraints, household energy and raw materials. Survey questions and implementation guidelines are included.

1. AGROFORESTRY; FARMING SYSTEMS APPROACH; SURVEYS; CASE STUDY
2. FARMING SYSTEMS DESCRIPTION; PROBLEM IDENTIFICATION; FORMAL FARMER SURVEYS

080

08647

A2

OSTBERG, W. (1987)

**UNDERSTANDING TREE PLANTING IN WEST POKOT, KENYA**  
SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES, UPPSALA,  
SWEDEN

XA/KE EN pp. 1-4

Report from a tree planting extension project in two different ecological zones of Kitale District, Kenya, which is supported by the Swedish VI Magazine.

*Technology Planning/Design:* Baseline survey in the semi-arid Pokot lowlands on farmers' traditional tree management practices and attitudes toward trees. The data were collected through a review of secondary information, informal interviews with key informants and farmer meetings. Topics covered were land tenure, decision-making processes, farming and animal husbandry, knowledge of tree species, propagation and uses, attitudes toward trees and tree planting. A general description of the methodology is included.

1. AGROFORESTRY; PROJECT; EXTENSION
2. BASELINE DATA; TRADITIONAL TREE GROWING; FARMER ATTITUDES; SECONDARY DATA; INFORMAL FARMER SURVEYS; FARMER MEETINGS
5. BOUNDARY PLANTING; ON-FARM WOODLOTS; LIVE FENCES; TREES IN GRAZING LAND; MIXED INTERCROPPING; CONTOUR PLANTING

081

09638

A1

PALADA, M.C.; EZERIBE, A.C. (1988)

**AN AGRONOMIC EVALUATION OF FARMER-MANAGED ALLEY CROPPING TRIALS IN SOUTHWESTERN NIGERIA**

PAPER PRESENTED AT THE NATIONAL FARMING SYSTEMS RESEARCH WORKSHOP AT UNIVERSITY OF JOS, 10-13 MAY, IBADAN, NIGERIA  
IITA, IBADAN, NIGERIA

XA/NG EN pp. 1-24

Report on on-farm alley cropping research by the Resource and Crop Management Programme of IITA in Nigeria.

*Technology Evaluation:* On-farm research trials were established to evaluate farmer management of alley cropping as an alternative to the traditional bush fallow system; to determine the agronomic feasibility of alley cropping under existing environmental conditions; to evaluate crop performance; and to monitor soil fertility changes. Measurements were taken of tree survival after one month and of tree height, biomass production from pruning, crop yields and soil fertility. The methodology used for farmer selection and trial design and establishment is explained in the report.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
3. MPTS MANAGEMENT; TECHNOLOGY PERFORMANCE; ON-FARM EXPERIMENTS; MEASUREMENTS
5. ALLEY CROPPING

082

06056

A1

POSCHEN, P. (1986)

**AN EVALUATION OF THE *ACACIA ALBIDA* BASED AGROFORESTRY PRACTICES IN THE HARAGHE HIGHLANDS OF EASTERN ETHIOPIA**

AGROFORESTRY SYSTEMS Vol 4

XA/ET EN pp. 129-143

Study of traditional agroforestry systems, carried out in the context of a programme to develop appropriate agroforestry models for the Haraghe Highlands of eastern Ethiopia, by Alemaya College and the Ethiopia Forest Authority.

*Technology Evaluation:* Comparison plots of existing agroforestry systems in farmers fields were used to determine the influence of trees on crop yields. The plots were monitored through measurements of tree heights, diameters and crown widths and of crop yields. A description of the research methodology and results is included. Results of other components of the study, i.e. the identification of constraints and shortcomings of current agroforestry practices, reasons for their limited distribution and potentials for extension are discussed, but information sources and data collection methods are not provided.

1. AGROFORESTRY; PROJECT; RESEARCH
3. EXISTING TECHNOLOGIES; ON-FARM PLOT MONITORING; MEASUREMENTS

083  
09311  
A2

**PROJET D'APPUI AU REBOISEMENT VILLAGEOIS (1987)  
ANNUAL REPORT FOR THE THIRD CAMPAIGN, 1.4.86 - 31.3.87  
RAPPORT ANNUEL TROISIEME CAMPAGNE 1.4.86 - 31.3.87  
PROJET D'APPUI AU REBOISEMENT, MADAGASCAR  
XA/MG FR pp. 1-130**

Swiss-funded forestry development project in Madagascar for watershed protection and production of timber and firewood through on-farm tree planting. The annual report describes activities and achievements, including a general overview of project monitoring without specific information on methods used.

*Technology Planning/Design:* Baseline survey; village meetings to determine interest in tree planting; biophysical site description through inventory of forest resources, botanical analysis of selected plots and aerial photographs.

*Technology Evaluation:* Species trials to monitor growth performance of trees; field observations of technology performance in demonstration fields; measurements of soil loss; follow-up farm visits after tree planting to determine planting configurations, survival rates of trees and farmers' species preferences at tree establishment stage; second follow-up survey at tree management stage (3-5 years after planting) to evaluate tree survival and maintenance. Technology performance evaluations are described in more detail in the Annual Report for 1988.

*Project Impact:* Yearly socio-economic survey with participants and non-participants to show evidence of correlations between socio-economic context and forestry efforts, and evolution of participation in project activities. No information is provided about survey methods.

1. FORESTRY; PROJECT; AGROFORESTRY
2. BASELINE DATA; TREE PLANTING INTEREST; BIOPHYSICAL SITE DESCRIPTION; RESOURCE INVENTORY; GRAPHIC METHODS; FARMER MEETINGS
3. MPTS PERFORMANCE; FARMER EVALUATION; TECHNOLOGY PERFORMANCE; RESEARCH PLOT EXPERIMENTS; OBSERVATIONAL METHODS; MEASUREMENTS; FORMAL FIELD SURVEYS
5. ON-FARM WOODLOTS; BOUNDARY PLANTING; CONTOUR PLANTING; TREES IN GRAZING LAND; MIXED INTERCROPPING; TREES AROUND HOMESTEADS

084  
09312  
A2

**PROJET D'APPUI AU REBOISEMENT VILLAGEOIS (1988)  
ANNUAL REPORT '88: ANNEXES 1 AND 4 AND DIDACTIC MATERIALS  
RAPPORT ANNUEL '88: ANNEXES 1 ET 4 ET MATERIELS DIDACTIQUES  
PROJET D'APPUI AU REBOISEMENT VILLAGEOIS, MADAGASCAR  
XA/MG FR pp. 1-24**

Swiss-funded forestry development project in Madagascar for watershed protection and production of timber and firewood through on-farm tree planting. The Annex to the Annual Report describes the project's M&E procedure.

*Technology Evaluation:* Performance evaluations are carried out at tree establishment stage by an elected evaluation committee. The following aspects are evaluated using a point system based on quality and performance: nursery techniques, plantation (planting techniques, timing, species preferences, planting configurations), maintenance (survival, growth). A second evaluation is carried out at the tree management stage, 3-5 years after planting, using the same methodology.

1. FORESTRY; PROJECT; AGROFORESTRY; EVALUATION
3. MPTS PERFORMANCE; FORMAL FIELD SURVEYS

085

09305

A1

PROYECTO DESARROLLO AGROFORESTAL DEL VALLE DE TARIJA (1988)  
FUELWOOD STUDY  
ESTUDIO DE LA LENA  
PROYECTO DESARROLLO DEL VALLE DE TARIJA, BOLIVIA  
XL/BO ES pp. 1-31

GTZ-supported agroforestry development project in the semi-arid highlands of Bolivia.

*Technology Planning/Design:* Field survey of natural woody vegetation to evaluate the potential of selected tree species for firewood production. Tree height, stem and crown diameter were measured and wood production, mean annual increment and age of trees were estimated through destructive sampling. A detailed description of the survey methodology and discussion of results is included.

1. AGROFORESTRY; PROJECT; RESEARCH
2. EXISTING NATURAL RESOURCES; FORMAL FIELD SURVEYS; MEASUREMENTS; DESTRUCTIVE SAMPLING

086

09323

A1

PROYECTO DESARROLLO AGROFORESTAL DEL VALLE DE TARIJA (1989)  
ESTABLISHMENT OF PROTECTION FORESTS WITH LEGUMINOUS TREES  
THROUGH DIRECT SEEDING METHODS  
ESTABLECIMIENTO DE BOSQUES DE PROTECCION CON LEGUMINOSAS  
ARBOREAS A TRAVES DE LA APLICACION DE METODOS DE SIEMBRA  
DIRECTA  
PROYECTO DESARROLLO AGROFORESTAL DEL VALLE DE TARIJA,  
BOLIVIA  
XL/BO ES pp. 1-14

GTZ-supported agroforestry development project in the semi-arid highlands of Bolivia.

*Technology Evaluation:* Direct seeding trials in research plots with leguminous species to develop appropriate methods for tree establishment. Germination rate and tree growth were monitored through field measurements. In addition, experiments were conducted with seed pre-treatment and site preparation techniques. Methodology and results are included.

1. AGROFORESTRY; PROJECT; RESEARCH
3. MPTS PERFORMANCE; RESEARCH PLOT EXPERIMENTS

087

09671

A2

ROBERTS, M. (1982)

**PROGRESS REPORT JANUARY TO AUGUST 1982**

**FUEL AND FODDER PROJECT, BARINGO, KENYA**

XA/KE EN pp. 1-41

The Baringo Fuel and Fodder Project is a Dutch-funded forestry development project in the semi-arid Baringo District of Kenya for rehabilitation of denuded, community-owned land and to establish local management of improved areas, while increasing the availability of fuelwood and fodder for local people.

*Technology Evaluation:* Monitoring of seedling survival after two months through field measurements; experimental plots to determine optimal spacing and location of trees, species suitability and site preparation techniques.

1. FORESTRY; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; MPTS ARRANGEMENTS; MEASUREMENTS; RESEARCH PLOT EXPERIMENTS
5. MIXED INTERCROPPING

088

09670

A2

ROBERTS, M. (1983)

**PROGRESS REPORT SEPTEMBER 1982 TO OCTOBER 1983**

**FUEL AND FODDER PROJECT, BARINGO, KENYA**

XA/KE EN pp. 1-36

The Baringo Fuel and Fodder Project is a Dutch-funded forestry development project in the semi-arid Baringo District of Kenya for the rehabilitation of denuded, community-owned land and to establish local management of improved areas, while increasing the availability of fuelwood and fodder for local people.

*Technology Evaluation:* Photographs were taken to visually portray the growth performance of trees and grasses in fenced project fields. Measurements of tree survival and tree height were taken after 18 months and labour requirements were monitored on a regular basis. A summary of the results is included. The report provides no further information on specific methods.

1. FORESTRY; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; GRAPHIC METHODS; MEASUREMENTS
5. MIXED INTERCROPPING

089

09669

A2

ROBERTS, M. (1985)

**PROGRESS REPORT NOVEMBER 1983 TO MARCH 1985**

FUEL AND FODDER PROJECT, BARINGO, KENYA

XA/KE EN pp. 1-37

The Baringo Fuel and Fodder Project is a Dutch-funded forestry development project in the semi-arid Baringo District of Kenya for the rehabilitation of denuded, community-owned land and to establish local management of improved areas, while increasing the availability of fuelwood and fodder for local people.

*Technology Evaluation:* Field days were organized with project participants to discuss technology performance in the fenced project fields. Periodic measurements were taken of survival rates and growth performance of trees, and labour requirements were monitored. In controlled grazing experiments the time required to graze a field was measured as an indication of grazing needs and grazing potential of fields. The ecological requirements and traditional utilization of indigenous trees were investigated. A summary of the results is included.

1. FORESTRY; PROJECT; AGROFORESTRY
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; MPTS PERFORMANCE; FARMER FIELD DAYS; MEASUREMENTS; RESEARCH PLOT EXPERIMENTS
5. MIXED INTERCROPPING

090

09668

A2

ROBERTS, M. (1987)

**PROGRESS REPORT JANUARY TO DECEMBER 1986**

FUEL AND FODDER PROJECT, BARINGO, KENYA

XA/KE EN pp. 1-50

The Baringo Fuel and Fodder Project is a Dutch-funded forestry development project in the semi-arid Baringo District of Kenya for the rehabilitation of denuded, community-owned land and to establish local management of improved areas, while increasing the availability of fuelwood and fodder for local people.

*Technology Evaluation:* Periodic measurements were taken of survival rates and growth performance of trees. Labour requirements, grass harvests and controlled grazing in fenced project fields were monitored. Destructive sampling of trees was carried out to collect data on biomass production and to determine the carrying capacity of fields. A summary of the results is included.

1. FORESTRY; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; TECHNOLOGY PERFORMANCE; MEASUREMENTS; RESEARCH PLOT EXPERIMENTS; DESTRUCTIVE SAMPLING
5. MIXED INTERCROPPING

091

07368

A1

ROLA, W.R. (1986)

**AN IMPACT ASSESSMENT OF THE JALA-JALA AGROFORESTRY AREA: A MULTI-DIMENSIONAL APPROACH**

UNIVERSITY OF THE PHILIPPINES, LOS BANOS, PHILIPPINES

XP/PH EN pp. 1-45

Study of the Jala Jala agroforestry area in Rizal Province of the Philippines, conducted by the University of the Philippines in conjunction with a social forestry programme of the Ministry of Natural Resources.

*Project Impact:* Evaluation of the socio-economic and environmental impact of agroforestry activities in the area. Informal farmer interviews were conducted to collect data on the extent of tree planting. Measurements of soil fertility and erosion were taken comparing agroforestry and non-agroforestry areas. Socio-economic and environmental variables were correlated to evaluate mutual influences. A description of the methodology and discussion of results is included.

1. AGROFORESTRY; PROJECT; EVALUATION
3. ON-FARM PLOT MONITORING; MEASUREMENTS
4. SOCIO-ECONOMIC CHANGES; ENVIRONMENTAL IMPACT; TREES PLANTED; INFORMAL FARMER SURVEYS
5. CONTOUR PLANTING

092  
10045  
A1

RORISON, K.M.; DENNISON, S.E. (1986)  
**MAJJIA VALLEY WINDBREAK EVALUATION: WINDBREAK AND WINDBREAK  
HARVESTING INFLUENCES ON CROP PRODUCTION, 1985 GROWING  
SEASON**

CARE INTERNATIONAL, NIAMEY, NIGER  
XA/NE EN pp. 1-87

CARE-supported development project to establish windbreaks in the semi-arid Majjia Valley of Niger for erosion control and increased wood supply.

*Technology Evaluation:* Special study to compare crop production in areas with and without windbreaks, to determine the effect of tree harvesting methods on crop yields and to evaluate the shading effect of trees and tree/root interactions. Field measurements were taken in on-farm, farmer-managed sample plots. A detailed description of the methodology and discussion of results is included.

1. AGROFORESTRY; PROJECT; EVALUATION
3. TECHNOLOGY PERFORMANCE; ON-FARM PLOT MONITORING;  
MEASUREMENTS
5. WINDBREAKS

093  
10062  
A1

RUEDENAUER, M.; IMBORIBOON, N.; KAOWKA, N.; CHANDRAWONGSY, T.  
(1988)

**EFFECTS OF AFFORESTATION ON THE FODDER AVAILABILITY IN  
RECLAIMED *IMPERATA* AREAS IN NORTH EAST THAILAND: PRELIMINARY  
APPRAISAL**

THAI-GERMAN LAND SETTLEMENT PROMOTION PROJECT, BANGKOK,  
THAILAND

XP/TH EN pp. 1-4

GTZ-supported rural development project with agroforestry component in northeastern Thailand.

*Technology Evaluation:* Study to quantify the effect of *Eucalyptus* on weed suppression and the resulting increase in fodder availability. Regular measurements were taken of the height growth of grasses, botanical composition, green and dry biomass and fodder quality in randomly selected sample plots on grazing land. A description of the methodology and results is included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. TECHNOLOGY PERFORMANCE; ON-FARM PLOT MONITORING;  
MEASUREMENTS
5. TREES IN GRAZING LAND

094

10056

A2

SAVANJE, H. (1987)

**REVIEW OF THE AGROFORESTRY PROGRAMME IN YOHUMBUGODAHANDA.  
ADVISORY REPORT ON JOINT FORESTRY MISSION**

INTEGRATED RURAL DEVELOPMENT PROJECT, RATNAPURA, INDIA  
(UNPUBLISHED DRAFT)

XP/IN EN pp. 59-76

Review of pilot agroforestry activities in an integrated rural development project in Ratnapura, India.

*Technology Evaluation:* On-farm agroforestry trials were established with a technology package developed by the project. Farmer response to the new technology was monitored through village meetings, field observations, farmer consultations and a participation study. A description of methods and results is included.

1. RURAL DEVELOPMENT; AGROFORESTRY; PROJECT
3. FARMER EVALUATION; ON-FARM EXPERIMENTS; FARMER MEETINGS; OBSERVATIONAL METHODS
5. TAUNGYA AFFORESTATION; MIXED INTERCROPPING; LIVE FENCES

095

09664

A1

SCHERR, S.J. (1987)

**PILOT SURVEY OF ADOPTED AGROFORESTRY PRACTICES IN THE CARE  
AGROFORESTRY EXTENSION PROJECT**

AGROFORESTRY DEVELOPMENT IN KENYA REPORT NO 6

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-34

ICRAF report for the CARE-supported Agroforestry Extension Project in western Kenya, which collaborates with ICRAF on issues of technology design, monitoring and evaluation.

*Technology Evaluation:* A preliminary survey was carried out with a limited sample of farmers to document the adoption of agroforestry technologies. Survey objectives were to test variables for field data collection; to explore types of information needed for economic analysis; to prepare for the design of a formal adoption survey and computerized information system; and to evaluate the potential for on-farm research. The data were collected through farmer interviews, field observations and measurements for each technology. Topics covered in the interviews included prior land use, tree species planted on-farm, associated crops and their basic management, tree spacing, establishment, management, harvest, labour inputs, cash income, tree planting prior to the project and diffusion of agroforestry technologies. A description of methods and results is included.

1. AGROFORESTRY; PROJECT; EXTENSION

3. MPTS MANAGEMENT; TECHNOLOGY PERFORMANCE; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS
5. ALLEY CROPPING; MIXED INTERCROPPING; FODDER BANKS; LIVE FENCES; ON-FARM WOODLOTS; BOUNDARY PLANTING; WINDBREAKS

096

09665

A1

SCHERR, S.J. (1988)

**CARE AGROFORESTRY EXTENSION PROJECT DESIGN SURVEY**

ICRAF-CARE PROJECT REPORT NO 13

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-20

ICRAF report for the CARE-supported Agroforestry Extension Project in western Kenya, which collaborates with ICRAF on issues of technology design, monitoring and evaluation.

*Technology Evaluation:* Formal questionnaire survey with households that had participated in the project for more than one year, to evaluate farmer management and adaptation of alley cropping and tree borders in cropland. The survey's objective was to provide reliable information on farmers' experiences to be used in developing better agroforestry recommendations. The report contains the questionnaire and guidelines for survey enumerators.

1. AGROFORESTRY; PROJECT; EXTENSION
3. FARMER EVALUATION; MPTS MANAGEMENT; TECHNOLOGY PERFORMANCE; FORMAL FARMER SURVEYS
5. ALLEY CROPPING; MIXED INTERCROPPING; FODDER BANKS; LIVE FENCES; ON-FARM WOODLOTS; BOUNDARY PLANTING; WINDBREAKS

097

09663

A1

SCHERR, S.J. (1988)

**CURRENT AGROFORESTRY PRACTICES AND EXTENSION**

**RECOMMENDATIONS OF THE CARE AGROFORESTRY PROJECT: RESULTS OF THE FIRST TECHNOLOGY EVALUATION WORKSHOP FEBRUARY 18 TO MARCH 2, 1988**

ICRAF-CARE PROJECT REPORT NO 8

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-58

ICRAF report for the CARE-supported Agroforestry Extension Project in western Kenya, which collaborates with ICRAF on issues of technology design, monitoring and evaluation.

*Technology Evaluation:* Project staff workshop with ICRAF participation to summarize the current state of extension staff knowledge about agroforestry technology performance in farmers' fields, which is based on informal feedback from farmers and casual field observations by extension staff. Topics discussed were concepts of agroforestry technology design and technology specifications, which included current designs, preliminary research findings and research needs. A summary of workshop results is included.

1. AGROFORESTRY; PROJECT; EXTENSION
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; FORMAL FARMER SURVEYS
5. ALLEY CROPPING; MIXED INTERCROPPING; FODDER BANKS; LIVE FENCES; ON-FARM WOODLOTS; BOUNDARY PLANTING; WINDBREAKS

098

09662

A1

SCHERR, S.J.; ODUOL, P.A. (1988)

**FARMER ADOPTION OF ALLEY CROPPING AND BORDER PLANTING IN THE CARE AGROFORESTRY EXTENSION PROJECT. PART 1: SURVEY DESIGN AND EVALUATION OF HOUSEHOLDS SAMPLED**

ICRAF-CARE PROJECT REPORT NO 15

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-17

ICRAF report for the CARE-supported Agroforestry Extension Project in western Kenya, which collaborates with ICRAF on issues of technology design, monitoring and evaluation.

*Technology Evaluation:* Formal questionnaire survey with households that had participated in the project for more than one year to evaluate farmer management and adaptation of alley cropping and tree borders in crop land. The survey objective was to provide reliable information on farmers' experiences for development of better design recommendations. The report describes the methodology used for survey design, implementation and analysis and presents results related to farm labour, household employment, land availability, extension assistance, and factors affecting adoption of technologies. The survey questionnaire may be found in ICRAF-CARE Report No 13 (Scherr 1988).

1. AGROFORESTRY; PROJECT; EXTENSION
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; FORMAL FARMER SURVEYS
5. ALLEY CROPPING; MIXED INTERCROPPING; FODDER BANKS; LIVE FENCES; ON-FARM WOODLOTS, BOUNDARY PLANTING; WINDBREAKS

099

09589

A1

SCOONES, I. (1988)

**COMMUNITY MANAGEMENT OF INDIGENOUS WOODLAND PROJECT:  
ZVISHAVANE AND CHIVI DISTRICTS**

ENDA, HARARE, ZIMBABWE

XA/ZW EN pp. 1-59

The paper consists of a series of consultant's reports about the ENDA-supported project for natural woodland management and agroforestry development in the Zvishavane and Chivi Districts of Zimbabwe.

*Technology Planning/Design:* Informal interviews and group meetings with farmers to gather baseline information on existing woodland management, for problem identification and assessment of needs and interests. Data were collected on woodland types and related problems, species preferences for different planting locations and configurations and intended tree management. Vegetation transects were established to quantify the composition of natural woodlands and to investigate the natural resource situation through direct observation and discussions with farmers. Through a priority ranking exercise species preferences of farmers were identified. Browse species preferences by cattle were determined through field observations and the quantity of browse was measured. A description of methods, an interview guide form and guidelines for priority ranking are included.

*Technology Evaluation:* Informal interviews to identify tree species planted in grazing areas, problems, and farmer response to planting configurations. A monitoring form is included. Through comparison plots the effect of fencing on tree survival, natural regeneration and grassland production was determined. A brief description of the research methodology is included.

1. AGROFORESTRY; PROJECT
2. BASELINE DATA; TRADITIONAL AGROFORESTRY; EXISTING NATURAL RESOURCES; PROBLEM IDENTIFICATION; INFORMAL FARMER SURVEYS; RESOURCE INVENTORY; OBSERVATIONAL METHODS; PRIORITY RANKING; MEASUREMENTS
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; INFORMAL FARMER SURVEYS; RESEARCH PLOT EXPERIMENTS
5. NATURAL WOODLAND MANAGEMENT; MIXED INTERCROPPING; CONTOUR PLANTING; LIVE FENCES; TREES AROUND HOMESTEADS; FRUIT TREES

100  
09306  
A1

SEGLEAU, J.; MORA FERNANDEZ, F. (1987)  
**CATIE-DGF-GTZ AGROFORESTRY RESEARCH PROJECT IN TALAMANCA:  
SUMMARY RESULTS OF A SURVEY WITH FARMERS IN TALAMANCA  
PROYECTO DE INVESTIGACION AGROFORESTAL TALAMANCA CATIE-  
DGF-GTZ: RESUMEN RESULTADOS DE ENTREVISTAS A AGRICULTORES  
DE TALAMANCA  
DIRECCION GENERAL FORESTAL, SAN JOSE, COSTA RICA  
(UNPUBLISHED DRAFT)  
XL/CR ES pp. 1-27**

CATIE/GTZ agroforestry on-farm research project in the tropical lowlands of the Atlantic zone in Costa Rica.

*Technology Planning/Design:* Informal questionnaire survey to identify agricultural practices and to determine farmer interest in fruit and timber trees and alternative cash crops. Further objectives of the survey were to assess the general condition of farms and of plants received from communal nurseries, and to identify farmers for participation in on-farm trials. Additional data were collected through on-farm observations and farm sketches. The report includes a detailed description of the methodology and a discussion of results. The questionnaire is appended.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH
2. FARMER SELECTION; TREE PLANTING INTEREST; INFORMAL FARMER SURVEYS; GRAPHIC METHODS; OBSERVATIONAL METHODS

101  
09321  
A2

SIEW TUAN CHEW (1988)  
**RWANDA NATURAL RESOURCES MANAGEMENT PROJECT MONITORING  
AND EVALUATION PLAN  
USAID, WASHINGTON, D.C., USA (UNPUBLISHED DRAFT)  
XA/RW EN pp. 1-12**

Monitoring and evaluation plan developed for a new, USAID-supported natural resources management project in Rwanda, which includes an agroforestry extension component.

*Technology Evaluation:* Farmer adoption and adaptation of technologies are to be monitored through periodic field surveys adapted from those used by the CARE Gituza Forestry Project (see Mueller 1988).

*Project Impact:* Socio-economic impact will be monitored through informal farmer surveys. Information to be collected includes the use of project inputs and benefits obtained by farmers and problems experienced. The first survey is to be conducted after the second project year, followed by a second survey after year 4-5. Proposed methods are farmer interviews using RRA techniques. Surveys with traders and

merchants will be used to obtain information on products sold by farmers, prices for crops and tree products and non-economic benefits as a basis for estimating economic impact. Periodic measurements of soil loss will be taken from a sample of farm plots to evaluate the effect of technologies on soil erosion.

1. NATURAL RESOURCES MANAGEMENT; AGROFORESTRY; PROJECT; EXTENSION; M&E SYSTEM
3. TECHNOLOGY PERFORMANCE; FARMER EVALUATION; FORMAL FIELD SURVEYS; ON-FARM PLOT MONITORING; MEASUREMENTS
4. SOCIO-ECONOMIC CHANGES; BENEFIT DISTRIBUTION; TECHNOLOGY ADOPTION; ENVIRONMENTAL IMPACT; INFORMAL FARMER SURVEYS

102

10297

A1

STUMMHEIT, P.; KAONGA, Y.; BOMMER, F.; TOPITACH, H.; HEBEENZU, S. (1988)

**EVALUATION OF A SOIL CONSERVATION AND AGROFORESTRY NEEDS ASSESSMENT STUDY CONDUCTED IN MAYABUKA DISTRICT OF ZAMBIA**  
DEPARTMENT OF AGRICULTURE, LUSAKA, ZAMBIA  
XA/ZM EN pp. 1-31

Special study for the soil conservation programme of the Zambia Department of Agriculture in Southern Province by Lusome Services, a rural development NGO. *Technology Planning/Design*: Formal, single visit questionnaire survey with farmers to obtain information on indigenous knowledge, constraints, problems and needs related to soil conservation and agroforestry, to serve as the basis for the development of appropriate extension strategies. Topics covered in the survey were soil conservation problems, fuelwood shortages, fencing needs and methods, fodder availability, tree planting, species preferences, tree utilization, interest in tree planting and past extension experiences. A description of survey methodology and results is included, but no questionnaire.

1. SOIL CONSERVATION; PROJECT; AGROFORESTRY
2. NEEDS ASSESSMENT; PROBLEM IDENTIFICATION; INDIGENOUS KNOWLEDGE; TREE PLANTING INTEREST; FORMAL FARMER SURVEYS

103

10070

A1

**THE PHILIPPINES RAINFED RESOURCES DEVELOPMENT PROJECT (1988)**  
**MONITORING AND EVALUATION FOR AGROFORESTRY**  
USAID, MANILA, PHILIPPINES (UNPUBLISHED DRAFT)  
XP/PH EN pp. 1-5

The Philippines Rainfed Resources Development Project is a USAID-supported rural development project with agroforestry component.

*Technology Planning/Design:* Rapid rural appraisals to identify farmers' problems and needs. The report provides no information about methodology and content of the appraisals.

*Technology Evaluation:* Rapid rural appraisals are conducted at various stages of project implementation to monitor progress. Yearly participatory farmer evaluations are used to discuss technologies established on-farm, objectives, problems and potential improvements. In addition, farm records are kept by farmers on physical layout and farm planning, inventory, production, technical and labour inputs.

*Project Impact:* Land use maps indicating the agroforestry area are updated on a yearly basis to monitor changes. Project impact on labour and equity is monitored at the community level. The report provides no further information on specific methods.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY; M&E SYSTEM
2. PROBLEM IDENTIFICATION; NEEDS ASSESSMENT; RAPID RURAL APPRAISAL
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; FARMER MEETINGS; RECORD KEEPING
4. LAND USE CHANGES; BENEFIT DISTRIBUTION; GRAPHIC METHODS
5. ALLEY CROPPING; MIXED INTERCROPPING; BOUNDARY PLANTING

104

09640

A1

THE ZIMBABWE FORESTRY COMMISSION (1989)

**SHIRUGWI AGROFORESTRY TRIALS 1988/89: AGROFORESTRY PILOT PROJECT**

THE ZIMBABWE FORESTRY COMMISSION, HARARE, ZIMBABWE

XA/ZW EN pp. 1-25

The Agroforestry Pilot Project for Zimbabwe's Communal Lands is an on-farm research and extension project funded by the Ford Foundation and implemented by the Zimbabwe Forestry Commission.

*Technology Planning/Design:* A D&D training exercise was conducted with field staff in the project area, which was simultaneously used for site selection, establishment of initial contacts with farmers and preliminary design of agroforestry technologies. Agroforestry species were selected through field visits and review of secondary information, and on-farm trial design was finalized through farmer workshops and field observations. A description of the methodology is included.

*Technology Evaluation:* Based on the D&D results and farmer workshops, on-farm agroforestry experiments were established with all technologies. A detailed description of each trial design is provided in terms of: objectives, species, rationale, existing practices, site characteristics, layout, site preparations, protection measures, trial management and measurements.

1. AGROFORESTRY; PROJECT; ON-FARM RESEARCH; EXTENSION

2. D&D; SITE SELECTION; TECHNOLOGY DESIGN; FARMER MEETINGS; SECONDARY DATA; OBSERVATIONAL METHODS
3. TECHNOLOGY PERFORMANCE; ON-FARM EXPERIMENTS
5. ON-FARM WOODLOTS; LIVE FENCES; BOUNDARY PLANTING; CONTOUR PLANTING; FODDER BANKS; IMPROVED FALLOWS

105

10053

A1

THONGMEE, U. (1987)

**RESEARCH ON RUNOFF, EROSION AND BIOMASS PRODUCTION ON PLOTS WITH DIFFERENT LAND USE IN THE PHU WIANG WATERSHED**

PAPER PRESENTED AT ECOLOGICAL APPLICATIONS WRITING

WORKSHOP, SEPTEMBER 21-25, HONOLULU, HAWAII

EAST-WEST CENTRE, HONOLULU, HAWAII, USA

XP/TH EN pp. 1-12

Research report from an integrated rural development project with agroforestry component in the Phu Wiang watershed of northeastern Thailand, which is supported by UNDP.

*Technology Planning/Design:* Survey of farmer attitudes toward forestry and conservation farming (see Ngamsomsuke 1987).

*Technology Evaluation:* Agroforestry research and demonstration plots were established to evaluate and demonstrate alley cropping technologies. Research results were to be incorporated into the extension/education programme of the project. The plots were monitored through field measurements of runoff, sedimentation and biomass production, tree height and diameter. A description of the methodology is included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY; RESEARCH
3. TECHNOLOGY PERFORMANCE; DEMONSTRATION PLOT MONITORING
5. ALLEY CROPPING; MIXED INTERCROPPING; FRUIT TREES

106

09623

A1

SOIL EROSION CONTROL AND AGROFORESTRY PROJECT (1987)

**MONITORING AND EVALUATION SECTION: PLAN OF OPERATION 1987-1988**

SOIL EROSION CONTROL AND AGROFORESTRY PROJECT, LUSHOTO, TANZANIA (UNPUBLISHED DRAFT)

XA/TZ EN pp. 1-7

The Soil Erosion Control and Agroforestry Project is a subcomponent of a GTZ-supported, integrated rural development programme in the Usambara region of northeastern Tanzania.

*Technology Evaluation:* Farm and village level survey to evaluate project achievements. Data were collected on extent of tree planting, species demand, tree survival and condition, and overall performance of trees. No information is provided about the survey methodology.

*Project Impact:* A formal questionnaire survey was carried out at the farm level, comparing practices by farmers within and outside the project area, with the objective to assess technology adoption and diffusion. Survey information included application of project recommendations by farmers, their impact on agricultural production, problems that may affect adoption, problem solutions attempted by farmers, tree survival and performance, and farmers' opinions about extension performance. A description of the methodology is included.

1. SOIL CONSERVATION; PROJECT; AGROFORESTRY
3. MPTS PERFORMANCE; FORMAL FARMER SURVEYS
4. TREES PLANTED; TECHNOLOGY ADOPTION; TECHNOLOGY DIFFUSION; FORMAL FARMER SURVEYS
5. CONTOUR PLANTING; ON-FARM TREE PLANTING

107

B05402

A2

TULL, K. (1987)

**AGROFORESTRY IN NEPAL: THE BAUDHA BAHUNEPATI FAMILY WELFARE PROJECT**

EXPERIENCES IN SUCCESS: CASE STUDIES IN GROWING ENOUGH FOOD THROUGH REGENERATIVE AGRICULTURE (TULL, K. ED.)

RODALE INTERNATIONAL, ST. EMMAUS, PENNSYLVANIA, USA

XP/NP EN pp. 5-13

Case study of the extension strategy and achievements of the Baudha Bahunepati Family Welfare Project, an integrated rural development project with agroforestry component in Nepal, which is supported by World Neighbours and Oxfam. The study provides limited information about M&E methods.

*Technology Planning/Design:* Needs assessment and problem identification survey with villagers.

*Technology Evaluation:* On-farm research and demonstration plots were established in which farmers conducted tree management experiments. Information was collected by the project on tree survival and experiences of the experimenting farmers.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY; EXTENSION; CASE STUDY
2. NEEDS ASSESSMENT; PROBLEM IDENTIFICATION; INFORMAL FARMER SURVEYS
3. MPTS MANAGEMENT; DEMONSTRATION PLOT MONITORING; ON-FARM PLOT MONITORING
5. CONTOUR PLANTING

108  
01647  
A1

UGALDE, L.A. (1979)  
**DESCRIPTION AND EVALUATION OF AGROFORESTRY PRACTICES IN THE  
LA SUIZA PILOT WATERSHED, TURRIALBA DISTRICT**  
DESCRIPCION Y EVALUACION DE LAS PRACTICAS AGROFORESTALES  
EN LA CUENCA PILOTO DE LA SUIZA, CANTON DE TURRIALBA  
CATIE, TURRIALBA, COSTA RICA  
XL/CR ES pp. 1-31

Study conducted in the context of a UN/CATIE agroforestry research project in Costa Rica.

*Technology Planning/Design:* Description and analysis of traditional agroforestry practices through a formal questionnaire survey with farmers and field measurements of tree growth in sample plots. Information was collected on the number and size of farms with agroforestry systems, the length of time agroforestry had been practised, tree species used, farmer knowledge and perceived advantages or disadvantages of agroforestry, tree management and utilization and interest in expanding the agroforestry areas. Description of the methodology, discussion of results and questionnaire are included.

1. AGROFORESTRY; PROJECT; RESEARCH
2. TRADITIONAL AGROFORESTRY; FORMAL FARMER SURVEYS; MEASUREMENTS

109  
06983  
A1

VAN DER POEL, H.P.; SCHINKEL, R.F. (1985)  
**AN APPRAISAL OF FARMING SYSTEMS IN SIX VILLAGES IN LOMBOK AND  
SUMBAWA**  
WAGENINGEN AGRICULTURAL UNIVERSITY, THE NETHERLANDS  
XP/ID EN pp. 1-93

Special study for the CARE Dryland Farming Systems Project, carried out through the Forestry/Nature Conservation (FONC) Project, a cooperative agreement of Wageningen University in the Netherlands and the Forestry Faculty of Gajah Mada University in Indonesia.

*Technology Evaluation:* A rapid rural appraisal survey was carried out in selected villages to provide information on the project's target population with special attention to constraints and opportunities for improved hillside farming. Further objectives were to evaluate the introduction of agroforestry technologies into farming systems and to contribute to the design of an M&E system. The data were collected through field observations and informal interviews with a sample of farmers, which was stratified according to wealth. Survey information included access to land, cropping systems, agricultural problems, development of the *Leucaena*-Based Farming

System (LFS), expectations of the LFS and its performance in the farming system. A description of methodology and results is included, but the interview guide is missing.

1. AGROFORESTRY; PROJECT; EXTENSION
2. RAPID RURAL APPRAISAL
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE
5. CONTOUR PLANTING

110

B05496

A1

VAN GELDER, B. (1988)

**A GUIDE FOR THE INTEGRATION OF FODDER TREES IN NDDP**

MINISTRY OF LIVESTOCK DEVELOPMENT, NAIROBI, KENYA

XA/KE EN pp. 1-72

Practical handbook for the establishment, monitoring and evaluation of agroforestry technologies for fodder production by the National Dairy Development Project of the Ministry of Livestock Development in Kenya, which is supported by the Dutch Government.

*Technology Evaluation:* Intensive, on-farm follow-up questionnaire surveys at tree establishment stage with a small sample of farmers to obtain information on the number of seedlings and species planted, hedge spacing, length of hedges and maintenance, tree survival after 3, 9 and 12 weeks, and mean hedge height at 12, 24 and 36 weeks. At tree management stage, harvesting data (species, date, amount) and milk production data are also collected. A general follow-up questionnaire survey is completed during farm visits to provide information on agroforestry configurations, tree utilization, fodder tree species, seed/seedling sources and on-farm tree production. Data sheets are included.

1. AGROFORESTRY; PROJECT; GUIDELINES
3. TECHNOLOGY PERFORMANCE; MPTS MANAGEMENT; INFORMAL FARMER SURVEYS
5. LIVE FENCES; ALLEY CROPPING

111

03672

A1

VAN GELDER, B.; KERKHOF, P. (1984)

**THE AGROFORESTRY SURVEY IN KAKAMEGA DISTRICT: FINAL REPORT**

WORKING PAPER NO 6

KWDP, NAIROBI, KENYA

XA/KE EN pp. 1-37

The Kenya Woodfuel Development Programme (KWDP) is an externally funded research and extension project in the Kisii, Kakamega and Murang'a Districts of Kenya with the objective to promote on-farm fuelwood production through agroforestry.

*Technology Planning/Design:* The project's approach consisted of a District resource analysis, a cultural survey and an agroforestry survey. The latter was a formal, single visit questionnaire survey to identify traditional agroforestry and tree growing practices. Information was collected on socio-economic aspects, agroforestry configurations and species, tree production activities and fuelwood supply. A detailed description of the methodology, discussion of results and a questionnaire are included.

1. AGROFORESTRY; PROJECT; RESEARCH; EXTENSION
2. TRADITIONAL AGROFORESTRY; TRADITIONAL TREE GROWING; FORMAL FARMER SURVEYS

112

07896

A1

VAN OOSTVEEN, W.J.; TRIYONO, A. (1987)

**WATU LOR-NGBRONG ELIMINATION TRIAL; REPORT ON SURVEYS AND EVALUATION**

COMMUNICATION NO 2

KONTO RIVER PROJECT, MALANG, INDONESIA

XP/ID EN pp. 1-28

The Konto River Project is a Dutch-funded integrated rural development project with agroforestry component in Malang, Indonesia and is implemented by DHV Consulting Engineers.

*Technology Evaluation:* Species trials were conducted in research plots to test the performance of several tree species in different locations and altitudes. Regular field measurements were taken of tree survival, height and diameter. Methodology and results are included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY; RESEARCH
3. MPTS PERFORMANCE; RESEARCH PLOT EXPERIMENTS; MEASUREMENTS

113

06561

A1

VONK, R. (1986)

**REPORT ON A METHODOLOGY AND METHODOLOGY GENERATING EXERCISE: THE AGROFORESTRY EXTENSION PROJECT 1982-1986**

CARE INTERNATIONAL, NAIROBI, KENYA

XA/KE EN pp. 1-80

The report provides a detailed account of the historical background, problems, achievements and lessons of the CARE Agroforestry Extension Project in western Kenya during the first four years of operation.

*Technology Planning/Design:* The adaptation of the ICRAF D&D methodology for technology design to the specific information needs of an extension project is described. The simplified methodology puts more emphasis on the consideration of traditional agroforestry practices in the design of technologies that are to address land use problems identified by farmers.

*Technology Evaluation:* Initial species selection problems are discussed, as well as establishment and management of project research plots and external research studies. Measurements in research plots included tree and crop yields and soil fertility. The report also includes a discussion of survival survey techniques, potential problems of counting tree survival on-farm and the methodology used in the 1986 survival survey.

1. AGROFORESTRY; PROJECT; EXTENSION
2. D&D; TECHNOLOGY DESIGN
3. RESEARCH PLOT EXPERIMENTS; MPTS PERFORMANCE

114  
09111  
A1

WANJAMA, L.N.; NGUGI, A.W.; MUELLER, E.U. (1988)  
**CASE STUDY OF THE SARADIDI RURAL HEALTH PROJECT SIAYA, KENYA**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)  
XA/KE EN pp. 1-36

Case study of development and application of the extension strategy and M&E system for the agroforestry component of the Saradidi Rural Health Project in western Kenya. The case study was conducted for the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP).

*Technology Evaluation:* Technology performance and farmer response were informally monitored through non-recorded on-farm observations and farmer meetings.

1. RURAL DEVELOPMENT; CASE STUDY; AGROFORESTRY; PROJECT; M&E SYSTEM
3. TECHNOLOGY PERFORMANCE; FARMER EVALUATION; OBSERVATIONAL METHODS; FARMER MEETINGS
5. CONTOUR PLANTING; ALLEY CROPPING; MIXED INTERCROPPING; FRUIT TREES

115  
09322  
A1

WANJAMA, L.N.; BUCK, L.; MUELLER, E.U. (1988)  
**CASE STUDY OF THE PIASP PROJECT, MUGUSA, RWANDA**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)  
XA/KE EN pp. 1-29

Case study of development and application of the extension strategy and M&E methods for the PIASP agroforestry extension project in Mugusa, Rwanda. The case study was conducted for the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP).

*Technology Evaluation:* Performance and farmer response were informally monitored through farmer meetings and field observations. A survey was carried out with a sample of participating farmers to evaluate the extent of tree planting, tree utilization and farmers' attitudes concerning the technologies. The data were collected through farmer interviews and field measurements.

*Project Impact:* Surveys were conducted to assess extension effectiveness in terms of farmer understanding of technologies, impact of the project's green manuring campaign and effect of improved fallows and green manuring on crop yields. Data collection methods used were interviews and field observations.

1. AGROFORESTRY; PROJECT; EXTENSION; M&E SYSTEM; CASE STUDY
3. FARMER EVALUATION; TECHNOLOGY PERFORMANCE; FARMER MEETINGS; OBSERVATIONAL METHODS; MEASUREMENTS
4. TREES PLANTED; FARMER ATTITUDES; ENVIRONMENTAL IMPACT; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS
5. CONTOUR PLANTING; MIXED INTERCROPPING; ON-FARM WOODLOTS; LIVE FENCES; BOUNDARY PLANTING

116  
10061  
A2

ROYAL FOREST DEPARTMENT (1987)  
**INTEGRATED DEVELOPMENT OF PHU WIANG WATERSHED**  
ROYAL FOREST DEPARTMENT, BANGKOK, THAILAND  
XP/TH EN pp. 1-15

Description of an integrated rural development project with agroforestry component in the Phu Wiang watershed of northeastern Thailand, which is supported by UNDP and FAO.

*Technology Planning/Design:* Biophysical and land use information was obtained from aerial photographs combined with ground checks and an inventory of forest land. A socio-economic survey was conducted of household characteristics, employment, income and debts, crops, size of landholdings, land tenure, land use, and demand for wood products. No information is provided on methods used in this survey.

Methodology and results of a survey on farmer attitudes toward forestry and conservation farming are described by Ngamsomsuke (1987).

*Technology Evaluation:* Agroforestry research and demonstration plots were used to test and evaluate alley cropping technologies for extension purposes (see Thongmee 1987).

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
2. BIOPHYSICAL SITE DESCRIPTION; LAND USE DESCRIPTION; SOCIO-ECONOMIC DATA; FARMER ATTITUDES; RESOURCE INVENTORY; GRAPHIC METHODS; FORMAL FARMER SURVEYS
3. TECHNOLOGY PERFORMANCE; DEMONSTRATION PLOT MONITORING
5. ALLEY CROPPING; MIXED INTERCROPPING; FRUIT TREES; TAUNGYA AFFORESTATION

117

09315

A1

WESTWOOD, S. (1988)

**GITUZA FORESTRY PROJECT ALLEY CROPPING TRIALS: RESULTS 1986-1988**  
CARE INTERNATIONAL, KIGALI, RWANDA (UNPUBLISHED DRAFT)  
XA/RW EN pp. 1-39

The Gituza Forestry Project is a CARE-supported forestry development project with agroforestry component in northeastern Rwanda.

*Technology Evaluation:* Agroforestry experiments were conducted in research plots to test species, spacings and management techniques, effects on soil fertility, and optimal tree densities for mixed intercropping of trees with bananas. Field measurements were taken of crop yields, biomass production from prunings, soil fertility, tree heights and labour inputs. A brief description of the research methodology and results of the first year are included.

1. AGROFORESTRY; PROJECT; EXTENSION; RESEARCH
3. TECHNOLOGY PERFORMANCE; RESEARCH PLOT EXPERIMENTS
5. CONTOUR PLANTING; BOUNDARY PLANTING; LIVE FENCES; ON-FARM WOODLOTS; MIXED INTERCROPPING; TREES AROUND HOMESTEADS; FRUIT TREES

118  
09310  
A1

WESTWOOD, S. (1988)  
**THE GITUZA FORESTRY PROJECT TREE MANAGEMENT FOLLOW-UP  
SURVEY MARCH 1988**  
CARE INTERNATIONAL, KIGALI, RWANDA (UNPUBLISHED DRAFT)  
XA/RW EN pp. 1-2

The Gituza Forestry Project is a CARE-supported development project with agroforestry extension component in northeastern Rwanda.

*Technology Evaluation:* A pilot survey was carried out in farmers' fields to assess the appropriateness of a tree management survey at the current project stage and to test the survey form to be used. Information was collected on the number and species of trees planted, modifications of agroforestry technologies, tree management, tree product utilization, extension advice and farmers' problems and comments. A brief description of the survey methodology, problems and results is included. The data collection form is missing.

1. AGROFORESTRY; PROJECT; EXTENSION
3. FARMER EVALUATION; MPTS MANAGEMENT; FORMAL FIELD SURVEYS
5. CONTOUR PLANTING; BOUNDARY PLANTING; LIVE FENCES; ON-FARM WOODLOTS; MIXED INTERCROPPING; TREES AROUND HOMESTEADS; FRUIT TREES

119  
09110  
A1

WOODEC CONSULTANTS (1987)  
**BASELINE SURVEY OF TARGET AREA FOR INTENSIFIED FORESTRY  
EXTENSION AND FUTURE IMPACT EVALUATION (SUMMARY OF THE  
METHODOLOGY)**  
RAES/FORESTRY DEPARTMENT, NAIROBI, KENYA  
XA/KE EN pp. 1-33

The Rural Afforestation Extension Service (RAES) of the Forest Department in Kenya has the objective to promote tree planting on private and public land outside forest reserves.

*Technology Planning/Design:* A baseline survey was conducted in Engashura/Wanyororo area of Nakuru District to obtain information on current land use and socio-economic aspects, to inventory tree and shrub cover, to analyze the current wood supply/demand situation and tree planting activities, and to assess tree planting needs. Methods of data collection included a formal questionnaire survey with household heads and key informants; an inventory of on-farm tree and shrub biomass through field observations and measurements; secondary data collection (maps, aerial photographs, statistical abstracts); panorama photography and farm

sketches. A detailed description of the survey methodology and a questionnaire are included.

1. AGROFORESTRY; PROJECT; EXTENSION
2. BASELINE DATA; SOCIO-ECONOMIC DATA; EXISTING NATURAL RESOURCES; TRADITIONAL TREE GROWING; TREE PLANTING INTEREST; FORMAL FARMER SURVEYS; OBSERVATIONAL METHODS; MEASUREMENTS; GRAPHIC METHODS

120

B04633

A1

WOYTEK, R.; BAHRING, A.; DERSCH, D.; HABERMEHL, J.; KAUFMANN, P. (1987)

**SOIL EROSION CONTROL AND AGROFORESTRY IN THE WEST USAMBARA MOUNTAINS: EVALUATION OF AN EXTENSION APPROACH**  
TECHNISCHE HOCHSCHULE BERLIN, WEST GERMANY

XA/TZ EN pp. 1-287

The Soil Erosion Control and Agroforestry Project is a subcomponent of a GTZ-supported, integrated rural development project in the West Usambara region of Tanzania. The authors report on a special study evaluating the impact of project extension, which was carried out by consultants from the Centre for Advanced Training in Agricultural Development in Berlin, West Germany.

*Project Impact:* A formal questionnaire survey, informal interviews and field observations were used to evaluate adoption of project technologies and factors affecting adoption. An adoption index was developed based on the establishment of contour lines, integration of trees on contours and number of trees planted on-farm. Adoption was correlated with farmers' resource endowment, age group, education, extension frequency and participation in extension events. A detailed description of the methodology, questionnaires and interview guides are included.

1. SOIL CONSERVATION; AGROFORESTRY; PROJECT; EVALUATION; EXTENSION
4. TECHNOLOGY ADOPTION; FORMAL FARMER SURVEYS; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS
5. CONTOUR PLANTING; ON-FARM TREE PLANTING

121

09654

A1

WORLD NEIGHBOURS (1988)

**AGROFORESTRY INTERACTION IN BIOMASS PRODUCTIVITY: BAUDHA BAHUNEPATI PROJECT**

WORLD NEIGHBOURS, KATHMANDU, NEPAL

XP/NP EN pp. 1-4

The Baudha Bahunepati Family Welfare Project is an integrated rural development project with agroforestry component in Nepal, which is supported by World Neighbours and Oxfam.

*Technology Evaluation:* Researcher-managed, formal on-farm experiments were conducted on tree management aspects of alley cropping technologies. Data were collected on biomass and cereal grain yields, harvest dates, cultivation practices and meteorological factors. A description of the methodology is included.

1. RURAL DEVELOPMENT; PROJECT; AGROFORESTRY
3. MPTS MANAGEMENT; ON-FARM EXPERIMENTS; MEASUREMENTS
5. CONTOUR PLANTING

122

10296

A1

CARLSON, P.J. (1989)

**SMALL FARM AGROFORESTRY PROJECT EXPERIENCES IN THE CENTRAL ANDEAN REGION OF ECUADOR**

PAPER PRESENTED AT THE INTERNATIONAL SYMPOSIUM OF PLANNING FOR AGROFORESTRY, APRIL 24-27, WASHINGTON STATE UNIVERSITY, PULLMAN, USA

XL/EC EN pp. 1-9

Report on technology planning methods by several agroforestry projects in Ecuador, including a USAID-funded project, which is implemented by the Ecuadorean Forest Service, and projects by CARE in collaboration with the Ministry of Agriculture.

*Technology Planning/Design:* Development of on-farm agroforestry plans with individual farmers, which include information on site characteristics, the farmer's objectives (desired products and services), a sketch map of the farm indicating agroforestry plots, and a table on which to record agroforestry configurations, species, spacings and number of plants per species. Examples of data sheets for agroforestry plans are included.

1. AGROFORESTRY; EXTENSION; PROJECT; CASE STUDY
2. TECHNOLOGY DESIGN; BIOPHYSICAL SITE DESCRIPTION; NEEDS ASSESSMENT; INFORMAL FARMER SURVEYS; GRAPHIC METHODS
5. CONTOUR PLANTING; WINDBREAKS; BOUNDARY PLANTING; TREES IN GRAZING LAND; ON-FARM WOODLOTS

**PART 2**

**GENERAL GUIDELINES FOR AGROFORESTRY**

**MONITORING AND EVALUATION**

123  
10023  
B

ABEL, N.O.J; PRINSLEY, R.T. EDS. (1988)  
**RAPID APPRAISAL FOR AGROFORESTRY RESEARCH AND EXTENSION:  
PROCEEDINGS AND RECOMMENDATIONS OF A WORKSHOP, GWERU,  
ZIMBABWE, 12-14 APRIL 1988**  
CSC TECHNICAL PUBLICATION SERIES NO 252  
COMMONWEALTH SCIENCE COUNCIL, LONDON, UK  
XA/ZW EN pp. 1-89

Report of a training course on rapid rural appraisal (RRA) for agroforestry in Zimbabwe. Components of the RRA training were: (1) Analysis of production strategy, resources and management, as well as production dynamics, i.e. flows of inputs, outputs and information within the rural economy. Methods used were secondary data collection, informal discussions with key informants, field reconnaissance visits, village meetings, semi-structured interviews with individual farmers and triangulation to cross-check information. (2) Assessment of natural resources through environmental transects, soil characterization, measurements of tree/crop interactions, vegetation surveys along transects, meetings, interviews and field observations to assess the role and distribution of trees. (3) Identification and description of agroforestry interventions based on a synthesis of (1) and (2) and identification of research and extension requirements for each intervention. (4) Appraisal of agroforestry interventions in terms of purpose, responsibility for implementation, resource and labour requirements, social acceptability and feasibility, environmental and social riskiness, and compatibility with general agroforestry strategy. During the workshop, the relevance of RRA to agroforestry was discussed, as well as issues of research and extension and technical considerations arising from the appraisal. Research priorities and means of improving extension were identified by workshop participants and recommendations were made for the formulation of a national agroforestry policy.

1. AGROFORESTRY; TRAINING; WORKSHOP
2. RAPID RURAL APPRAISAL; TECHNOLOGY DESIGN; EXISTING NATURAL RESOURCES; FARMING SYSTEMS DESCRIPTION; SECONDARY DATA; INFORMAL FARMER SURVEYS; RESOURCE INVENTORY; FARM VISITS

124  
09655  
B

AFMEMP (1988)  
**KENYA COUNTRY WORKSHOP REPORT 22-24 NOVEMBER 1987**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA  
XA/KE EN pp. 1-45

Workshop held in Kenya with participants from two agroforestry extension projects, the Rural Afforestation Extension Service, ICRAF and AFMEMP to share M&E

experiences and to discuss methods to monitor and evaluate extension and technology effectiveness and impact in agroforestry projects. The report defines the terms agroforestry, extension, participation, monitoring and evaluation, and explores different tools to monitor and evaluate: active participation and collaboration (through meetings, workshops, field observations, interviews); technology performance (through D&D, surveys of existing agroforestry practices, diagnostic analysis, agroforestry technology design, adoption and performance surveys and comparison plots); nursery efficiency (through economic analysis); technology impact (through interviews and field measurements). The report provides an overview of the current level of experience and knowledge about participatory agroforestry project M&E in Kenya, as well as of problems and information needs for M&E of agroforestry technologies.

1. **AGROFORESTRY; FARMER PARTICIPATION; REVIEW OF METHODS; EXTENSION; PROJECT; WORKSHOP**

125

09319

B

AFMEMP (1988)

**RWANDA COUNTRY WORKSHOP REPORT 7-9 DECEMBER 1987**

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA

XA/RW EN pp. 1-40

Workshop held in Rwanda with participants from two agroforestry extension projects, the General Directorate of Forests and AFMEMP, to share M&E experiences and to discuss methods to monitor and evaluate extension and technology effectiveness and impact in agroforestry projects. The report defines the terms agroforestry, extension, participation, monitoring and evaluation, and explores different tools to monitor and evaluate: active participation and collaboration (through meetings, workshops, field observations and interviews); adoption and adaptation of agroforestry technologies by farmers at the "planning and design", "tree establishment", "tree management" and "impact" stages of the project cycle (through interviews, field observations and field measurements); tree survival (through field measurements); nursery efficiency (through economic analysis); and impact (through field measurements and interviews). The report provides an overview of the current level of experience and knowledge of agroforestry project M&E in Rwanda, as well as of problems and information needs for M&E of agroforestry technologies.

1. **AGROFORESTRY; PROJECT; FARMER PARTICIPATION; REVIEW OF METHODS; EXTENSION; WORKSHOP**

126  
09639

B

AFMEMP (1988)

**SUDAN COUNTRY WORKSHOP REPORT 16-19 NOVEMBER 1987**

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA

XA/SD EN pp. 1-46

Workshop held in Sudan with participants from two agroforestry extension projects, the Central Forest Administration and AFMEMP, to share M&E experiences and discuss methods to monitor and evaluate extension and technology effectiveness and impact in agroforestry projects. The report defines the terms agroforestry, extension, participation, monitoring and evaluation, and explores different tools to monitor and evaluate: active participation and collaboration (through meetings, workshops, field observations, interviews, puppet theatre); adoption of agroforestry technologies (role of baseline and follow-up studies); tree survival (through field measurements); nursery efficiency (through economic analysis); and impact (through field measurements and interviews). The report provides an overview of the current level of experience and knowledge of agroforestry project M&E, as well as of problems and concerns related to M&E of agroforestry technologies.

1. AGROFORESTRY; PROJECT; FARMER PARTICIPATION; REVIEW OF METHODS; EXTENSION; WORKSHOP

127  
10014

B

AVILA, M. (1988)

**PROCEDURES AND CONSIDERATIONS FOR ON-FARM AGROFORESTRY EXPERIMENTATION**

PAPER PRESENTED AT ICRAF/CARE TRAINING WORKSHOP ON IMPROVING TECHNOLOGY RECOMMENDATIONS: RESEARCH FOR AGROFORESTRY EXTENSION PROJECTS, 23-26 AUGUST

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-12

The author defines roles and objectives of on-farm agroforestry experimentation (OFE) and identifies different types of OFE from the management point of view (farmer managed, researcher managed and farmer-researcher managed trials), as well as key issues and problems. He concludes that three aspects have to be considered for the assessment of OFE results: technical (biophysical) analysis, economic analysis and farmer evaluation. The relative importance of these components depends on the types of trials.

1. AGROFORESTRY; ON-FARM RESEARCH; TRAINING; WORKSHOP
3. ON-FARM EXPERIMENTS; TRIAL MANAGEMENT

128  
10301  
B

BEER, J.W. (1987)

**THE INVESTIGATION OF AGROFORESTRY SYSTEMS: METHODOLOGY USED BY CATIE**

INVESTIGACION AGROFORESTAL DEL PROYECTO UNU/CATIE 1979-1987 (SOMARRIBA, E. ED.)

CATIE, TURRIALBA, COSTA RICA

XL/CR EN pp. 19-34

Description of a methodology for the analysis of traditional agroforestry practices and development of improved systems, used by CATIE in Costa Rica.

Tree/crop associations, their components and current and potential range are identified through photo interpretation, use of secondary information, life zone classification or preliminary ground surveys. The tree/crop associations are then further analyzed through single visit, "static" surveys, multi-visit, "dynamic" surveys, informal farmer discussions or preliminary field assessments. Data are collected on socio-economic aspects, intra- and intercomponent spacing, tree canopy heights, management techniques, perceived benefits, constraints and local knowledge.

Demonstration and on-farm plots are established to test hypotheses about limiting factors and to quantify associations. Based on this information, improvements of traditional systems or alternative technologies are proposed and field-tested on-station and on-farm.

1. AGROFORESTRY; RESEARCH
2. TRADITIONAL AGROFORESTRY; GRAPHIC METHODS; INFORMAL FARMER SURVEYS; INFORMAL FIELD SURVEYS; SECONDARY DATA
3. DEMONSTRATION PLOT MONITORING; ON-FARM PLOT MONITORING

129  
04935  
B

BEER, J.W. (1983)

**RESEARCH AND DEVELOPMENT WORK BY COSTA RICAN FARMERS: LESSONS FOR AGROFORESTERS**

CATIE, TURRIALBA, COSTA RICA

XL/CR EN pp. 1-7

Examples of empirical development and adaptations of agroforestry technologies by farmers in Costa Rica. The author describes gradual improvements of management techniques through farmer experimentation for silvo-pastoral systems, live fence posts, shade trees over perennial crops and improved fallows. The importance of studying empirical research and extension techniques by farmers in addition to the analysis of traditional agroforestry systems before planning and designing agroforestry interventions is emphasized.

1. AGROFORESTRY; FARMER EXPERIMENTATION

130

B05401

B

BEER, J.W.; SOMARRIBA, E. (1984)

**RESEARCH ON TRADITIONAL AGROFORESTRY SYSTEMS: EXAMPLE OF THE ORGANIZATION OF SHORT COURSES**

INVESTIGACION DE TECNICAS AGROFORESTALES TRADICIONALES:

EJEMPLO DE ORGANIZACION DE CURSOS CORTOS

CATIE, TURRIALBA, COSTA RICA

XL/CR ES pp. 1-108

Report of a short course on research methods to analyze traditional agroforestry systems. The report contains brief case studies of different methodologies and provides general guidelines for research, including the use of surveys with farmers to determine farm characteristics, socio-economic factors, agronomic and forestry aspects. Guidelines are also provided on design, implementation and analysis of surveys. The purpose, establishment and management of on-farm research plots in existing agroforestry systems is described, including data collection requirements and methods for each stage. Finally, the report gives some examples of biomass measurements in traditional homegarden systems.

1. AGROFORESTRY; TRAINING; GUIDELINES; RESEARCH
2. TRADITIONAL AGROFORESTRY
3. ON-FARM EXPERIMENTS; EXISTING TECHNOLOGIES

131

B04582

B

BELCHER, B.M. (1988)

**AN EVALUATION OF POTENTIAL AGROFORESTRY SYSTEMS FOR FARMERS ON STOOL LANDS IN THE ASHANTI REGION OF GHANA**

UNIVERSITY OF MANITOBA, WINNIPEG, CANADA

XA/GII EN pp. 1-104

Case study from the Ashanti region of Ghana, conducted in the context of an M.Sc. thesis, to identify potential agroforestry systems and constraints to adoption, and to suggest strategies for research and extension. The methodology is an adaptation of the ICRAF D&D method and consists of discussions with researchers, field observations and informal interviews with farmers at the pre-diagnostic stage, as well as an informal diagnostic questionnaire survey to identify farming systems problems, constraints and opportunities. Data were collected on land use history, land tenure, crop production and perceived production constraints, bush fallow, labour, inputs, livestock, water supply, energy, income and farmers' assessment of agroforestry potentials. A description of the methodology, a questionnaire summary and recommendations for potential agroforestry technologies are included.

1. AGROFORESTRY; CASE STUDY
2. D&D

132

06985

B

BERENSCHOT, L.M. (1986)

**AN AGROFORESTRY SYSTEM WITH *ACACIA MEARNSII* IN ITS SOCIO-ECONOMIC CONTEXT: A CASE STUDY IN THE RURAL UPLANDS OF CENTRAL JAVA**

WAGENINGEN AGRICULTURAL UNIVERSITY, THE NETHERLANDS

XP/ID EN pp. 1-89

Case study conducted in the context of the Forestry/Nature Conservation (FONC) Project, a cooperative agreement between Wageningen Agricultural University in the Netherlands and the Forestry Faculty of Gajah Mada University in Indonesia. The study describes the traditional *Acacia mearnsii* agroforestry system in terms of biophysical performance and socio-economic aspects, based on a survey of five villages. The household sample was stratified according to landownership classes and the data were collected through a formal questionnaire survey, field observations and measurements. Survey information included land tenure, household composition, economic activities, agricultural production, marketing and credit, fuel consumption, labour, *Acacia mearnsii* cultivation and use. Biophysical data were collected on slope, distance of trees from the homestead, soil characteristics, plot size, tree densities at different ages, tree height and DBH. Questionnaire and biophysical data are included.

1. AGROFORESTRY; CASE STUDY
2. TRADITIONAL AGROFORESTRY; FORMAL FARMER SURVEYS; OBSERVATIONAL METHODS; MEASUREMENTS

133

B05604; B05605

B

BUCK, L. (1989)

**AGROFORESTRY EXTENSION TRAINING SOURCEBOOK**

CARE INTERNATIONAL, NEW YORK, N.Y., USA

Vol. I and II

XZ EN

The training manual for agroforestry extension workers consists of a series of training modules. Support materials are provided in Volume II. The section on technology planning/design is based on the ICRAF D&D methodology, which is modified to maximize farmer participation. Training Module 5 provides guidelines on how to assess needs and opportunities for agroforestry development. Pre-diagnosis consists of land use classification and development of land use profiles through the use of secondary information, field observations, and informal interviews with key informants. It is followed by interviews with groups and individual farmers to assess land use problems, production constraints and roles of trees at the community and farm level. An inventory of local trees and shrubs is carried out to identify potential agroforestry species. The information is analyzed through causal diagramming. Training Module 6 introduces concepts and provides guidelines for agroforestry

technology design. The design procedure includes priority ranking of species preferences by farmers, design of on-farm configurations, spacings and management options, and evaluation of designs before and after planting. Training Module 7 on planning, monitoring and evaluation emphasizes the importance of a continuous planning process for project activities and discusses a range of tools to record project information for monitoring and evaluation. These include seasonal and monthly activity plans, field notebooks, monthly activity reports and meetings. Samples of tools and guidelines for their use are included.

1. AGROFORESTRY; FARMER PARTICIPATION; RECORD KEEPING; TRAINING; EXTENSION; GUIDELINES
2. D&D; NEEDS ASSESSMENT; TRADITIONAL AGROFORESTRY; LAND USE DESCRIPTION; TECHNOLOGY DESIGN; INFORMAL FARMER SURVEYS; FARMER MEETINGS; SECONDARY DATA; GRAPHIC METHODS
5. BOUNDARY PLANTING; ALLEY CROPPING; CONTOUR PLANTING; LIVE FENCES; MIXED INTERCROPPING; WINDBREAKS; SHELTERBELTS; ON-FARM WOODLOTS; FRUIT TREES; TREES IN GRAZING LAND; IMPROVED FALLOWS

134

10013

B

BUCK, L.; DAVIS-CASE, D.; MUELLER, E.U.; NGUGI, A. (1988)  
**A SYNTHESIS OF EXPERIENCE FROM THE AGROFORESTRY MONITORING AND EVALUATION METHODOLOGY PROGRAMME**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED DRAFT)

XA EN pp. 1-25

Synthesis of six case studies of agroforestry extension projects in Kenya, Sudan and Rwanda and three country workshops with participants from these projects. Case studies and workshops were part of the CARE/FAO Agroforestry Monitoring and Evaluation Methodology Programme (AFMEMP). Objectives were to share M&E experiences and to discuss currently used and potential tools for project M&E. The report describes the characteristics, extension strategy, M&E systems and methods of the participating projects and identifies issues and constraints related to effective M&E, as well as criteria to improve existing M&E methods.

1. AGROFORESTRY; PROJECT; FARMER PARTICIPATION; REVIEW OF METHODS; EXTENSION; CASE STUDY

135  
09653

B

SIEW TUAN CHEW (1988)

**AGROFORESTRY PROJECTS FOR SMALL FARMERS: A PROJECT MANAGER'S REFERENCE**

AID EVALUATION SPECIAL STUDY NO XX

USAID, WASHINGTON, D.C., USA

XZ EN pp. 1-78

The first part of the report describes selected agroforestry technologies and their applications, including mixed intercropping, contour planting for soil conservation and windbreaks. In the second part the author presents a synthesis of issues in design and implementation of agroforestry projects. Topics addressed include: selection of agroforestry technologies and MPTS species; potential constraints for agroforestry; institutional issues and information requirements for monitoring and evaluation of field activities (survival rates, tree management and utilization, quantifiable and non-quantifiable economic and environmental benefits).

1. AGROFORESTRY; PROJECT; M&E SYSTEM; DATA REQUIREMENTS
5. MIXED INTERCROPPING; CONTOUR PLANTING; WINDBREAKS

136  
09508

B

DUCHHART, J.; STEINER, F.; BASSMAN, J.H. (1989)

**PLANNING METHODS FOR AGROFORESTRY**

AGROFORESTRY SYSTEMS Vol 7

XZ EN pp. 227-258

The article presents a case study review of planning methods in agroforestry. Approaches used by ICRAF, the Kenya Non-Governmental Organization (KENGO) and the Kenya Woodfuel Development Programme (KWDP) are analyzed in terms of goals, community needs and site assessment, options for action, implementation and evaluation. The Kathama Agroforestry Project, a joint undertaking by ICRAF and the Wageningen Agricultural University in the Netherlands, is used as a case study to discuss the role of landscape planning in agroforestry projects. The methodology is characterized by the integration of different aspects (social, economic, ecological and political), sectors (income generation, agriculture, housing, shelter and recreation), and planning levels (national, regional and individual). Design plays a central role and is used to present a visual impression of the existing or projected situation and to illustrate suggested actions or contradictory activities. The first step of the planning procedure is a landscape analysis at both regional and local levels, which is followed by conceptual designs. Detailed studies, covering the questions raised during the conceptual design phase, are then carried out to gain a basic understanding of people's needs. A synthesis of the studies from various aspects and scale levels is used for detailed designs, which combine short-term benefits for farmers with long-term economic and ecological goals of the area.

1. AGROFORESTRY; PROJECT ACTIVITY PLANNING; CASE STUDY

137  
10039

B

FIELD-JUMA, A. (1988)

**USER-FRIENDLY INFORMATION MANAGEMENT IN THE FIELD: KATHAMA  
PHASE INFORMATION MANAGEMENT PROJECT**

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-16

The report describes the methodology used for two questionnaire surveys in Kathama Kenya, carried out in the context of an ICRAF agroforestry research project. The survey with ten farmers who had agroforestry on-farm trials yielded information about success or failure of the trials, benefits and problems, farmer experimentation, indigenous trees on-farm and their uses, and future plans for agroforestry. In the survey with 30 farmers who had received multi-purpose tree seedlings in 1983, information was gathered on planting locations, tree growth rates, uses and management, preferences, farmer experimentation and reasons for particular management decisions. Problems with survey design and implementation are discussed in the paper and modifications and improvements proposed for similar surveys in the future. Two software programs ("Filevision" and "Overvue") for analysis of quantitative and qualitative survey information are presented and their advantages, disadvantages and relative appropriateness for analysis and compilation of agroforestry field data examined. The author recognizes the need for further research to develop prototype information management systems for agroforestry projects.

1. AGROFORESTRY; PROJECT; CASE STUDY; COMPUTER SOFTWARE
3. INFORMAL FARMER SURVEYS; TECHNOLOGY PERFORMANCE;  
FARMER EVALUATION

138  
01954

B

FLIERVOET, E. (1982)

**AN INVENTORY OF TREES AND SHRUBS IN THE NORTHERN DIVISION OF  
MACHAKOS DISTRICT, KENYA**

WAGENINGEN AGRICULTURAL UNIVERSITY, THE NETHERLANDS

XA/KE EN pp. 1-32

Formal inventory of local trees and shrubs on random sample of farms as part of a research study of the potential for agroforestry in Northern Machakos District. The study was carried out by Wageningen University students on behalf of the Kenya Forestry Department and Ministry of Agriculture under supervision by ICRAF. Frequencies of tree and shrub species on cultivated land and grazing areas were recorded and farmers were interviewed about their knowledge of species and local uses. The report contains a brief description of the methodology, a summary of results and descriptions of tree and shrub species.

1. AGROFORESTRY; CASE STUDY

2. EXISTING NATURAL RESOURCES; RESOURCE INVENTORY;  
INFORMAL FARMER SURVEYS

139

02948

B

GIELEN, H. (1982)

**REPORT ON AN AGROFORESTRY SURVEY IN THREE VILLAGES OF  
NORTHERN MACHAKOS, KENYA**

WAGENINGEN AGRICULTURAL UNIVERSITY, THE NETHERLANDS

XA/KE EN pp. 1-114

Report of a research study on agroforestry potentials in the Northern Division of Machakos District in Kenya. Study components were: (a) an inventory of local trees and shrubs on farms and their uses (see Fliervoet 1982); (b) a survey of local farming systems; and (c) a typology of farming systems and suggestions for systems-specific agroforestry innovations. Data for (b) was collected through a formal questionnaire survey, supplemented by unstructured questions, observations, estimates and measurements. Topics covered in the questionnaire survey included household characteristics, available resources, crops and livestock, management and use of semi-natural vegetation and membership in self-help groups. A description of the methodology and results, a questionnaire and a farming systems typology are included.

1. AGROFORESTRY; CASE STUDY
2. FARMING SYSTEMS DESCRIPTION; EXISTING NATURAL RESOURCES; RESOURCE INVENTORY; FORMAL FARMER SURVEYS; MEASUREMENTS

140

07356

B

HOEKSTRA, D.A. (1987)

**GATHERING SOCIO- AND BIO-ECONOMIC INFORMATION FOR  
AGROFORESTRY PROJECTS**

WORKING PAPER NO 50

ICRAF, NAIROBI, KENYA

XA EN pp. 1-26

The paper gives an overview of the types of information required and the current availability of written information for farming systems and technology surveys. Information needs for agroforestry may be related to systems (energy, woodfuel, fodder, shelter materials, fruits, nuts, condiments, service role) and/or technologies (existing technologies, inputs, outputs, process, farmer adoption). The author provides

general guidelines for the use of surveys to obtain field data for the assessment of system and technology performance and on appropriate sampling techniques.

1. **AGROFORESTRY; PROJECT; FARMING SYSTEMS APPROACH; DATA REQUIREMENTS; SURVEYS**

141

B03210

B

NAIR, C.T.S.; KRISHNANKUTTY, C.N. (1985)

**SOCIO-ECONOMIC FACTORS INFLUENCING FARM FORESTRY: A CASE STUDY OF TREE CROPPING IN THE HOMESTEADS IN KERALA, INDIA**

COMMUNITY FORESTRY: SOCIO-ECONOMIC ASPECTS (RAO, Y.S.; VERGARA, N.T.; LOVELACE, G.W. EDS.)

FAO REGIONAL OFFICE FOR ASIA AND THE PACIFIC, BANGKOK, THAILAND

XP/IN EN pp. 115-130

Case study of traditional home garden agroforestry systems in Kerala, India. The data were collected through a formal questionnaire survey, combined with field measurements of trees. It includes information on household characteristics, land tenure, income, land use, cropping patterns, trees, wood uses and interest in tree planting. Land use intensity was estimated using an intensity index. A description of the methodology, a summary of results and a questionnaire are included.

1. **AGROFORESTRY; CASE STUDY**
2. **TRADITIONAL AGROFORESTRY; FORMAL FARMER SURVEYS; MEASUREMENTS**

142

10305

B

ICRAF (1983)

**RESOURCES FOR AGROFORESTRY DIAGNOSIS AND DESIGN: A HANDBOOK OF USEFUL TOOLS AND MATERIALS**

WORKING PAPER NO 7

ICRAF, NAIROBI, KENYA

XZ EN pp. 1-383

Reference manual with methodological guidelines and materials for field applications of the ICRAF Diagnosis and Design (D&D) methodology. The first part contains step by step guidelines for each stage of the D&D process, which are supported by a series of worksheets in part two of the manual. Stages of the D&D process and corresponding activities are: (1) Pre-diagnostic stage: environmental description of the

study area and of selected land use systems; (2) diagnostic stage with diagnostic survey, analysis and derivation of specifications for appropriate technologies; (3) design stage: technology appraisal, design of technologies for improved land use systems and ex-ante evaluation of the technologies; (4) follow-up planning stage: identification of research needs and development of an implementation plan. The third part of the manual contains tools and materials for different information needs at each stage of the D&D.

1. AGROFORESTRY; GUIDELINES
2. D&D

143

10038

B

JOHNSON, K. (1988)

**SOME THOUGHTS ON FARMER EVALUATION**

PAPER PRESENTED AT THE 1ST CARE/FAO AFMEMP REGIONAL WORKSHOP IN KISUMU, KENYA, 15-20 MAY

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED DRAFT)

XZ EN pp. 1-5

The paper discusses the role of farmers in evaluation of extension effectiveness and technology performance. The author suggests that, if extension programmes are to be effective, farmer appraisals need to be articulated, accepted as valid, built into a structured extensionist/farmer dialogue and be instrumental in bringing about changes in project activities and objectives. A framework is provided for an approach designed to incorporate farmer appraisals of agroforestry interventions into project design, implementation and impact evaluation, including assessment of needs, problems and possible solutions at the pre-project stage, farmer evaluation of technology trials and demonstration plots, design of management plans based on farmers' priorities and indicators, which are developed, monitored and evaluated by farmers.

1. AGROFORESTRY; FARMER PARTICIPATION; PROJECT; EXTENSION

144  
10300  
B

MUELLER, E.U. (1988)  
**FACTORS TO CONSIDER IN THE USE OF COMPUTERS FOR AGROFORESTRY  
BASELINE AND FOLLOW-UP SURVEYS: THE EXPERIENCE OF THE GITUZA  
FORESTRY PROJECT IN RWANDA**  
PAPER PRESENTED AT THE 1ST CARE/FAO AFMEMP REGIONAL  
WORKSHOP IN KISUMU, KENYA, 15-20 MAY  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)  
XZ EN pp. 1-7

Case study of the use of computers for the analysis of formal needs assessment and monitoring surveys in agroforestry projects. The author describes the data coding procedure, selection of software, data entry, conversion and analysis with the "Knowledge man" and "SPSS" software packages, and discusses computer-related problems encountered during each step of the survey procedure, as well as ways to overcome these problems.

1. AGROFORESTRY; SURVEYS; DATA MANAGEMENT; COMPUTER SOFTWARE; CASE STUDY

145  
07203  
B

OSEMEOBO, G.J. (1987)  
**SMALLHOLDER FARMERS AND FORESTRY DEVELOPMENT: A STUDY OF  
RURAL LAND USE IN BENDEL, NIGERIA**  
AGRICULTURAL SYSTEMS Vol 24  
XA/NG EN pp. 31-51

Case study conducted by the Bendel State Forestry Department in Nigeria in settlements on the periphery of forest reserves to determine the suitability of on-farm tree production for current cropping systems. A formal, single visit questionnaire survey of rural land use and forestry development by farmers was carried out. Topics included land use intensity, interest in tree crops and preferences for specific planting configurations. Methodology, results and questionnaire are included.

1. AGROFORESTRY
2. LAND USE DESCRIPTION; TREE PLANTING INTEREST; FORMAL FARMER SURVEYS

146

B03708

B

OTS/CATIE (1986)

**AGROFORESTRY SYSTEMS: PRINCIPLES AND APPLICATIONS IN THE TROPICS. CHAPTER 3: PLANNING OF AGROFORESTRY SYSTEMS - AREA CHARACTERIZATION**

SISTEMAS AGROFORESTALES : PRINCIPIOS Y APLICACIONES EN LOS TROPICOS. CAPITULO 3: PLANEAMIENTO DE SISTEMAS

AGROFORESTALES - LA CARACTERIZACION DE UN AREA

OTS/CATIE, SAN JOSE, COSTA RICA

XZ ES pp. 75-98

The chapter describes methods to identify farming systems problems, land use patterns and potentials for agroforestry technologies. The characterization of an area consists of the determination of its limits, collection of data on biophysical and socio-economic aspects and characteristics of existing systems, identification of problems, needs and opportunities, and evaluation of the agroforestry potential. Data collection methods described in the chapter include reviews of secondary information, informal interviews, interview guides, questionnaires and field observations. Guidelines are provided on how to analyze, interpret and present the information.

1. AGROFORESTRY; FARMING SYSTEMS APPROACH; GUIDELINES
2. FARMING SYSTEMS DESCRIPTION; PROBLEM IDENTIFICATION; SOCIO-ECONOMIC DATA; SECONDARY DATA; INFORMAL FARMER SURVEYS; OBSERVATIONAL METHODS

147

B03708

B

OTS/CATIE (1986)

**AGROFORESTRY SYSTEMS: PRINCIPLES AND APPLICATIONS IN THE TROPICS. CHAPTER 4: SELECTION OF AGROFORESTRY SYSTEMS**

SISTEMAS AGROFORESTALES: PRINCIPIOS Y APLICACIONES EN LOS

TROPICOS. CAPITULO 4: SELECCION DE SISTEMAS AGROFORESTALES

OTS/CATIE, SAN JOSE, COSTA RICA

XZ ES pp. 99-128

Discussion of methods for the selection and design of appropriate agroforestry technologies based on the results of the area characterization described in Chapter 3. An analysis of existing and potential agroforestry systems through review of secondary information, field observations and/or discussions with farmers is suggested as a first step. Methods for selecting the most appropriate technologies among the identified alternatives are discussed on the basis of productivity, financial feasibility, sustainability and adoptability criteria. The importance of active farmer participation in the comparative analysis of alternative solutions is emphasized.

1. AGROFORESTRY; GUIDELINES

2. **TECHNOLOGY DESIGN; TRADITIONAL AGROFORESTRY;  
SECONDARY DATA; INFORMAL FARMER SURVEYS;  
OBSERVATIONAL METHODS**

148

B03787

B

RAINTREE, J.B. (1987)

**D&D USER'S MANUAL: AN INTRODUCTION TO AGROFORESTRY DIAGNOSIS  
AND DESIGN**

ICRAF, NAIROBI, KENYA

XZ EN pp. 1-110

Manual of ICRAF's methodology for on-farm diagnosis and design (D&D) of agroforestry technologies. Basic principles and procedures of the D&D are explained and case studies are presented of D&D applications in Kenya at farm, community and watershed level, as well as an illustrated scenario of "D&D in action". Sample diagnostic survey guidelines, worksheets for land use system description, a list of potential functions of trees in supplying basic human needs and an agroforestry design algorithm are appended.

1. **AGROFORESTRY; GUIDELINES**
2. **D&D**

149

10304

B

RAINTREE, J.B.; YOUNG, A. (1983)

**GUIDELINES FOR AGROFORESTRY DIAGNOSIS AND DESIGN: AN  
INTRODUCTION TO THE ICRAF METHODOLOGY**

WORKING PAPER NO 6

ICRAF, NAIROBI, KENYA

XZ EN pp. 1-25

General introduction to ICRAF's Diagnosis and Design (D&D) methodology for agroforestry technology design. The paper discusses the objectives of the D&D method, the D&D approach, agroforestry design criteria, as well as manpower requirements for the application of the methodology, duration and timing of activities, intended users and scales of application. Specific procedures are presented as a logical sequence of steps, consisting of pre-diagnosis, diagnosis, technology design and follow-up planning. For each of these stages, outputs, sources of information, important factors and useful tools for implementation are described. More detailed information on tools and materials may be found in Working Paper 7 (ICRAF 1983).

1. **AGROFORESTRY; GUIDELINES**
2. **D&D**

150  
10016

B

**RAINTREE, J.B.; HOSKINS, M.W. (1988)**  
**APPROPRIATE RESEARCH AND DEVELOPMENT (R&D) SUPPORT FOR**  
**FORESTRY EXTENSION**  
PAPER PREPARED FOR THE FAO EXPERT CONSULTATION ON  
ORGANIZATION OF FORESTRY EXTENSION, MARCH 7-11, BANGKOK,  
THAILAND  
XZ EN pp. 1-28

The topic of the paper is a new, community-based approach to linking research and extension. A unified research and development continuum is proposed, which can be achieved by bridging the research area (pure research, prototype development and adaptive research) and the extension area (extension trials, M&E, pure extension). The result is a process called extension research and development (ER&D), which encompasses adaptive research and extension trials, its scope extending to prototype development on the research side and M&E on the extension side. The authors explain the rationale for the development and the characteristics of the model and discuss questions of institutionalization of the ER&D approach.

1. AGROFORESTRY; RESEARCH; EXTENSION

151  
06123

B

**ROCHELEAU, D.E. (1985)**  
**LAND USE PLANNING WITH RURAL FARM HOUSEHOLDS AND**  
**COMMUNITIES: PARTICIPATORY AGROFORESTRY RESEARCH**  
WORKING PAPER NO 36  
ICRAF, NAIROBI, KENYA  
XZ EN pp. 1-43

The author discusses the development and characteristics of ICRAF's Diagnosis and Design (D&D) methodology. A case study of the application of the D&D in a small development project in Kathama, Kenya, illustrates the evolution of the methodology and the self-correction by the project of technology designs in response to their social, economic, biological and physical performance. The experience demonstrated the importance of social factors and the need for technology designs that transcend the household and individual farm levels.

1. AGROFORESTRY; CASE STUDY
2. D&D

152  
10021

B

ROCHELEAU, D.E. (1988)

**LANDSCAPE AND PLACE IN AGROFORESTRY PLANNING AND EVALUATION:  
USING MAPS, PICTURES, MEMORIES AND PROJECTIONS. PRELIMINARY  
NOTES, WITH ILLUSTRATIONS AND SURVEY OUTLINE**

PAPER PRESENTED AT THE CARE/FAO AFMEMP REGIONAL WORKSHOP  
IN KISUMU, KENYA, 15-20 MAY

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)

XZ EN pp. 1-29

Introduction to a methodology for agroforestry technology planning and design, which emphasizes the place of trees and agroforestry practices in the larger landscape that forms the habitat of rural people. The author suggests a series of mapping exercises and field visits at the beginning of the project cycle to be repeated at regular intervals as a way of monitoring progress, problems and new opportunities in agroforestry. Guidelines for farmer interviews and examples of images, maps and sketches, which are to be used for different purposes throughout the project cycle are included.

1. AGROFORESTRY; GUIDELINES
2. TECHNOLOGY DESIGN; GRAPHIC METHODS; INFORMAL FIELD SURVEYS

153  
06102

B

ROCHELEAU, D.E.; VAN DEN HOEK, A. (1984)

**THE APPLICATION OF ECOSYSTEMS AND LANDSCAPE ANALYSIS IN  
AGROFORESTRY DIAGNOSIS AND DESIGN: A CASE STUDY FROM KATHAMA  
SUB-LOCATION, MACHAKOS DISTRICT, KENYA**

WORKING PAPER NO 11

ICRAF, NAIROBI, KENYA

XA/KE EN pp. 1-92

The author discusses the rationale for the ecosystems and landscape analysis approach in agroforestry diagnosis and design (D&D) and presents a case study of its application in Kenya. The first step in the analysis was a description of the research site in terms of land, people, land use and land tenure, water rights, government services and organizations. A farm level D&D was followed by an expanded D&D at the community and watershed level. During the first phase of the expanded D&D major landscape problems were identified through environmental field reconnaissance, map and aerial photo interpretation and landscape analysis, followed by a more detailed qualitative analysis including informal interviews, cartographic analysis and detailed field observations. Based on the information thus obtained and the results of the farm level D&D, agroforestry designs were developed for the catchment area. Outputs were an integrated landscape design and estimations of

potential benefits. A second expanded D&D was carried out to determine the institutional feasibility, costs and benefits of the agroforestry designs, to modify designs and to monitor promising species and technologies. The case study includes a description of the methodology, results and preliminary conclusions, as well as examples of maps and sketches developed during the D&D.

1. AGROFORESTRY; CASE STUDY
2. D&D

154

B05161

B

ROCHELEAU, D.E.; WEBER, F.; FIELD-JUMA, A. (1988)

**AGROFORESTRY IN DRYLAND AFRICA**

ICRAF, NAIROBI, KENYA

XA EN pp. 1-311

Practical handbook for agroforestry field workers in subhumid and semi-arid regions of Africa. Chapter II describes processes and methods for participatory planning of agroforestry activities. Guidelines are provided for initial mapping exercises and information summaries, rapid surveys of landscape and rural communities, interviews with groups, households and individuals, walking interviews and participant observations. Specific topics to be addressed through each of these methods are discussed and ways of using survey results to select agroforestry practices are suggested. Sample forms for data recording are provided in the Appendixes. In Chapter III the authors discuss methods of conducting internal project evaluations and indicators for agroforestry project impact.

1. AGROFORESTRY; PROJECT ACTIVITY PLANNING; EVALUATION; PROJECT; GUIDELINES

155

07828

B

SCHERR, S.J. (1987)

**PLANNING NATIONAL AGROFORESTRY RESEARCH: GUIDELINES FOR LAND USE SYSTEM DESCRIPTION**

WORKING PAPER NO 48

ICRAF, NAIROBI, KENYA

XZ EN pp. 1-74

The paper provides guidelines for land use system description in a "macro D&D". The methodology was developed and applied in the context of ICRAF's Agroforestry Research Network for Africa (AFRENA) Program. The author presents an overview

of the stages of the AFRENA research planning process and describes the components of each stage, including institutional arrangements, zonal descriptions, land use system descriptions, evaluation of agroforestry potentials, prioritization of systems and technologies and design of research programmes. The land use system description encompasses bio-physical conditions, organization of production systems, land use intensity, system components, management practices, landscape organization, specific system constraints and the socio-economic environment. Worksheets and guidelines for their use are included.

1. AGROFORESTRY; RESEARCH; RESEARCH PLANNING; GUIDELINES
2. LAND USE DESCRIPTION

156

10017

B

SCHERR, S.J. (1988)

**FACTORS TO CONSIDER IN EVALUATING TECHNOLOGY PERFORMANCE IN AGROFORESTRY PROJECTS**

PAPER PRESENTED AT THE 1ST CARE/FAO AFMEMP REGIONAL WORKSHOP IN KISUMU, KENYA, 15-20 MAY

CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED DRAFT)

XZ EN pp. 1-17

The workshop paper defines agroforestry technologies and outlines the process of technology development in agroforestry extension projects. A range of tools for evaluation of technology performance, adoption, adaptation and impact are discussed, with guidelines for the selection of M&E tools in projects taking into account objectives, information needs and project resources.

1. AGROFORESTRY; GUIDELINES; REVIEW OF METHODS; EXTENSION; PROJECT
3. TECHNOLOGY PERFORMANCE

157

10015

B

SCHERR, S.J. (1988)

**USING FORMAL AND INFORMAL SURVEYS TO EVALUATE AGROFORESTRY TECHNOLOGIES**

PAPER PRESENTED AT ICRAF/CARE TRAINING WORKSHOP ON IMPROVING TECHNOLOGY RECOMMENDATIONS: RESEARCH FOR AGROFORESTRY EXTENSION PROJECTS, 23-26 AUGUST

ICRAF, NAIROBI, KENYA

XZ EN pp. 1-12

The paper defines different types of surveys, their characteristics and potential utilization for information collection at different stages of agroforestry extension projects. A case study of an agroforestry design survey by the CARE Agroforestry Extension Project in western Kenya illustrates the use of surveys in project planning. The paper includes general guidelines for design, implementation and evaluation of surveys.

1. AGROFORESTRY; SURVEYS; REVIEW OF METHODS; EXTENSION; PROJECT; CASE STUDY; GUIDELINES

158  
10302  
B

NGUGI, A.W.; BUCK, L.E. (1989)  
**AGROFORESTRY MONITORING AND EVALUATION METHODOLOGY  
PROGRAMME (AFMEMP) FINAL REPORT 1ST AFMEMP REGIONAL  
WORKSHOP, MAY 15-20, KISUMU, KENYA**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA  
XA EN pp. 1-46

Synthesis of key issues and findings of a workshop with senior staff from ten agroforestry extension projects in eastern and southern Africa and resource persons representing national forestry institutions, donor and implementing agencies and ICRAF. The report provides definitions of the terms participation, monitoring and evaluation and a rationale for participatory monitoring and evaluation (M&E) in projects. Results of workshop discussions are presented on different development perspectives affecting M&E approaches, and on purpose, planning, processes, problems and issues in participatory M&E. Suggestions are made on improving current M&E methods of six case study projects and innovative methods for participatory M&E are proposed.

1. WORKSHOP; AGROFORESTRY; CASE STUDY; FARMER PARTICIPATION; M&E SYSTEM

159  
10041  
B

WESTWOOD, S. (1988)  
**THE ROLE OF EXPERIMENTAL RESEARCH IN AGROFORESTRY PROJECTS  
PAPER PRESENTED AT THE 1ST CARE/FAO AFMEMP REGIONAL  
WORKSHOP IN KISUMU, KENYA, 15-20 MAY**  
CARE/FAO AFMEMP PROGRAMME, NAIROBI, KENYA (UNPUBLISHED  
DRAFT)  
XA/RW EN pp. 1-8

Discussion paper of factors to consider in agroforestry research by projects, based on the experiences of the CARE Gituza Forestry Project in Rwanda. The author explains the objectives of project research and discusses criteria for research planning and design, as well as costs. Guidelines for research evaluation and use of results are included.

1. **AGROFORESTRY; RESEARCH; RESEARCH PLANNING; EVALUATION; PROJECT; CASE STUDY**

160

10012

B

**WOLF, G.V.; SCHERR, S.J.; ROGER, J. (1989)  
METHODS FOR EVALUATING MULTI-PRODUCT TREE YIELDS FROM  
LINEAR AGROFORESTRY TECHNOLOGIES IN FARMERS' PLOTS  
ICRAF, NAIROBI, KENYA (UNPUBLISHED DRAFT)  
XZ EN pp. 1-59**

Handbook for extension workers on yield assessment of hedges and tree lines in farmers fields. The paper explains the general concept of yield assessment and describes appropriate sample selection procedures. Methods for the assessment of tree product yields in hedgerow intercropping and guidelines for calculations and reporting are provided for biomass, fuelwood and foliage for green manure and fodder. The paper also includes methods and procedures for the assessment of pole production from linear agroforestry technologies and provides guidelines for comparing yields from different technology designs.

1. **AGROFORESTRY; GUIDELINES**
3. **MPTS PERFORMANCE; MEASUREMENTS**

**PART 3**

**GENERAL GUIDELINES FOR MONITORING AND  
EVALUATION IN RURAL DEVELOPMENT PROJECTS**

161  
09296  
C

ALTON, C.T.; CRAIG, I.A. (1987)  
**THE RAPID ASSESSMENT TECHNIQUE (RAT): A PROCEDURE FOR  
IDENTIFYING FARMER PROBLEMS AND DEVELOPMENT OPPORTUNITIES**  
NERAD PROJECT, KHON KAEN, THAILAND  
XP/TH EN pp. 1-21

Description of the "rapid assessment technique" (RAT) developed by the North East Rainfed Agriculture Development (NERAD) project in Thailand. RAT is a needs assessment procedure, which uses semi-structured interviewing techniques and conceptual models (crop calendars, target site maps, rainfall graphs, decision trees) throughout the process of site description, needs assessment, technology research and development planning and M&E. Field implementation of RAT includes secondary data collection; intensive, semi-structured interviews with individual farmers and village plenaries; production of maps with major topographical and other natural features during village assessment; on-farm soil sampling; village plenary sessions to discuss findings; hypothesis formulation and planning of development strategies.

1. RURAL DEVELOPMENT; PROJECT; GUIDELINES; CASE STUDY
2. RAPID RURAL APPRAISAL

162  
05695  
C

ASHBY, J.A. (1986)  
**METHODOLOGY FOR THE PARTICIPATION OF SMALL FARMERS IN THE  
DESIGN OF ON-FARM TRIALS**  
AGRICULTURAL ADMINISTRATION Vol 22  
XL/CO EN pp. 1-19

Comparative evaluation of different methods of on-farm experimentation for technology testing in agriculture - case study from the International Fertilizer Development Centre (IFDC) and the International Centre for Tropical Agriculture (CIAT) in Colombia. The article describes in general terms the approaches used for on-farm technology testing with different degrees of farmer participation in design, implementation and evaluation of experiments.

1. AGRICULTURE; ON-FARM RESEARCH; FARMER PARTICIPATION;  
CASE STUDY

163  
08120

C

ASHBY, J.A.; QUIROS, C.A.; RIVERA, Y.M. (1987)  
**FARMER PARTICIPATION IN ON-FARM VARIETAL TRIALS**  
PAPER PRESENTED AT WORKSHOP ON FARMERS AND AGRICULTURAL  
RESEARCH: COMPLEMENTARY METHODS, 26-31 JULY, INSTITUTE FOR  
DEVELOPMENT STUDIES, BRIGHTON, UK  
XL/CO EN pp. 1-32

The workshop paper presents a case study of on-farm experimentation for technology testing and evaluation in agriculture from CIAT, Colombia. The methodology is characterized by active farmer participation in design, implementation and evaluation of experiments. Data collection methods include farmer workshops, measurements and recorded observations.

1. **AGRICULTURE; ON-FARM RESEARCH; FARMER PARTICIPATION;  
CASE STUDY**

164  
10298

C

AVILA, M. (1988)  
**DIAGNOSIS OF PRODUCTION SYSTEMS**  
ICRAF, NAIROBI, KENYA (UNPUBLISHED DRAFT)  
XZ EN pp. 1-22

General review of diagnostic methods for agricultural production systems. The different methods are: use of secondary information; informal surveys (Sondeo); formal, single visit surveys with structured questionnaires; dynamic diagnosis (multiple visit or monitoring surveys); and special purpose studies. Each method is described in terms of specific objectives, sampling techniques and types of data. The author compares and rates their effectiveness to meet specific criteria related to achievement of objectives, reliability of data and use of resources.

1. **FARMING SYSTEMS APPROACH; SURVEYS; REVIEW OF METHODS**
2. **INFORMAL FARMER SURVEYS; FORMAL FARMER SURVEYS;  
SECONDARY DATA**

165  
08109  
C

BOX, L. (1987)

**EXPERIMENTING CULTIVATORS: A METHODOLOGY FOR ADAPTIVE  
AGRICULTURAL RESEARCH**

PAPER PRESENTED AT WORKSHOP ON FARMERS AND AGRICULTURAL  
RESEARCH: COMPLEMENTARY METHODS, 26-31 JULY, INSTITUTE FOR  
DEVELOPMENT STUDIES, BRIGHTON, UK  
XZ EN pp. 1-22

Case study of a methodology to include farmer experimentation in the development of agricultural research programmes, from the Wageningen Agricultural Research Programme in the Dominican Republic. The methodology includes the following aspects: (1) historic: reconstruction of farmer biographies to learn about farmer experiments to improve technologies; (2) agronomic: translation of farmer experiments into scientific designs, adapting scientific trials to local conditions; (3) sociological: transformation of local knowledge and informal information networks into general statements and networks. The paper provides a general methodology framework, but little information on data requirements and specific methods.

1. **AGRICULTURE; RESEARCH; FARMER EXPERIMENTATION; CASE STUDY**

166  
B02585  
C

CASLEY, D.J.; LURY, D.A. (1982)

**MONITORING AND EVALUATION OF AGRICULTURE AND RURAL  
DEVELOPMENT PROJECTS**

JOHNS HOPKINS UNIVERSITY PRESS, LONDON, UK  
XZ EN pp. 1-145

World Bank handbook of monitoring and evaluation for project managers. The different roles of project monitoring and evaluation are explained and criteria for indicator selection are identified. The authors discuss data sources, specific M&E methods and procedures, including direct observations, sampling and survey design, data collection and measurements, data processing, analysis and presentation.

1. **M&E SYSTEM; REVIEW OF METHODS; GUIDELINES; PROJECT**

167  
B03871

C

CONWAY, G.R. (1986)

**AGROECOSYSTEM ANALYSIS FOR RESEARCH AND DEVELOPMENT**  
WINROCK INTERNATIONAL INSTITUTE FOR AGRICULTURAL  
DEVELOPMENT, BANGKOK, THAILAND

XZ EN pp. 1-111

Methodology and applications of agroecosystem analysis for research and development projects. The procedure for development applications encompasses the following steps: development of key questions, guidelines and working hypotheses; assessment of innovations in terms of productivity, sustainability and equitability; research design and implementation, hypothesis testing and on-farm trials. Rapid rural appraisal (RRA) techniques to be used in the analysis procedure include: diagrammatic history of the area, sketch maps showing key features and agroecological zones; transects to identify problems of each zone; seasonal calendars of climate, crops, livestock, labour, etc.; bar diagrams of income sources; flow diagrams of resource and marketing; decision trees for major farming systems; and Venn diagrams of institutional responsibilities for decision making. The paper provides guidelines for agroecological design and potential areas of application, including agroforestry.

1. AGRICULTURE; PROJECT; GUIDELINES
2. RAPID RURAL APPRAISAL; AGROECOSYSTEM ANALYSIS

168  
08121

C

CONWAY, G.R. (1987)

**DIAGRAMS FOR FARMERS**

PAPER PRESENTED AT WORKSHOP ON FARMERS AND AGRICULTURAL  
RESEARCH: COMPLEMENTARY METHODS, 26-31 JULY, INSTITUTE OF  
DEVELOPMENT STUDIES, BRIGHTON, UK

XZ EN pp. 1-17

General discussion of tools used in rapid rural appraisals and specific focus on the application of diagrammatic models, including maps and transects, seasonal calendars, flow diagrams, decision trees and Venn diagrams. The use of diagrams in agroecosystem zoning is illustrated in several examples, including flow diagrams for sustainability analysis and diagrammatic ranking of innovations according to their potential impact on productivity, stability, sustainability and equitability in innovation performance evaluation.

2. RAPID RURAL APPRAISAL; AGROECOSYSTEM ANALYSIS; GRAPHIC METHODS

169  
10058

C

CONWAY, G.R. (1987)

**RAPID RURAL APPRAISAL FOR SUSTAINABLE DEVELOPMENT:  
EXPERIENCES FROM THE NORTHERN AREAS OF PAKISTAN  
PAPER PREPARED FOR THE CONFERENCE ON SUSTAINABLE  
DEVELOPMENT**

IIED, LONDON, UK

XP/PK EN pp. 1-30

The paper defines the rapid rural appraisal (RRA) methodology and describes the different techniques used in RRA, including secondary data reviews, direct observation, conceptual tools (maps, transects, diagrams, etc.), semi-structured interviews, analytical workshops. Case studies from northern Pakistan illustrate various applications of RRA in development projects.

1. PROJECT; CASE STUDY
2. RAPID RURAL APPRAISAL

170  
09291

C

CONWAY, G.R.; MCCRACKEN, J.A. (1988)

**RAPID RURAL APPRAISAL AND AGROECOSYSTEM ANALYSIS**

IIED, LONDON, UK

XZ EN pp. 1-35

Introduction to agroecosystem analysis and rapid rural appraisal (RRA). Key properties of agroecosystems (productivity, stability, sustainability, equitability) and characteristics of RRA techniques for agroecosystem analysis are discussed. The sequence of different RRA techniques consists of secondary data reviews, semi-structured interviews, direct observations, analytical workshops and conceptual methods such as sketch maps, transects, seasonal calendars, bar diagrams, time trends, Venn diagrams, decision trees and flow diagrams. Each of these techniques is described in terms of objectives and methods of application.

2. RAPID RURAL APPRAISAL; AGROECOSYSTEM ANALYSIS

171  
09298  
C

**CRAIG, I.A. (1988)**  
**SUSTAINABILITY ANALYSIS**  
**AGRICULTURAL DEVELOPMENT TOOLS HANDBOOK NO H17**  
**NERAD PROJECT, KHON KAEN, THAILAND**  
XZ EN pp. 1-16

Description of "sustainability analysis", a tool to develop a framework for defining major problems and constraints in the application of newly developed technologies, and for identifying possible solutions. Other objectives of sustainability analysis are the formulation of recommendation domains and appropriate implementation strategies for new technologies, and the definition of priority research and development needs for technology improvement. The handbook includes a discussion of benefits and advantages, steps and outputs of the sustainability analysis procedure.

#### 1. AGRICULTURE; SUSTAINABILITY; GUIDELINES

172  
09300  
C

**CRAIG, I.A.; SUKAPONG, C. (1988)**  
**AGRICULTURAL TRIAGE**  
**AGRICULTURAL DEVELOPMENT TOOLS HANDBOOK NO H15**  
**NERAD PROJECT, KHON KAEN, THAILAND**  
XZ EN pp. 1-16

Description of "agricultural triage", a tool to screen technologies for farmer adoption according to the criteria of technical feasibility, economic viability, institutional sustainability and social acceptability. The manual includes a discussion of benefits and advantages of agricultural triage and an overview of procedural steps. The latter consist of rating technology performance according to the above criteria, classification of technologies according to their suitability for extension, identification of alternative technologies and documentation of results.

1. AGRICULTURE; GUIDELINES
2. TECHNOLOGY DESIGN
3. TECHNOLOGY PERFORMANCE

173  
B04022

C

FAO (1985)  
**TREE GROWING BY RURAL PEOPLE**  
FORESTRY PAPER NO 64  
FAO, ROME, ITALY  
XZ EN pp. 1-130

The study reviews different strategies to encourage local tree growing and examines programming, planning and institutional issues, which have been dominant features of these strategies. The chapter on programme planning and design discusses in general terms the importance of collecting background information for planning and design of interventions and the amount and type of data required before project start. It explains the role and function of project monitoring and evaluation.

1. SOCIAL FORESTRY; PROJECT ACTIVITY PLANNING; FARMER PARTICIPATION; DATA REQUIREMENTS

174  
B03234

C

FAO (1986)  
**FORESTRY EXTENSION ORGANIZATION**  
FORESTRY PAPER NO. 66  
FAO, ROME, ITALY  
XZ EN pp. 1-167

The paper reviews some of the major institutional issues in forestry extension, with particular emphasis on community forestry. The chapter on learning through evaluation lists the types of field data to be collected at each of five project stages, including: programme appraisal and planning, setting up, contact stage, impact stage and "residual" stage. Most of the data concerns extension effectiveness, emphasizing the role of evaluation by the community, but monitoring of biophysical and technical aspects is included as well. The use of M&E information is discussed in general terms.

1. SOCIAL FORESTRY; FARMER PARTICIPATION; DATA REQUIREMENTS

175  
09289  
C

FISHER, R.J. (1988)  
**A PROPOSAL FOR SOCIO-ECONOMIC MONITORING AND EVALUATION OF  
NAFP/3**  
NEPAL-AUSTRALIA FORESTRY PROJECT, KATHMANDU, NEPAL  
XP/NP EN pp. 1-23

Discussion of a proposed approach to evaluate the socio-economic impact of a social forestry project in Nepal. After a critical discussion of past experiences with questionnaire surveys in Nepal, the author suggests alternative methods, which include participant observation, rapid rural appraisal, interest group meetings and meetings of village leaders. The approach proposed for socio-economic monitoring and evaluation of the NAFP consists of a combination of progress reports, case studies of selected communities, special purpose studies, routine field visits, field reports and participatory evaluation.

1. SOCIAL FORESTRY; PROJECT; SURVEYS; CASE STUDY
4. SOCIO-ECONOMIC CHANGES; INFORMAL FARMER SURVEYS;  
FARMER MEETINGS; FORMAL FARMER SURVEYS

176  
09288  
C

FISHER, R.J. (1988)  
**CONFUSING NUMBERS WITH FACTS: A NOTE OF CAUTION ABOUT THE  
RESULTS OF QUANTITATIVE SURVEY QUESTIONNAIRES**  
PROCEEDINGS OF THE SECOND MEETING OF THE WORKING GROUP ON  
FODDER TREES, FOREST FODDER AND LEAF LITTER, 6-7 DECEMBER,  
KATHMANDU, NEPAL  
NEPAL-AUSTRALIA FORESTRY PROJECT, KATHMANDU, NEPAL  
XP/NP EN pp. 16-18

Critical discussion of questionnaire surveys in development projects and their potential shortcomings and problems, based on experiences from Nepal. Data errors related to household definition, livestock ownership or landholdings are common due to the inappropriateness of using fixed categories imposed by questionnaire surveys for complex socio-economic situations. The author makes suggestions on how to improve the accuracy of quantitative questionnaire surveys.

1. SOCIAL FORESTRY; PROJECT; SURVEYS

177  
05977

C

FOX, J. (1986)

**AERIAL PHOTOGRAPHS AND THEMATIC MAPS FOR SOCIAL FORESTRY**

SOCIAL FORESTRY NETWORK PAPER NO 2C

ODI, LONDON, UK

XZ EN pp. 1-9

Case study of the use of aerial photographs and thematic maps as interviewing tools to collect information on land use practices, based on experiences from a social forestry project in Java, Indonesia. The development of land use sketch maps was based on aerial photographs, thematic maps and ground truthing through farmer interviews. Photos and maps were then discussed with farmers and information on land use was recorded directly on transparent sheets overlaying the maps and photographs.

1. SOCIAL FORESTRY; PROJECT; CASE STUDY
2. GRAPHIC METHODS

178  
B03979

C

GROEN, B.C.; HUIZENGA, C.R. (1987)

**HAVE PLANNERS UNDERSTOOD THE POOR PEOPLE'S ENERGY PROBLEM?  
SOCIO-ECONOMIC ASPECTS OF ENERGY TECHNOLOGIES**

UNIVERSITY OF TWENTE TECHNOLOGY AND DEVELOPMENT GROUP,  
THE NETHERLANDS

XZ EN pp. 1-386

Assessment and evaluation of rural energy surveys in terms of methods used for information collection, reliability of household sample surveys and dissemination of results. Types of surveys include socio-economic differentiation, supply assessments of traditional fuel sources, energy shortage analysis, external environments and needs assessments. An annotated bibliography of energy surveys is appended.

1. RURAL ENERGY; SURVEYS; REVIEW OF METHODS

179  
10299

C

GUBBLES, P. (1988)

**PEASANT FARMER AGRICULTURAL SELF-DEVELOPMENT: THE WORLD  
NEIGHBOURS EXPERIENCE IN WEST AFRICA**

WORLD NEIGHBOURS, OKLAHOMA, USA

XA EN pp. 1-8

The paper presents the strategy of World Neighbours for technology planning and design in community-based agricultural development projects and a case study of technology testing by farmers in Mali. At the planning and design stage, the approach consists of secondary data collection, followed by a survey with farmers to help them analyze their own agricultural problems through structured discussions. Topics include changes in agricultural practices over time, problems limiting production and their causes, and indigenous research. Potential solutions and research priorities are then identified by farmers and technologies are field-tested on-farm, whereby farmers are responsible for collecting basic field data. After crop harvests, the technologies are evaluated through farmer meetings.

1. AGRICULTURE; PROJECT; FARMER PARTICIPATION; CASE STUDY
2. INFORMAL FARMER SURVEYS; SECONDARY DATA; PROBLEM IDENTIFICATION
3. ON-FARM EXPERIMENTS; FARMER EVALUATION; FARMER MEETINGS

180  
07442

C

**HARDCASTLE, P.D. (1987)**  
**MICROPLANNING FOR SOCIAL FORESTRY: A DESCRIPTION OF THE**  
**SYSTEMS DESIGNED FOR KARNATAKA SOCIAL FORESTRY PROJECT, INDIA**  
**SOCIAL FORESTRY NETWORK PAPER 4C**  
ODI, LONDON, UK  
XP/IN EN pp. 1-24

Description of a planning methodology for village-based social forestry activities, which encompasses the following steps: identification of the target village; community profile (location, physical factors, social groups, livestock, land resources, existing social forestry activities); individual interviews to determine needs and priorities (fuel, fodder, etc.); identification of extension target groups and of appropriate forestry interventions using a table that ranks their efficiency and effectiveness in meeting the identified needs of target groups; formulation of activities and identification of technologies; and coordination with District level activities.

1. SOCIAL FORESTRY; PROJECT; PROJECT ACTIVITY PLANNING; CASE STUDY
2. SITE SELECTION; TECHNOLOGY DESIGN; FARMER SELECTION; INFORMAL FARMER SURVEYS; PRIORITY RANKING

181  
05228

C

HYMAN, E.L. (1985)

**MONITORING AND EVALUATION OF FORESTRY PROJECTS FOR LOCAL  
COMMUNITY DEVELOPMENT**

AGRICULTURAL ADMINISTRATION Vol 19

XZ EN pp. 139-160

The article offers a general discussion of different objectives of monitoring and evaluation and of problems related to impact evaluation. Constraints and critical factors for effective M&E are identified based on experiences from past projects. They include overcoming staff resistance to M&E, identification of data requirements and appropriate indicators; frequency and timing of reports; appropriate data collection methods for different types of evaluations (surveys, case studies, workshops, interviews, experiments, cost-benefit analysis); data processing and analysis; location and organization of M&E units; budgeting and cost overruns; presentation and use of findings and periodic appraisals of the M&E system. Examples and information requirements for M&E of "Forestry for Community Development" projects are appended.

1. SOCIAL FORESTRY; PROJECT; M&E SYSTEM; DATA REQUIREMENTS

182  
09295

C

KITSCHOLT, F. (1986)

**MONITORING AND EVALUATING INDO-GERMAN DHAULADHAR PROJECT:  
OPERATION HANDBOOK**

INDO-GERMAN DHAULADHAR PROJECT, INDIA

XP/IN EN pp. 1-171

Operational handbook for M&E, developed by the Indo-German Dhauladhar Project, a GTZ-supported integrated rural development project in India. Components of the M&E system are: A system for quantitative monitoring of performance, objectives, achievements and overall impact; an integrated system for ongoing project-internal evaluation, including evaluation of technologies; an adapted, client-oriented feedback and reporting system; and a complementary documentation system to fit specific project requirements. The emphasis is on oral, qualitative M&E methods, complemented by written reports, short studies and surveys. Examples of M&E forms are included.

1. RURAL DEVELOPMENT; PROJECT; M&E SYSTEM; GUIDELINES;  
CASE STUDY

183  
09297  
C

**KUMAR, K. (1987)**  
**RAPID, LOW-COST DATA COLLECTION METHODS FOR AID**  
**PROGRAM DESIGN AND EVALUATION METHODOLOGY REPORT NO 10**  
**USAID, WASHINGTON, D.C., USA**  
XZ EN pp. 1-34

Description of characteristics, advantages and limitations, skill and time requirements, outputs and application areas of several informal data collection methods. These include key informant interviews, focus group interviews, community interviews, direct observation and informal surveys.

1. PROJECT; DATA COLLECTION; REVIEW OF METHODS

184  
08111  
C

**LIGHTFOOT, C.; DE GUIA JR, O.; ALIMAN, A.; OCADO, F. (1987)**  
**LETTING FARMERS DECIDE IN ON-FARM RESEARCH**  
**PAPER PRESENTED AT WORKSHOP ON FARMERS AND AGRICULTURAL**  
**RESEARCH: COMPLEMENTARY METHODS, 26-31 JULY, INSTITUTE OF**  
**DEVELOPMENT STUDIES, BRIGHTON, UK**  
XZ EN pp. 1-12

The author presents a methodology for on-farm research design by farmers, based on the experience of the "Farming Systems Development Project Eastern Visayas" in the Philippines, which is supported by Cornell University. Research design steps are: (1) Problem identification: preliminary exploration of farming systems problems through recorded, informal discussions with farmer groups and formal discussions with individual farmers, followed by selection of priority problems through farmer consensus; (2) diagnosis of farming systems: formulation of guide topics from previous discussions and key informants, informal survey with randomly selected households, system diagramming through analysis of informal survey data, trial diagrams with key informants and group meetings to reach consensus; (3) elaboration of farmer hypotheses: identification of possible solutions by farmers using system diagrams, farmer visits to experimental farms, screening of potential solutions, definition of hypotheses and identification of experimental areas by farmers.

1. FARMING SYSTEMS APPROACH; ON-FARM RESEARCH; RESEARCH PLANNING; FARMER PARTICIPATION

185

09292

C

MCCRACKEN, J.A.; CONWAY, G.R. (1988)

**TRAINING NOTES FOR AGROECOSYSTEM ANALYSIS FOR DEVELOPMENT:  
ETHIOPIA**

IIED, LONDON, UK

XZ EN pp. 1-55

Training manual for rapid rural appraisal (RRA) and agroecosystem analysis techniques prepared for development workers in Ethiopia. Basic concepts and types of agroecosystems are defined. Four categories of RRA are identified and objectives and outputs of each explained (exploratory, topical, participatory and monitoring RRA). Different RRA techniques, including secondary data review, semi-structured interviews, direct observation, diagrams and workshops are defined and discussed in terms of purpose, content and application. Examples of outputs of different techniques are included.

1. TRAINING; GUIDELINES
2. RAPID RURAL APPRAISAL; AGROECOSYSTEM ANALYSIS

186

B02258

C

MURPHY, J.; SPREY, L.H. (1982)

**MONITORING AND EVALUATION OF AGRICULTURAL CHANGE**

ILRI, WAGENINGEN, THE NETHERLANDS

XZ EN pp. 1-314

Handbook with guidelines for design and implementation of M&E systems for agricultural research and development programmes in the semi-arid tropics. A general discussion of M&E concepts is followed by a step by step description of the development of an M&E unit. These include delimitation of the work, allocation of resources, general rules for interviews, preparation of a survey programme, the visit and tabulation system of validity control, data processing for manual and computerized analysis, evaluation at household and project level and reporting. The second part of the manual provides information on methodologies for different stages and components of an M&E system, including marketing, agricultural production and practices, livestock surveys, etc., as well as on specific techniques, e.g. for sample selection, data analysis and data presentation.

1. AGRICULTURE; PROJECT; M&E SYSTEM; GUIDELINES

187  
09301  
C

**MUTSAERS, H.J.W.; FISHER, N.M.; VOGEL, W.O.; PALADA, M.C. (1986)**  
**A FIELD GUIDE FOR ON-FARM RESEARCH**  
IITA, IBADAN, NIGERIA  
XZ EN pp. 1-197

In the introduction to the field guide concepts and objectives of on-farm research are discussed. Guidelines are then provided for each phase of the on-farm research process. The latter consists of: collection of initial information about the research area (exploratory survey with field visits and interviews, analysis of farmers' conditions); description of the research area (physical, biological and human environment, farming systems, production factors, decision making, constraints and opportunities); on-farm experimentation (choice of innovations, design of on-farm trials, management, monitoring and evaluation). The authors review basic economic principles and statistical techniques for use in on-farm research. Methods for each step of on-farm research are described in detail and examples of data collection forms are included.

#### 1. AGRICULTURE; ON-FARM RESEARCH; GUIDELINES

188  
09294  
C

**NERAD PROJECT MANAGEMENT TEAM (1987)**  
**THE NERAD LOGICAL FRAMEWORK: A PROJECT DESIGN SUMMARY FOR**  
**PLANNING, MONITORING AND EVALUATION**  
NERAD PROJECT, KHON KAEN, THAILAND  
XP/TH EN pp. 1-15

Example of the USAID logical framework matrix for project planning, monitoring and evaluation from the North East Rainfed Agriculture Development (NERAD) project in Thailand. Monitoring levels are goal, intermediate goals, purpose and outputs. For each level objectively verifiable indicators are developed, means of verification identified and underlying assumptions stated. Means of verification for the NERAD project include reports, interviews, field observations, minutes of meetings and workshops, on-farm experiments, demonstration trials and land use maps.

#### 1. AGRICULTURE; M&E SYSTEM; PROJECT; CASE STUDY

189  
09293  
C

OSTBERG, W. (1984)  
**SOCIO-ECONOMIC ASPECTS OF SOIL CONSERVATION IN KENYA: A GUIDE  
TO WRITING SOIL CONSERVATION PROFILES**  
MINISTRY OF AGRICULTURE/SIDA, NAIROBI, KENYA  
XA/KE EN pp. 1-42

Guidelines for the preparation of soil conservation profiles, designed as a planning tool for Ministry of Agriculture staff to assess the state of soil conservation in specific areas. A description of the survey methodology and a questionnaire are included, as well as guidelines for implementation and analysis of results and for preparation of soil conservation profiles.

1. SOIL CONSERVATION; PROJECT; PROJECT ACTIVITY PLANNING;  
SURVEYS; GUIDELINES; CASE STUDY

190  
B03817  
C

POATE, C.D.; CASLEY, D.J. (1985)  
**ESTIMATING CROP PRODUCTION IN DEVELOPMENT PROJECTS: METHODS  
AND THEIR LIMITATIONS**  
THE WORLD BANK, WASHINGTON, D.C., USA  
XZ EN pp. 1-33

The authors provide guidelines and methods for measuring crop production in agricultural development projects. These include complete harvesting and sample crop cutting, sample sizes and crop designs, farmer estimates of outputs, area measurements and ground transects. Examples from Nigeria illustrate the application of different methods.

1. AGRICULTURE; PROJECT; GUIDELINES
3. TECHNOLOGY PERFORMANCE; MEASUREMENTS

191  
09299  
C

PRETTY, J.N.; CRAIG, I.A.; CHOUANGCHAM, P. (1988)  
**PREFERENCE RANKING: A TOOL FOR ANALYZING THE PREFERENCES OF  
FARMERS OR OTHER INDIVIDUALS**  
AGRICULTURAL DEVELOPMENT TOOLS HANDBOOK NO H1  
NERAD PROJECT, KHON KAEN, THAILAND  
XZ EN pp. 1-10

"Preference ranking" is described as a method of identifying farmer criteria for selecting certain items and activities over others. The objective of the preference ranking exercise is to gain an understanding of decision-making processes, and to identify differences in perceptions between farmers, extension workers, researchers, planners and others. Benefits and advantages are discussed and procedural steps are presented as a flowchart. Several case studies illustrate the applications of preference ranking in projects.

1. **AGRICULTURE; PROJECT; PROJECT ACTIVITY PLANNING; FARMER PARTICIPATION; GUIDELINES**

192  
10303  
C

SCHEUERMEIER, U. (1988)  
**APPROACH DEVELOPMENT: A CONTRIBUTION TO PARTICIPATORY DEVELOPMENT OF TECHNOLOGIES BASED ON A PRACTICAL EXPERIENCE IN TINAU WATERSHED PROJECT, NEPAL**  
LANDWIRTSCHAFTLICHE BERATUNGSZENTRALE, LINDAU, SWITZERLAND  
XP/NP EN pp. 1-40

The paper describes the approach to planning and design of innovations with rural communities, which was developed in the context of the Tinau Watershed Project in Nepal. "Approach development" regards the farming families as the main actors in development and attempts to encourage and assist rural families in identifying and formulating their problems and in finding their own solutions. The author describes the tools used by project workers to monitor the development of interventions, which are based on ideas by farmers and extensionists. The most important tool is a set of files documenting the process of innovation at the household level and updated on a regular basis. Working hypotheses provide a provisional understanding of the farming system and form the basis of actions undertaken to solve problems. By closely monitoring the outcome of actions, hypotheses are verified or rejected.

1. **RURAL DEVELOPMENT; PROJECT; PROJECT ACTIVITY PLANNING; RECORD KEEPING; FARMER PARTICIPATION; CASE STUDY**

193  
B03816  
C

SCOTT, C. (1985)  
**SAMPLING FOR MONITORING AND EVALUATION**  
THE WORLD BANK, WASHINGTON, D.C., USA  
XZ EN pp. 1-44

World Bank manual for field workers on sampling procedures for monitoring and evaluation. General principles and definitions for sampling are introduced and objectives, characteristics and application areas for formal and informal surveys are discussed. The author describes different sampling techniques and methods for determining sample sizes and explains the use of sample repetitions and rotations.

1. M&E SYSTEM; SAMPLING; GUIDELINES

194

10024

C

SLADE, R.H.; CAMPBELL, J.G. (1986)

**AN OPERATIONAL GUIDE TO THE MONITORING AND EVALUATION OF SOCIAL FORESTRY IN INDIA**

NATIONAL WASTELANDS DEVELOPMENT BOARD, NEW DELHI, INDIA  
XP/IN EN pp. 1-218

Monitoring and evaluation handbook for social forestry projects in India, which generally include a farm forestry component. Information requirements for M&E of farm forestry include: participation, seedling sources, numbers and species of trees planted, planting purpose, configurations, survival, growth, inputs, use of tree products and species demand. Sampling procedures are described and guidelines provided for implementation of M&E operations, data processing and analysis. The manual includes the questionnaire and datasheets to be used for M&E surveys.

1. SOCIAL FORESTRY; M&E SYSTEM; PROJECT; SAMPLING; DATA REQUIREMENTS; SURVEYS; GUIDELINES

195

B05012

C

STEINER, K.G. (1987)

**ON-FARM EXPERIMENTATION HANDBOOK FOR RURAL DEVELOPMENT PROJECTS. GUIDELINES FOR THE DEVELOPMENT OF ECOLOGICAL AND SOCIO-ECONOMIC SOUND EXTENSION MESSAGES FOR SMALL FARMERS**  
GTZ, ESCHBORN, WEST GERMANY

XZ EN pp. 1-307

The handbook is intended for use in rural development projects as a tool for conducting exploratory surveys and organizing on-farm research programmes. After an introduction to the objectives and concepts of on-farm research, guidelines are provided for each step of the research process. These include: collection and analysis of background information; exploratory surveys; analysis of farming systems; inventory and evaluation of possible solutions to identified problems; planning of on-farm

experiments; organization and management, monitoring and evaluation of on-farm trials. The methodological section of the handbook is based on IITA's field guide for on-farm research (Mutsaers et al. 1986). The final section provides four examples of on-farm research programmes in GTZ rural development projects.

1. **RURAL DEVELOPMENT; PROJECT; ON-FARM RESEARCH; GUIDELINES; CASE STUDY**

196  
08651  
C

**STROUD, A. (1985)**  
**ON-FARM EXPERIMENTATION: CONCEPTS AND PRINCIPLES**  
CIMMYT, NAIROBI, KENYA  
XZ EN pp. 1-94

Guidelines for on-farm agricultural research, prepared for the CIMMYT East Africa Programme. The introduction to on-farm experimentation (OFE) includes a discussion of historical perspectives, objectives, types, characteristics and uses of OFE. Information is provided on principles, methods and procedures for location of trials, trial management, experimental design, data collection, farmer and extension participation, trial layout and planning for experimental management.

1. **AGRICULTURE; ON-FARM RESEARCH; GUIDELINES**

197  
08652  
C

**STROUD, A. (1985)**  
**ON-FARM EXPERIMENTATION: GUIDELINES FOR USING OFE  
METHODOLOGY IN CROPS, LIVESTOCK AND AGROFORESTRY  
EXPERIMENTATION**  
CIMMYT, NAIROBI, KENYA  
XZ EN pp. 1-59

Practical guidelines for design and implementation of on-farm crop and livestock experiments. The paper includes a brief introduction to agroforestry experiments, in which characteristics of experimental treatments, factors affecting implementation and criteria for evaluation are discussed. The latter include sustainability of yields, fodder preferences of livestock, time saving and labour use, conservation of woodlands, crop yield trade-offs with increased production of fuel for fodder and farmer assessments of technologies.

1. **AGRICULTURE; AGROFORESTRY; ON-FARM RESEARCH; GUIDELINES**

198  
08653

C

**STROUD, A. (1986)**  
**ON-FARM EXPERIMENTATION: EVALUATION OF ON-FARM TRIALS -**  
**STATISTICAL EVALUATION AND INTERPRETATION**  
CIMMYT. NAIROBI, KENYA  
XZ EN pp. 1-75

The paper describes statistical techniques that can be used, in combination with economic and sociological data handling methods, to evaluate on-farm agricultural experiments. The discussion of techniques includes subjective evaluations, i.e. visual comparisons and farmer comments, re-analysis of data, data summaries, testing of means, correlations and regressions, methods for improving precision and pooling of data, use of chi-squares and data interpretation.

1. AGRICULTURE; ON-FARM RESEARCH; EVALUATION; GUIDELINES

199  
10019

C

**THE HILLYLAND FARMING SYSTEMS TEAM (1986)**  
**HILLYLAND FARMING IN CANDIS VALLEY (BACUNGAN, PUERTO PRIMESA,**  
**PALAWAN): A RAPID RURAL APPRAISAL REPORT**  
FARMING SYSTEMS AND SOIL RESOURCES INSTITUTE, LOS BANOS,  
PHILIPPINES  
XP/PH EN pp. 1-69

Case study by the Farming Systems and Soil Resources Institute of the University of the Philippines to evaluate existing farming systems and test the appropriateness of rapid rural appraisal (RRA) techniques in the context of hillyland farming systems. The following procedures and methods were used for the RRA: secondary data collection; watershed mapping and vegetation transects for biophysical profiles; informal interviews with farmers and key informants to establish socio-economic profiles; RRA team workshop to summarize results and forum consultation with farmers on farming systems problems, community organization and environmental management. The report includes a description of the methodology, results and an interview guide.

1. FARMING SYSTEMS; CASE STUDY
2. RAPID RURAL APPRAISAL

200  
B05320  
C

**FARMING SYSTEMS SUPPORT PROJECT (1987)**  
**DESIGN TECHNIQUES FOR ON-FARM EXPERIMENTATION**  
FSR/E TRAINING UNITS: VOLUME 2  
UNIVERSITY OF FLORIDA, GAINESVILLE, USA  
XZ EN pp. 1-356

Training manual for the design of on-farm trials in farming systems research and extension. The manual consists of five separate training units, which provide guidelines on different aspects of research design. These include: prioritization of farmer problems on the basis of production systems, cropping or grazing patterns or other specific subjects; criteria for the selection of treatments; experimental design, advantages and disadvantages of different types of designs; trial management and data collection; problem areas in the implementation of farming systems research and extension. The training units are organized in terms of prerequisites, participant levels, learning objectives, key points, definition of terms and a discussion.

1. FARMING SYSTEMS APPROACH; TRAINING; GUIDELINES
2. ON-FARM RESEARCH; TRIAL MANAGEMENT

201  
B05319  
C

**FARMING SYSTEMS SUPPORT PROJECT (1987)**  
**DIAGNOSIS IN FARMING SYSTEMS RESEARCH AND EXTENSION**  
FSR/E TRAINING UNITS: VOLUME 1  
UNIVERSITY OF FLORIDA, GAINESVILLE, USA  
XZ EN pp. 1-238

Training manual for diagnostic procedures used in farming systems research and extension. The manual consists of nine separate training units for different aspects of farming systems diagnosis, including: composition of multi-disciplinary study teams; models to describe and analyze farming systems and their components; methods to approach communities; grouping farmers and developing extension recommendation domains; methods for collecting diagnostic information; use of existing information; informal surveys for data collection; simplified procedures for formal surveys; establishment of research priorities for on-farm trials. Each training unit is organized in terms of learning objectives, key points, definition of terms and discussion.

1. FARMING SYSTEMS APPROACH; TRAINING; GUIDELINES
2. FARMING SYSTEMS DESCRIPTION; PROBLEM IDENTIFICATION;  
SECONDARY INFORMATION; FORMAL FARMER SURVEYS;  
INFORMAL FARMER SURVEYS

202  
09652  
C

**VON PLATEN, H.; RODRIGUEZ, P.G.; LAGEMANN, J. (1982)**  
**FARMING SYSTEMS IN ACOSTA PURISCAL, COSTA RICA**  
CATIE, TURRIALBA, COSTA RICA  
XL/CR EN pp. 1-146

Description of the planning and design methodology of a GTZ-supported farming systems research and development project at CATIE in Costa Rica. Farming systems in the Acosta-Puriscal area were analyzed through a multi-visit, year-long survey to monitor crop yields, farm inputs and outputs, labour, product sales, income and general farm activities. Field observations and measurements were carried out of field sizes, topography, plant population densities and yields. Technologies were tested simultaneously to develop recommendations for agricultural research and extension. Survey results, recommendations and a description of the methodology are included.

1. FARMING SYSTEMS APPROACH; PROJECT; PROJECT ACTIVITY PLANNING; CASE STUDY
2. FARMING SYSTEMS DESCRIPTION; FORMAL FIELD SURVEYS; FORMAL FARMER SURVEYS

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BO	Bolivia	PH	Philippines
CO	Colombia	PK	Pakistan
CR	Costa Rica	RW	Rwanda
EC	Ecuador	SD	Sudan
ET	Ethiopia	SN	Senegal
GH	Ghana	TH	Thailand
HT	Haiti	TZ	Tanzania
ID	Indonesia	XA	Africa
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Project Name	Country	Type <sup>2</sup>	Organization <sup>3</sup>	Contact Address
Agroforestería Rural Con Alimentos Programme	Peru	AFE	CARE	Mr. Thomas Alcedo Country Director Apartado 14-0228, Lima 14
Agroforestry Extension Programme	Zimbabwe	AFE	Agritex	Mr. Newton Spicer Agroforestry Extension Specialist P.O. Box 8117 Causeway, Harare
Agroforestry Extension Project	Kenya	AFE	CARE	Mr. Walter Msimang Country Director P.O. Box 43864, Nairobi
Agroforestry On-Farm Research Programme	India	OFR	Tata Energy Research Institute	Mr. A.N. Chaturvedi Senior Fellow 90, Jor Bagh New Delhi 110003

<sup>1</sup>Projects without contact addresses were identified through the literature.

<sup>2</sup>Abbreviations for project types are explained at the end of Appendix 1.

<sup>3</sup>Most projects are joint efforts of several institutions, but for reasons of space these can not all be mentioned here. Only the organizations that have directly contributed to the review are listed.

Project Name	Country	Type	Organization	Contact Address
Agroforestry Outreach Project	Haiti	AFE	CARE	Mr. Donald Mansius Project Coordinator B.P. 773 Port-au-Prince
Agroforestry Pilot Project for Zimbabwe's Communal Lands	Zimbabwe	OFR AFE	Zimbabwe Forestry Commission/Ford Foundation	Ms. Jeanette Clarke Research Officer P.O. Box HG 595 Harare
Agroforestry Project	Zaire	AFE	IMELOKO/HOPE International	Paul Noren Project Manager B.P. 1377, Bangui Central African Republic
Agroforestry Research Project	Costa Rica	AFR	UN/CATIE	John Beer CATIE, Turrialba (project no longer exists)
Agroforestry Research and Demonstration Programme	India	OFR	Bharatiya Agro-Industries Foundation	Mr. N.G. Hedge Vice President Kamdhenu, Senapati Bapat Marg, Poona 411016
Agroforestry Research and Extension Programme	Pakistan	AFR (AFE)	Agricultural Research Council, Forestry and Environment	Mr. Gulam Akbar Deputy Director P.O. Box 1031 Islamabad 44690
Aménagement Forestier et Reboisement Villageois de Koulikoro	Mali	CF	FAO	Mr. J. Parkan Conseiller Technique Principal B.P. 1820, Bamako

Project Name	Country	Type	Organization	Contact Address
Andhra Pradesh Social Forestry Project	India	SF	CIDA/Forest Department	Mr. R. McFarlane Principal Technical Adviser c/o Forest Development Corporation 6th Floor, NMDC Building Welfare Centre, Masab Tank Hyderabad 500028
ASEAN Watershed Project	Philippines	RD	USAID	Mr. S.R. Saplaco Associate Professor and Project Director College, Laguna 4031
165 Baringo Fuel and Fodder Project	Kenya	CF	DGIS/Ministry of Energy	Mr. Murray Roberts Project Manager P.O. Box 1051, Nakuru
Baudha Bahunepati Family Welfare Project	Nepal	RD	World Neighbours	Mr. T.L. Arens South Asia Representative P.O. Box 916, Kathmandu
Cereals Production II Project	Senegal	AFE	USAID	Mr. J.W. Bonner Deputy Agriculture Development Officer c/o Ambassade des Etats Unis, Dakar
Chad Reforestation Project	Chad	AFE	CARE	Project no longer exists

Project Name	Country	Type	Organization	Contact Address
Chivi/Zvishavane Community-Based Management of Indigenous Woodland Demonstration	Zimbabwe	AFE	ENDA	Mr. Charles Gore Director P.O. Box 3492 Harare
Community Forestry Project	India	CF	Forest Department	Mr. D.P.S. Verma Conservator of Forests Social Forestry Kothi Annexe, Vadodara Gujarat State
Community Forestry Project	Nepal	CF	HMG/UNDP/FAO	c/o FAO Representative P.O. Box 25, Kathmandu
Community Forestry Project	Panama	AFE	CARE	Mr. Colin Beckwith ANR Programme Coordinator Apartado Postal 729 Tegucigalpa, Honduras (project no longer exists)
Community Land Use Management Project	Ecuador	AFE	CARE	Mr. Ron Savage Project Coordinator Apartado 4998, Cuenca
Conservation Farming Project	Sri Lanka	RD	GTZ	Mr. Lionel Weerakoon Agricultural Research Station Maha Illuppillama, Colombo
Danao Intensified Upland Development Project	Philippines	AFE	CARE	Ms. Yola M. Mingoa Area Manager Espiritu Building 33 Gen. Maxilom Ave. 6000 Cebu City

Project Name	Country	Type	Organization	Contact Address
Dhading District Development Project	Nepal	RD	GTZ	Mr. Rainer Schmidt DDDP Team Leader c/o GTZ Admin. Service P.O. Box 1457 3-70 Pulchowk Lalitpur Kathmandu
Dryland Agroforestry Research Project	Kenya	OFR (OSR)	KEFRI/ICRAF	Dr. Arap Sang Project Manager P.O. Box 20412, Nairobi
Dryland Farming Systems Project	Indonesia	AFE	CARE	Mr. Cor De Wolf Project Manager P.O. Box 41 Mataram 83126, NTB
Eastern Refugee Reforestation Project	Sudan	TPE	CARE	Country Director P.O. Box 2702, Khartoum (project no longer exists)
Farm Forestry Project	Nepal	OFR	Institute of Agriculture and Animal Science	Mr. Pradeep Dixit Coordinator Rampur, Chitwan
Farming Systems Research Project	Rwanda	OFR (OSR)	USAID	Mr. Charles Yamoah B.P. 625, Kigali
Farming Systems Programme	Nigeria	OSR (OFR)	IITA	Dr. B.T. Kang Soil Scientist P.M.B. 5329, Ibadan
Farming Systems Research Project	Rwanda	OSR (OFR)	ISAR	Chef du Projet B.P. 629, Kigali

Project Name	Country	Type	Organization	Contact Address
Forest, Trees and People Project	Thailand	AFE	UNDP/FAO	Project Coordinator FAO Regional Office for Asia and Pacific Phra Atit Road Bangkok 10200
Forestry Extension Project	Kenya	TPE	CRS	Mr. John Maina Agroforester P.O. Box 48932, Nairobi
Forestry, Soil and Water Conservation Unit	Ethiopia	AFE	Agri-Service	Mr. Frans Werter P.O. Box 2460, Addis Ababa
Future Forests Project	Kenya	AFE	Future in Our Hands	Mr. Bob East Forester P.O. Box 579, Homa Bay
Gituza Forestry Project	Rwanda	AFE	CARE	Mr. C. Scheiffele Country Director B.P. 550, Kigali
Haraghe Highlands Programme	Ethiopia	AFR	Alemaya College Forest Authority	
Highland Agricultural and Social Development Project	Thailand	RD	Australian International Development Assistance	Dr. Terry Bull Team Leader P.O. Box 210 Chiangmai 50000
Homboy Agroforestry Project	Somalia	AFE	World Concern	Mr. Michael Madany P.O. Box 1629, Mogadishu

Project Name	Country	Type	Organization	Contact Address
Humid Zone Programme	Nigeria	OFR	ILCA	Mr. A.N. Atta-Krah AFNETA c/o IITA P.M.B. 5329, Ibadan
Indo-German Dhauladhar Project	India	RD	GTZ	Project Team Leader Palampur 176061 Kangra District, H.P
Himachal Pradesh Social Forestry Project	India	SF	Department of Forest Farming and Conservation	
Integrated Development of Phu Wiang Watershed Project	Thailand	RD	UNDP/FAO	Mr. P. van Ginneken Team Leader P.O. Box 13, Phu Wiang Khon Kaen 40150
Integrated Rural Development Project	Sri Lanka	RD	Forest Department	Director Forest Dept., Ratnapura
Integrierte Entwicklungsmaßnahmen für die Inseln Fogo und Brava	Cape Verde	RD	GTZ	Mr. Herbert Helle C.P. 41 Sao Filipe, Fogo
Java Social Forestry Project	Indonesia	SF	Ford Foundation/ Winrock	Ms. Carol Stoney P.O. Box 2030 Jakarta 10001
Konto River Project	Indonesia	RD	DHV	Mr. Jan DeGraaff Agricultural Economist P.O. Box 67, Malang

Project Name	Country	Type	Organization	Contact Address
Kordofan Agroforestry Extension Project	Sudan	AFE	CARE	Country Director P.O. Box 2702, Khartoum
Koro Village Agroforestry Project	Mali	AFE	CARE	Mr. Marshall Burke Programme Coordinator B.P. 1766, Bamako
Kenya Renewable Energy Development Project	Kenya	AFE (OSR)	Ministry of Energy	Mr. B. Gatundu Head of Biomass/Woodfuel Resources Department P.O. Box 30582, Nairobi
170 Kenya Woodfuel Development Project (now KWAP) <sup>4</sup>	Kenya	AFE (OSR)	Ministry of Energy/ Beijer Institute	Mr. Shuma KWAP Director P.O. Box 47919, Nairobi
Leprosy Control Project	Somalia	AFE	World Concern	Mr. M. Madany P.O. Box 1629, Mogadishu
Liwonde ADD Project	Malawi	RD	GTZ	Mr. G. Schweizer Research Officer Private Bag 3, Liwonde
Local Resources Development Project	Haiti	RD	CARE	Mr. John Mosher ANR Programme Coordinator B.P. 773, Port-Au-Prince
Maradi Agroforestry Project	Niger	AFE	CARE	Mr. Nick Marshall Project Manager B.P. 10155, Niamey

<sup>4</sup>In 1989 the KWDP was renamed Kenya Woodfuel and Agroforestry Project (KWAP). It is now implemented through the ETC Foundation in the Netherlands.

Project Name	Country	Type	Organization	Contact Address
Mae Chaem Agroforestry Project	Thailand	AFE	CARE	Mr. Mike Carroll Assistant Country Director G.P.O. Box 19 Bangkok 10501
Majjia Valley Windbreak Project	Niger	AFE	CARE	Country Director B.P. 10155, Niamey
Mindanao Baptist Rural Life Centre	Philippines	RD	Baptist Mission	Rev. H. Watson Director P.O. Box 94, Davao City
Mindoro Upland Farmers Productivity Project	Philippines	RD	CARE	Mr. F. Tolentino Project Manager P.O. Box 2052, Manila
Mixed Systems for Small Farmers Project	Costa Rica	AFR (AFE)	CATIE/ROCAP	Project no longer exists
Mobilizing Against Desertification Programme	Kenya	TPE	Diocese of Kisii	Sr. D. Rauch M.A.D. Coordinator P.O. Box 719, Kisii
Mutomo Soil and Water Conservation Programme	Kenya	SCE (TPE)	DANIDA	Mr. P. Enhardt Project Coordinator P.O. Box 125, Mutomo
National Dairy Development Project	Kenya	LD AFE	DGIS/Ministry of Livestock Development	Mr. B. Vosknil c/o Ministry of Livestock Development P.O. Box 34188, Nairobi

Project Name	Country	Type	Organization	Contact Address
National Soil Conservation Programme	Kenya	SCE	SIDA/Ministry of Agriculture	Mr. Bo Tegnäs, Forester P.O. Box 30600, Nairobi
National Soil Conservation and Agroforestry Extension Programme	Zambia	AFE SCE	Government	Mr. S.J. Gossage P.O. Box 50291, Lusaka
Natural Resources Management Project	Rwanda	AFE	USAID	c/o Mission Director B.P. 28, Kigali
Nepal-Australia Forestry Project	Nepal	F	Australia Intl. Development Assistance Bureau/ Government of Nepal	Mr. R.J. Fisher Project Support Officer G.P.O. Box 208, Kathmandu
North East Rainfed Agricultural Development Project	Thailand	RD	USAID	Mr. I.A. Craig Tha Phra, Khon Kaen 40260
PAK-German Integrated Rural Development Project	Pakistan	RD	GTZ	Mr. G. Dillenberger Agricultural Advisor P.O. Box 61 Mardan/N.W.F.P.
Philippines Rainfed Resources Project	Philippines	RD	USAID	Mr. R. Resseguie Chief, Agricultural Development Division Ramon Magsaysay Centre 1680 Roxas Boulevard, Manila
Programa de Repoblamiento Forestal	Bolivia	F	CORDECO-COTESU-IC/ SDC	Mr. Michel Schlaifer Asesor Forestal Casilla 975, Cochabamba

Project Name	Country	Type	Organization	Contact Address
Programa de Suelos Tropicales	Peru	OSR OFR	Universidad Estatal de Carolina del Norte/INIPA	Dr. L. Szott, Jefe Estación Experimental Yurimaguas/Loreto
Projet Agropastoral	Rwanda	AFR AFE	GTZ	Project Team Leader B.P. 70, Nyabisindu
Projet Agrosylviculture, Reboisement et Conservation du Sol	Haiti	AFE SCE	Helvetas	Directeur du Projet B.P. 13197, Delmas
Projet Bois de Village	Burkina Faso	CF	SDC	Mr. N. Kuratli Conseiller Technique Regional B.P. 578, Ouagadougou
Projet d'Appui au Reboisement Villageois	Madagascar	CF	SDC	Mr. G. Besmer Ingénieur Forestier B.P. 4052 Antananarivo 101
Projet d'Elevage Bovin Sous Palmeraies et Cocoteraies	Ivory Coast	CAF	Palminindustrie	
Projet de Reboisement Villageois dans le Nord-Ouest du Bassin Arachidier	Senegal	AFE	FAO	Directeur du Projet B.P. 154, Dakar
Projet Haies Vives	Burkina Faso	AFR	IDRC/Ministère de l'Environnement et du Tourisme	Mr. G. Zagani Chef du Projet B.P. 7044, Ouagadougou

Project Name	Country	Type	Organization	Contact Address
Projet Intégration Agro-Sylvo-Pastorale	Rwanda	AFE	German State Government/Commune de Mugusa	Mr. Uwe Korus Project Manager B.P. 233, Butare
Projet Lova Soa	Madagascar	SCE (AGE)	SDC	Mr. A. Stoeckli B.P. 1278, Fianarantsoa
Projet Reboisement	Burundi	F	World Bank	Directeur du Projet B.P. 1716, Bujumbura
Promotion of Adapted Farming Systems Based on Animal Traction	Cameroon	RD	GTZ/Ministry of Agriculture	Dr. Karl Schleich Sub-Project Manager B.P. 558, Bamenda
Proyecto Agroforestal CATIE/GTZ	Costa Rica	OFR	GTZ	Dr. A. Bonnemann Project Manager CATIE, Turrialba
Proyecto Arbolandino	Peru	CF	Intercooperation	Ing. E. Chevallier Asesor Tecnico Correo Central Principal Ap. 491, Puno
Proyecto de Investigación en Sistemas Agro- forestales	Peru	OFR	Instituto Nacional de Investigación Agraria y Agro- Industrial	Ing. A. Castillo-Quilano Coordinador, Investigación en Manejo Forestal Apartado 201, Pucallpa
Proyecto Desarrollo Agro-Forestal del Valle de Tarija	Bolivia	AFR	GTZ	Jefe del Proyecto Casilla 1141 Tarija

Project Name	Country	Type	Organization	Contact Address
Proyecto Desarrollo Agropecuario	Bolivia	RD	FAO	
Proyecto Dominicco-Alemán de Conservación de Suelos y Sistemas Agroforestales	Dominican Republic	SCE AFE	SEA/DED	Joachim Boehnert SEA/DED - Mao Apartado 34 Mao - Valverde
Proyecto Rural de Alimentación y Salud	Peru	RD	GTZ	Dr. J.J. Herrmann Asesor Tecnico Principal c/o Ministerio de Salud Av. Nicolas de Pierola 904 Urb. Primavera, Trujilla
Proyecto Valle de Sancta	Bolivia	CF	GTZ	Mr. R. Cleveringa Casilla 1503, Cochabamba
Refugee Settlement Farms Project	Somalia	AFE	World Concern	Mr. Gregg Keen Project Manager P.O. Bcx 1629, Mogadishu
Research and Extension Division	Sri Lanka	AFR (AFE)	Forest Department	Mr. S.Z. Thaha Programme Specialist Agriculture USAID Mission P.O. Box 106, Colombo 3
Ruhengeri Resource Analysis and Management	Rwanda	RD (AFR)	USAID	c/o Mission Director B.P. 28, Kigali (project no longer exists)

Project Name	Country	Type	Organization	Contact Address
Rumonge Agroforestry Project	Burundi	AFE	CRS	Mr. Paul Cowles Project Manager B.P. 665, Bujumbura
Rural Fuelwood and Polewood Research Project	Malawi	OSR (OFR)	IDRC/Forestry Research Institute	Mr. L.A. Sitaubi Assistant Chief Forestry Officer P.O. Box 270, Zomba
Rural Tree Support Project	Kenya	TPE	Forestry Department/SDC	Director P.O. Box 30752, Nairobi
Saradidi Rural Health Project	Kenya	RD	TEAR Fund	Mr. Elisha Hindia Project Agriculturalist P.O. Box 33, Nyilima
Shelterbelts in the Northern Region	Sudan	AFE	FAO	Project Coordinator P.O. Box 1117, Knartoum
Small Ruminants Collaborative Research Support Project	Kenya	OFR	USAID	Mr. Moses Onim Agronomist P.O. Box 252, Maseno
Social Forestry Programme	Philippines	SF	University of the Philippines	Mr. R. Lasco College, Laguna 4031
Soil Erosion Control and Agroforestry Project	Tanzania	RD	GTZ	Dr. Fitter Team Leader P.O. Box 72, Lushoto Tanga

Project Name	Country	Type	Organization	Contact Address
Soil Productivity Research Programme	Zambia	OFR (OSR)	Misamfu Research Station	Mr. Smart Lungu Agroforester P.O. Box 410055, Kasama
South Nyanza District Afforestation Programme	Kenya	AFE	DANIDA/Forest Department	Project Coordinator P.O. Box 646, Homa Bay
Subproyecto Agroforestal del Oriente	Ecuador	AFE	USAID/CIAT	Mr. J. Toledo Project Director Apdo. Aereo 6713 CIAT Cali, Colombia
177 Tahoua Agroforestry Project	Niger	AFE	CARE	Mr. Leigh Hart Project Manager B.P. 10155, Niamey
Taita/Taveta District Development Programme	Kenya	RD	DANIDA/Ministry of Planning	Mr. E. Meier Nielsen Forestry Adviser P.O. Box 1143, Wundanyi
Tamil Nadu Social Forestry Project	India	SF	SIDA	
Tea Smallholders Assistance Project	Sri Lanka	AFE	CARE	Mr. M. Ilankoon Agricultural Consultant P.O. Box 1024, Colombo
Technical Assistance to Terai Forestry Project	Nepal	OFR (AFE)	UNDP/FAO	Mr. P.T. Evans APO Agroforestry/Extension P.O. Box 107, Kathmandu

Project Name	Country	Type	Organization	Contact Address
Thai-German Land Settlement Project	Thailand	RD	GTZ	Dr. M. Ruedenauer Senior Adviser Dept. of Public Welfare, Land Settlement Division Krung Kasem Road, Bangkok
Tillabry Agroforestry Project	Niger	AFE	CARE	Mr. A. Maiga Agroforestry Coordinator B.P. 10155, Niamey
Tinau Watershed Project	Nepal	RD	Helvetas/GTZ	Mr. R.R. Aryal Monitoring Officer P.O. Box 113, Ekanta Kuna Jawalakhel, Kathmandu
Transmigration Area Development Project	Indonesia	RD	GTZ	Mr. G. Roelcke Regional Planner P.O. Box 146, Padang Sumatra
Turkana Rural Development Project	Kenya	RD	NORAD	Mr. E. Barrow Forestry Adviser P.O. Box 175, Lodwar
VI Tree Planting Project	Kenya	TPE	VI Magazine	Mr. N. Kimanzu P.O. Box 2006, Kitale
Woodlot Appraisal Project	Kenya	TPE	B.A.T.	

## ABBREVIATIONS FOR PROJECT TYPES

AFE	Agroforestry Extension	OSR	Agroforestry On-Station Research
AFR	Agroforestry Research	RD	Rural Development
CAF	Commercial Agroforestry	SF	Social Forestry
CF	Community Forestry	SCE	Soil Conservation Extension
F	Forestry	TPE	Tree Planting Extension
LD	Livestock Development		
OFR	Agroforestry On-Farm Research (i.e. projects with significant on-farm research component)		

## APPENDIX 2

### GLOSSARY

<b>Agriculture</b>	General descriptor used for agriculture projects or programmes or for methods derived from agriculture.
<b>Agroecosystem Analysis</b>	Analysis of agroecosystems (ecological systems partly modified by man to produce food, fibre or other agricultural products) in terms of productivity, stability, equitability and sustainability, using rapid rural appraisal techniques. Agroecosystem analysis is used for planning and design of new interventions.
<b>Agroforestry</b>	A land use system, in which woody perennials (trees, shrubs, palms, bamboo) are deliberately used on the same land management unit as agricultural crops (woody or not) and/or animals, either in some form of spatial arrangement or temporal sequence. The term is used here as a general descriptor for projects or programmes, which include agroforestry activities or for concepts/methods developed for agroforestry M&E.
<b>Agroforestry Area</b>	Area under agroforestry, e.g. kilometres of windbreaks or hectares of on-farm woodlots. The term is used in the index for the assessment of the area under agroforestry to evaluate project impact.
<b>Baseline Data</b>	Information about the project area and/or population collected at the beginning of the project, for the purpose of evaluating changes due to project interventions through comparisons with similar data collected at later stages. The term is indexed as an activity in planning/design.
<b>Benefit Distribution</b>	Distribution of project benefits among different groups of participants. The term refers to assessments carried out for the purpose of evaluating project impact.
<b>Biophysical Site Description</b>	Description of biophysical characteristics of the project area, communities or farms, including soils, topography, climate and natural vegetation, as part of the technology planning/design process.

<b>Case Study</b>	In depth study of individual cases, e.g. of projects, programmes, villages, households, generally to develop a better understanding of processes.
<b>Data Management</b>	Collection, compilation, analysis, interpretation and evaluation of data.
<b>Data Requirements</b>	Refers here to specific information requirements for M&E.
<b>D&amp;D</b>	Diagnosis and Design (D&D) is a methodology for the diagnosis of land management problems and design of agroforestry solutions. It was developed by ICRAF to assist agroforestry researchers and development field workers to plan and implement effective research and development projects.
<b>Demonstration Plot Monitoring</b>	The continuous collection of information from agroforestry plots established for the purpose of demonstrating tree species and/or technologies to farmers. Demonstration plots are monitored to evaluate the performance of agroforestry technologies or components.
<b>Destructive Sampling</b>	Sampling of vegetation for the purpose of yield assessment, whereby the plants are removed from the sample area.
<b>Environmental Impact</b>	Effect of interventions on the environment, e.g. soil erosion, tree cover, water quality or microclimate. The term is used here to describe activities to evaluate the environmental impact of development projects or programmes.
<b>Evaluation</b>	General descriptor, which refers to formal midterm or ex-post evaluations of projects or special evaluation studies.
<b>Existing Natural Resources</b>	The term is used here for the assessment of existing natural resources (in most cases woody vegetation) in the project area, community or farm as part of the planning and design process.
<b>Existing Technologies</b>	Performance evaluation of agroforestry systems in farmers' fields, which have not been introduced by the project.
<b>Farmer Attitudes</b>	The term is used in the index for the assessment of perceptions and attitudes of farmers toward issues related to project interventions (e.g. tree planting, agroforestry, trees in general), either as part of the planning/design process or to evaluate changes due to the project (i.e. impact).

<b>Farmer Evaluation</b>	Refers here to the assessment of farmers' opinions about MPTS or agroforestry technologies introduced by the project, for the purpose of evaluating technologies after they have been established on-farm.
<b>Farmer Evaluation of Proposed Technologies</b>	The term signifies the assessment of farmers' opinions about agroforestry technologies proposed by the project or demonstrated on research stations as part of the technology planning/design process.
<b>Farmer Experimentation</b>	Farmers' experiments with technologies or components in their own fields, either spontaneous or project-induced.
<b>Farmer Field Days</b>	Meetings with farmers on research stations, demonstration or research plots or on farms, generally to discuss technologies and obtain feedback from farmers on technology design and performance.
<b>Farmer Meetings</b>	Meetings or workshops of farmer groups with or without extension workers and project staff.
<b>Farmer Participation</b>	Active farmer involvement in project decision making. The term is used here to indicate participatory M&E methods.
<b>Farmer Selection</b>	Selection of farmers for participation in project or research activities. The term is used here for the description of methods used for farmer selection.
<b>Farming Systems Approach</b>	Refers here to projects or methods, which emphasize the systems approach to the analysis of farms or in the general project strategy.
<b>Farming Systems Description</b>	Description of the farm as a system and of the interrelations between system components (human resources, animals, crops, trees, water, energy, cash, etc.)
<b>Forestry</b>	Used here for conventional forestry projects or programmes or for methods derived from forestry.
<b>Formal Farmer Surveys</b>	Statistically designed surveys, which are based on interviews with farmers.
<b>Formal Field Surveys</b>	Statistically designed surveys of biophysical parameters carried out on-farm and encompassing measurements and/or counts.

<b>Graphic Methods</b>	The term refers here to visual methods of evaluation, including photographs, maps, sketches, drawings, etc. They are generally used for diagnostic purposes, or to evaluate changes over time.
<b>Guidelines</b>	General descriptor referring to manuals and handbooks, which contain guidelines for M&E.
<b>Indigenous Knowledge</b>	Traditional farmer knowledge about trees, tree growing or agroforestry. The term is used in the index for the assessment of indigenous knowledge as part of the planning/design process.
<b>Informal Farmer Surveys</b>	Surveys based on farmer interviews that are not statistically designed.
<b>Resource Inventory</b>	Refers to natural resource inventories (mainly of woody vegetation)
<b>Land Use Changes</b>	The term is used for the assessment of project-induced changes in land use for the purpose of evaluating project impact.
<b>M&amp;E System</b>	General descriptor referring to documents concerned with M&E systems and/or general M&E issues (in contrast to documents, which only describe M&E methods).
<b>MPTS Arrangements</b>	Spacings and configurations of multi-purpose trees and shrubs in agroforestry systems. The term is used for the assessment of MPTS arrangements for technology evaluation in agroforestry projects.
<b>MPTS Management</b>	Management of multi-purpose trees and shrubs by farmers, which may include tree planting methods, maintenance (weeding, watering, etc.), pruning, pollarding, harvesting and utilization. The term refers to the assessment of MPTS management for technology evaluation in agroforestry projects.
<b>MPTS Performance</b>	MPTS performance in farmers' fields, which may include the assessment of tree survival, mortality, growth rates and growth characteristics, site adaptability, species suitability for specific purposes, pest/disease problems and/or farmer species preferences. The term is used for the assessment of MPTS performance for evaluating technologies in agroforestry projects.
<b>Needs Assessment</b>	Refers here to the assessment of farmer, household or community needs, which can be addressed through project interventions, as part of the technology planning/design process.

<b>Observational Methods</b>	Informal field surveys, which are based on casual observations on-farm.
<b>On-Farm Experiments</b>	Research trials systematically set out to observe or evaluate crop, tree or livestock components or technologies in the farm environment.
<b>On-Farm Plot Monitoring</b>	The continuous collection of data from on-farm agroforestry plots for technology evaluation.
<b>On-Farm Research</b>	General descriptor for documents describing research conducted in farmers fields.
<b>On-Station Experiments</b>	Experiments carried out under controlled conditions on research stations.
<b>Priority Ranking</b>	Ranking of farmers' priorities for development interventions, e.g. tree species or technologies, as part of the planning/design process.
<b>Problem Identification</b>	Refers here to activities to identify farming systems problems for the purpose of technology design.
<b>Project Activity Planning</b>	The term refers to the description of processes or methods for planning and designing project or programme activities.
<b>Rapid Rural Appraisal</b>	Systematic, semi-structured activity carried out in the field by a multidisciplinary team and designed to acquire quickly new information on, and new hypotheses for rural development.
<b>Review of Methods</b>	Refers to documents that review a range of M&E methods.
<b>Rural Development</b>	The term is used here to indicate rural development projects or programmes, or methods derived from such programmes.
<b>Secondary Data</b>	Information from external sources, e.g. census data, government statistics or previous surveys. The term is used in the index for the collection of such data for diagnostic purposes, baseline data collection or evaluation of changes over time.
<b>Site Selection</b>	Selection of sites (villages, farms, etc.) for project interventions. The term is used here for the description of methods used for site selection.
<b>Social Forestry</b>	The term is used here as a general descriptor to indicate social forestry projects or programmes, or methods derived from such programmes.

<b>Socio-Economic Changes</b>	Refers to the assessment of changes due to project interventions, carried out for the purpose of project impact evaluation.
<b>Socio-Economic Data</b>	The term refers to the collection of data from households, communities or individuals on social and economic aspects during technology planning/design.
<b>Soil Conservation</b>	General descriptor used for soil conservation projects or programmes or for methods derived from such projects.
<b>Surveys</b>	A process that involves the systematic collection of information from a sample of individual units in a given population (e.g. of farms, farmers, trees) on a one-time or intermittent basis.
<b>Sustainability</b>	In this context, the term is used for the potential of agricultural systems to maintain or increase productivity over time, without significant resource degradation.
<b>Technology Adoption</b>	Adoption of new technologies by farmers. In most of the reviewed documents, criteria for adoption were not specified.
<b>Technology Design</b>	Specification of sites, components, arrangements, functions and management of technologies.
<b>Technology Diffusion</b>	Spontaneous adoption of technologies by farmers outside the project area or by farmers not directly participating in project activities. The term is used here for assessments carried out to evaluate project impact.
<b>Technology Performance</b>	The term is used for the assessment of agroforestry technology performance in farmers' fields, which may include component yields (trees, crops, livestock), soil fertility and erosion, tree/crop compatibility, economic costs and benefits and evaluation by farmers.
<b>Traditional Agroforestry</b>	Existing agroforestry practices by farmers. The term refers to the identification, description, analysis and/or evaluation of such practices as input for technology design.
<b>Traditional Tree Growing</b>	Traditional tree growing practices by farmers (not limited to agroforestry). The term is used for the identification of such practices during technology planning/design.

<b>Tree Planting Interest</b>	Farmers' interest in planting trees on their farms. Refers to the assessment of general tree planting interest during planning and design of project interventions.
<b>Trees Planted</b>	Number and species of trees planted on-farm. The assessment of trees planted is commonly used to evaluate forestry or agroforestry project impact.
<b>Trial Management</b>	Management of experimental plots (maintenance, data collection, treatments, harvesting, etc.) on research plots or in farmers' fields.

### APPENDIX 3

#### LIST OF ACRONYMS

AEP	Agroforestry Extension Project
AFMEMP	Agroforestry Monitoring and Evaluation Methodology Programme
AFRENA	Agroforestry Research Network for Africa
AID	Agency for International Development (= USAID)
AIDAB	Australian International Development Assistance Bureau
BAT	British American Tobacco
CATIE	Centro Agronomico Tropical de Investigación y Enseñanza
CFA	Central Forest Administration (Sudan)
CIDA	Canadian International Development Agency
CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	International Maize and Wheat Improvement Centre
CRS	Catholic Relief Services
CSC	Commonwealth Science Council
DANIDA	Danish International Development Agency
DBH	Diameter at Breast Height
D&D	Diagnosis and Design
DFS	Dryland Farming Systems
DGF	Direction Générale des Forêts
DHV	DHV Consulting Engineers
E/DI	Energy/Development International
ENDA	Environnement et Développement Tiers-Monde
FAO	Food and Agriculture Organization of the United Nations
FSR	Farming Systems Research

FY	Fiscal Year
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HADO	Hifadhi Ardhi Dodoma
HMG	His Majesty's Government (Nepal)
ICRAF	International Council for Research in Agroforestry
IDRC	International Development Research Centre
IFDC	International Fertilizer Development Centre
IIED	International Institute for Environment and Development
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa
ILRI	International Institute for Land Reclamation and Improvement
IMELOKO	Institut Médical Evangélique Loko (Zaire)
INFOCOMM	ICRAF Information and Communications Division
IRDP	Integrated Rural Development Project
ISAR	Institut des Sciences Agronomiques du Rwanda
KEFRI	Kenya Forestry Research Institute
KREDP	Kenya Renewable Energy Development Programme
KWDP	Kenya Woodfuel Development Programme
LAI	Labat-Anderson, Inc.
LFS	<i>Leucaena</i> -Based Farming System
M&E	Monitoring and Evaluation
MPTS	Multi-Purpose Tree and Shrub
NAFP	Nepal-Australia Forestry Project
NDDP	National Dairy Development Project
NERAD	North East Rainfed Agricultural Development
NGO	Non-Governmental Organization
NORAD	Norwegian Agency for International Development

ODH	Operation Double Harvest
ODI	Overseas Development Institute
OFE	On-Farm Experimentation
OFR	On-Farm Research
PADF	Pan-American Development Foundation
PCARRD	Philippines Council for Agriculture, Forestry, Natural Resources and Development
PIASP	Projet Intégration Silvo-Pastorale
PIE	Project Implementation and Evaluation
RAES	Rural Afforestation Extension Service
RAT	Rapid Assessment Technique
ROCAP	USAID Regional Office for Central American Programmes
RRA	Rapid Rural Appraisal
RRAM	Ruhengeri Resource Analysis and Management
RTAT	Regional Technical Advisory Team
SALT	Sloping Agricultural Land Technology
SDC	Swiss Development Cooperation
SIDA	Swedish International Development Authority
SR-CRSP	Small Ruminants-Collaborative Research Support Programme
TCR	Technical Component Research
TIRDEP-SECAP	Tanga Integrated Rural Development Programme - Soil Erosion Control and Agroforestry Project
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development