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**CANADIAN INTERNATIONAL DEVELOPMENT AGENCY
(CIDA)**

**INTERNATIONAL DEVELOPMENT RESEARCH CENTRE
(IDRC)**

**INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT
(IFAD)**

**ALLEY FARMING NETWORK FOR
TROPICAL AFRICA
(AFNETA)**

THIRD YEAR EVALUATION REPORT

VOLUME I

**INTERNATIONAL INSTITUTE OF
TROPICAL AGRICULTURE (IITA)
Ibadan, Nigeria**

August 20th, 1992

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ACRONYMS AND ABBREVIATIONS

ACDI/CIDA	Agence canadienne de développement international/Canadian International Development Agency
ADP	Agricultural Development Project (Nigeria)
AF	Alley Farming
AFNETA	Alley Farming Network for Tropical Africa
AFRENA	Agroforestry Research Networks for Africa (ICRAF)
AFRNET	Animal Feed Resources Research Network
AGMM	Annual General Membership Meeting (AFNETA)
CGIAR/GCRAI	Consultative Group for International Agricultural Research/ Groupe consultatif pour la recherche agricole internationale
CRDI/IDRC	Centre de recherches pour le développement international/ International Development Research Centre
FAO	Food and Agricultural Organization
FIDA/IFAD	Fonds international de développement agricole/International fund for Agricultural Development
FSR	Farming System Research
IARC	International Agricultural Research Centre
ICRAF	International Centre for Research in Agro-Forestry
ICTD	International Cooperation and Training Division (IITA)
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Centre for Africa
IRZ	Institut de recherche zootechnique (Cameroun)
KARI	Kenyan Agricultural Research Institute
KEFRI	Kenyan Forestry Research Institute
MAP	Mémoire d'approbation de projet (ACDI)
MCL	Matrice du cadre logique (ACDI)

MPT	Multipurpose Tree
NARO	National Agricultural Research Organization (Ouganda)
NARS	National Agricultural Research Systems
NGO/ONG	Non Governmental Organization/Organisation non gouvernementale
POP	Plan d'opération de projet (ACDI)
PRA	Participatory Rural Appraisal
PTD	Participatory Technology Development
RCMD	Resource and Crop Management Division (IITA)
R&D	Research and Development
USAID	United States Agency for International Development
WAFSRN	West African Farming Systems Research Network

A C K N O W L E D G M E N T S

Au terme d'un séjour de cinq semaines passées au Nigéria ainsi que dans sept autres pays d'Afrique subsaharienne, la mission d'évaluation conjointe CIDA/IDRC/IFAD du projet AFNETA tient à remercier très sincèrement toutes les personnes qui, de près ou de loin, ont contribué aux informations et réflexions contenues dans le présent rapport. Nos remerciements s'adressent tout particulièrement aux dirigeants et au personnel de IITA qui ont grandement facilité notre séjour à Ibadan, aux responsables, chercheurs, techniciens et travailleurs des NARS, ainsi qu'aux nombreux paysans et paysannes rencontrés sur le terrain. Nous n'oublions pas, pour leur très grande disponibilité et leurs attentions à notre endroit, les deux coordonnateurs de l'AFNETA, Drs. Atta-Krah et Sanginga ainsi que Madame Virginie Amoussouvi qui s'est chargée avec beaucoup d'efficacité de la dactylographie et mise en page du présent document.

EXECUTIVE SUMMARY

- Description and organization of the AFNETA network

L'AFNETA (Alley Farming Network for Tropical Africa) est un réseau qui se consacre à l'échange d'informations ainsi qu'à la promotion, au financement et au développement des activités associatives de recherche et de formation au sein des systèmes nationaux et internationaux de R & D pour l'agriculture en couloirs en Afrique tropicale. Le mandat de l'AFNETA en matière de recherche couvre spécifiquement les diverses possibilités d'agroforesterie, culture et élevage qu'offre l'agriculture en couloirs, de façon à mettre en place des systèmes cultureux viables et adaptés aux diverses zones agro-écologiques de l'Afrique sub-saharienne. La décision de mettre sur pied un tel réseau afin de réaliser les objectifs sus-cités a été prise en mars 1986 à Ibadan, Nigéria, lors d'un atelier consacré à cette technologie.

La responsabilité de préparer un document sur les orientations et activités de l'AFNETA et de réunir les fonds nécessaires au lancement du réseau a été confiée à l'IITA et ILCA. Par la suite l'ICRAF a accepté de parrainer également l'AFNETA.

L'AFNETA est ouverte à toute personne s'intéressant à la recherche sur l'agriculture en couloirs et/ou au développement de cette technologie.

L'organisation du réseau s'articule autour d'un Comité directeur élu par l'assemblée des membres du réseau. Ce Comité est principalement chargé de déterminer les orientations stratégiques du réseau, en planifier les programmes et interventions et en superviser les réalisations. Une unité centrale de coordination assure la gestion courante des opérations. A l'heure actuelle 32 institutions nationales sont appuyées par l'AFNETA dans la réalisation d'activités de recherche associative en station et/ou en milieu paysan dans plus de 20 pays africains. L'AFNETA, après trois ans d'existence, est considérée comme l'un des réseaux les plus dynamiques du continent.

- Relevant information about IDRC/CIDA and IFAD projects

L'Agence canadienne de développement international (ACDI) a accepté d'apporter son soutien à l'AFNETA en finançant, de concert avec le CRDI, la tête du réseau et ce pour une période de cinq ans (1988-1993) à compter de novembre 1988. La signature d'un accord de financement entre le CRDI et IITA a marqué la naissance officielle de l'AFNETA.

Par la suite, le Fonds international pour le développement agricole (FIDA) accordait à l'AFNETA, par le biais de IITA, une subvention de 1.22 millions de dollars US sur trois ans (1990-1992), permettant de ce fait à l'AFNETA de financer une première série de projets de recherche associative devant être menés par 28 institutions nationales de 17 pays africains.

A ces deux financements, dont les objets sont complémentaires, se sont ajoutés par la suite d'autres collaborations techniques et/ou contributions financières de l'USAID, de l'Agence danoise pour le développement international (DANIDA), de IITA, ICRAF, ILCA et divers autres organismes. Fondation FORD, WINROCK, Institut international pour l'environnement et le développement (IIED).

- Purpose of the evaluation, scope and methodology used

Il s'agit d'une évaluation à mi-parcours (projet ACDI/CRDI-IITA) et finale (projet FIDA-IITA) devant servir à situer la progression du projet, en donner un bilan contextualisé, confirmer ou infirmer les tendances déjà observées.

L'objet principal de cette évaluation est d'apprécier la performance de l'AFNETA en regard des objectifs et résultats escomptés dans les documents de projet en support au réseau et en concordance également avec les buts et objectifs assignés à celui-ci lors de sa constitution. Les axes d'évaluation devaient toucher l'efficacité et l'efficacités et ce, à deux niveaux principaux : mise sur pied et dynamique du réseau et aspect porteur de la technologie

"Alley Farming" auprès des ultimes bénéficiaires du réseau, les populations paysannes africaines.

L'évaluation conjointe ACDI/CRDI/FIDA a été réalisé, de concert avec l'AFNETA, du 14 juillet au 20 août 1992 par six consultants dont les fonctions et origines diverses ont permis une synergie et complémentarité intéressante. L'équipe d'évaluation a été en mesure de visiter une quinzaine de projets supportés par l'AFNETA dans huit pays. Un rapport préliminaire a été déposé, tel que convenu, le 17 août en soirée. Son contenu a été discuté lors d'une réunion tenue le 18 août. L'ensemble des commentaires soulevés ont été analysés par la mission et le rapport, lorsque jugé nécessaire, révisé en conséquence. Le rapport final a été déposé le 21 août. Il fait état d'un certain nombre de contraintes rencontrées lors du déroulement de l'évaluation.

- Main findings and recommendations

L'évaluation devait déboucher sur un certain nombre de constatations et conclusions portant sur l'efficience et l'efficacité du projet considéré globalement ainsi que des recommandations quant à la poursuite de sa mise en oeuvre, l'amélioration éventuelle de la gestion de ses opérations et de son efficacité.

Conclusions principales :

- i) From the outset of implementation of the projects faced difficulties as a result of differences between the documents, internal problems in the documents for each project in respect to conceptualization and design. This is evinced particularly by sets of objectives that are both too broad in scope and impossible to achieve within the time-frames set. In addition there is an associated problem of insufficient specification.

- ii) Research is stated to be AFNETA's major activity. In collaborative work with NARS, research is based upon agreed protocols. In many cases examined, the research protocols agreed could have been improved. Protocols have not been produced for all sub-projects and it is not clear that the AFNETA steering committee have played a strong role in considering and approving in this important area.
- iii) The need for independent peer review in addition to the conventional review process is a major lesson applicable at the level of the project agreement.
- iv) The fundamental question of whether or not alley farming is adoptable has not been addressed so far. An answer is clearly needed. In addressing the problems of the whole farm, alley-farming is one possibility in a selection of technologies. This suggests the need for alley-farming research to be associated with other technological components designed to assist sustainable and profitable improvements for the whole farm.
- v) AFNETA is currently supporting too many projects with too few resources. Priority should be given to developing a role model for the adoption potential of alley farming. To achieve this, choice must be exercised in selecting a few sites where the best chances for adoption are perceived, so that significant manpower and financial resources can be applied to each.
- vi) Project implementation by the coordinating unit has identified significant needs for training and information. Coordinating aspects of national research may be appropriate in some circumstances, but it is in training and information exchange that a network can be of great utility in promoting sustainable development in many countries.
- vii. Some projects are not problem oriented. There is therefore need to put in place a three phase approach to project identification and development; Phase I: Participatory rural appraisal, conceptualization and design; Phase 2. pre-implementation evaluation; Phase 3 : completion of support agreement; Phase 4: Implementation.
- viii) The choice of countries, sites and the amount of funding provided is sometimes questionable.

- ix) Work is in progress to collect, analyse and store data arising from the research undertaken. This work should be extended to include a full review of historic precedents in order to improve the memory bank at AFNETA HQ and in the countries where there is practical collaboration.
- x) The coordination unit have initiated and implemented with others a range of training courses that have been well received as a contribution to institution building. An effect of this work has been the identification of a considerable training need.
- xi) Arising from the manner of protocol implementation and the training activities is the contribution to institution building within collaborating institution. By virtue of the fact of implementing on-station technical experiments a number of scientists have improved their skills and gained new or additional experience in some aspects of alley farming.
- xii) In respect to the professional work done the choice of coordinators is excellent.
- xiii) Considerable work has been done in the last three years by the coordinators in all the activity components, but their workload is too great to perform all the tasks needed. Unfortunately the practical capacity of the coordination unit to perform all the work required as a consequence of the support agreements and the research protocols was never properly identified or studied by the steering committee or the donors. There needs to be a reallocation of the work. This should preferably be done within the network membership, promoting a greater sense of participation.
- xiv) The coordination unit has begun the process of decentralization by encouraging informal coordinators and activities based on regional hubs. This principle can usefully be extended since the coordination workload can be better distributed. A consequence should be an improvement in cost effectiveness.
- xv) The coordination unit has received good technical support from ICRAF in particular, as well as ILCA. Both agencies have provided this without financial compensation. Not enough technical support has been received from IITA and IDRC.

Recommendations principales :

- i) The steering committee should meet to review its guidelines and executive mandate, and to plan and implement changes in its mode of operations to permit sufficient time and input of specialist skills to enable an effective decision-making process.
- ii) The steering committee should be clearly empowered with the mandate to approve and reject all major issues of policy, strategy and tactics, and should have a particular responsibility to ensure that project activities are shaped and steered to meet project objectives and outputs.
- iii) Network membership should be encouraged to participate in the planning processes particularly at the AGM.
- iv) Peer review systems should be implemented immediately as indicated in the body of the report. These should be applied at all appropriate levels, and in the case of AFNETA sub-projects should be clearly sanctioned by the steering committee.
- v) The principle of regional coordination has been established. The formal appointment of part-time regional coordinators is recommended, and their number and roles can best be decided after further development of policy and strategy.
- vi) AFNETA should proceed into a second phase with revisions as indicated hereafter.
- vii) There should be an immediate research shift to implement work designed to identify the adoption potential of alley-farming.
- viii) All new research and development work should be preceded by participatory rural appraisal, conceptualization, design, pre-implementation evaluation (including peer review). On-farm research and on-station research are not mutually exclusive but any necessary on-station research should now be problem orientated and respond to field experience and the field situation.

- ix) The research functions and funding arrangements should be remodelled to provide for a few, perhaps four to six, well designed and distributed sub-projects to investigate the adoption potential of alley farming and associated technologies for the whole farm.
- x) New small projects should only be encouraged in those few cases where there is good rational and very vigorous personnel in place. For example, it would be appropriate to initiate one or two small projects to study traditional forms of alley-farming technologies in order to add substance to present knowledge about farmer rationale. In essence new work should be limited to those situations where a fresh contribution to knowledge about adaption and adoption can be expected. All new activities should fit to historic precedents and complement national plans and programmes.
- xi) Immediate steps should be taken, prior to all other considerations, to undertake the following: a review of alley farming with emphasis upon adaptability and adoptability; development of a detailed policy, strategy and identification of priorities for AFNETA. Views taken should include those of the collaborating IARCS and of the membership; preparation of proposals for each of the key sites identified, to include precise specification of objectives and activities, and clear indications of output and costs. This is a major task that should be completed within six months.

1. INTRODUCTION

1.1. Background to AFNETA

The Alley Farming Network for Tropical Africa (AFNETA) commenced operations in 1989 with the goal of making, "a significant contribution towards the development of sustainable cropping systems, based on alley farming and general agroforestry principles, for different agro-ecological zones in sub-Saharan Africa." (project proposal, undated). The primary mediators in this task were seen as scientists, but the ultimate beneficiaries of their work were to be, "the millions of small scale farmers cultivating agricultural land in the tropics, with little or no resources for the maintenance of soil fertility and enhancement of crop productivity."

The technology of alley farming was developed at the IITA, through research initiated in 1976 to find a viable alternative to traditional shifting agriculture. Since then, alley farming research has spread to many areas and has been supported by two other international agricultural research centres (IARCs) - ILCA and ICRAF. However, it was recognised at an international workshop held at IITA, Ibadan in 1986 that the involvement of National Agricultural Research Systems (NARS) in this research had been minimal. The workshop called for the establishment of a network that would promote and coordinate alley farming research by NARS in collaboration with the IARCs. After two and a half years of preparation and fund-seeking, the network received approval in November 1988. It commenced operations in February 1989 with the joint financial support of IDRC/CIDA and IFAD, and technical backstopping from IITA, ILCA and ICRAF.

The specific objectives of AFNETA as set out in recent documentation¹ are,

- * to assist NARS in the development of their alley farming research programmes
- * to assist in the training of NARS scientists in matters pertaining to alley farming research
- * to coordinate R & D efforts among NARS through information exchange and collaborative linkages with relevant agencies
- * to assist, where possible, in the acquisition of funds for implementing the alley farming R & D programmes in NARS.

Other information on AFNETA goals and targets is presented in Appendix 1

To achieve these objectives, network activities are grouped into four main components, notably administration and coordination; information exchange and dissemination; training; and collaborative research.

Administration and coordination is effected through a coordination unit and steering committee. The former comprises a full time coordinator, assistant coordinator and

¹ "The Alley Farming Network for Tropical Africa (AFNETA) Structure, Programs, and Operations" IITA (1992).

secretary; the latter meets biannually, and is made up of eight NARS representatives, one representative for each of the three back-stopping IARCs, the coordinator and his assistant.

Information exchange and dissemination is effected through three main channels, notably direct correspondance; annual meetings, workshops and conferences; and a newsletter ("Afnetan"), which is scheduled to be produced triannually.

Training is conducted both at the individual and group level, and targets were set at the commencement of AFNETA for the number of individual NARS scientists who would receive formal training over the network's lifespan.

The collaborative research component of AFNETA's operations represents the principal objective of the network, and may be divided into three types; NARS/AFNETA collaborative projects; AFNETA coordination/NARS projects; and external collaborative projects with "centres of excellence" in and outside Africa. The former projects, based on research protocols submitted by NARS, form the bulk of the research component. There are currently 32 national research institutions in 20 countries operating AFNETA projects.

Research supported by AFNETA may be broadly grouped into one of four categories. They are multipurpose tree screening and selection; crop and soil aspects of alley farming management; livestock integration in alley farming; and on-farm socio-economic components. Most research to date has fallen into the second category. The research mandate of AFNETA covers both on-station and on-farm trials, and it was implicit in the donor memorandum that emphasis should be placed progressively on the latter. However, in practise the limited technical capabilities of many of the NARS has meant that most research supported so far by AFNETA has been on-station, with only limited ventures into an on-farm context.

12 OVERVIEWS OF IDRC/CIDA AND IFAD PROJECTS

1.2.1 IDRC/CIDA

Ce projet touche à la fois des pays de l'Afrique francophone et anglophone. Sa finalité vise à améliorer, au profit des populations des zones tropicales, les capacités biophysiques et humaines de production agricole dans le meilleur respect des conditions du milieu.

Le but poursuivi est de développer et promouvoir une alternative valable à la culture itinéraire et, ce faisant, d'empêcher le raccourcissement voire la disparition des jachères.

Le moyen d'atteindre ces objectifs consiste à mettre sur pied un réseau de recherches sur l'agriculture en couloirs, de manière à favoriser, d'une part l'approfondissement des connaissances relatives à ce mode de production agricole et, d'autre part, à en faciliter la diffusion.

En somme, il s'agit d'offrir à la population paysanne une technique viable à l'intérieur d'une agriculture durable et socialement adoptée et adaptée.

La participation de l'ACDI au projet proposé par l'IITA consiste en l'octroi d'une contribution financière de 4.7 millions de \$ CAN. Pendant cinq ans (1988-93), devant servir au financement de l'organisation de la tête du réseau de recherches sur l'agriculture en couloirs (AFNETA). Le CRDI, qui participe également au financement du projet à hauteur de 250.000 \$, a été désigné comme agence d'exécution de ce projet d'action convergente et, à ce titre, est responsable de l'ensemble des activités de programmation, "monitoring" (de concert avec son antenne de Dakar) et suivi budgétaire du projet.

Le CRDI a conclu une entente avec l'IITA pour coordonner le réseau. Le siège permanent du réseau est localisé à Ibadan, à même les installations de l'IITA, de manière à pouvoir compter sur le soutien administratif, logistique, technique et scientifique de cet Institut et de ses membres affiliés.

- soutien à la recherche et au développement ;
- promotion auprès des systèmes nationaux et des autres agences internationales de recherches agricoles ,
- circulation de l'information scientifique ;
- formation et vulgarisation.

Les résultats attendus sont :

- un nombre accru de pays et d'organisations participants au réseau de recherches ;
- de nouveaux projets de recherches ;
- des séminaires et publications scientifiques ,
- une formation des intervenants (chercheurs, techniciens, vulgarisateurs).

La matrice du cadre logique ne précise pas l'ordre de grandeur des extrants à produire.

1.2.2 Overview of IFAD - Project

IFAD's grant of US\$ 1220000 was approved in December 1989 by its executive Board at its thirty ninth session. The fund support was largely confined to the research component of the overall project, being implemented mainly by the NARS, in close collaboration with IITA, ICRAF and ILCA.

The ultimate objective of the project was to assist in the development of sustainable cropping system based on the Alley Farming principle(s) in different agro-ecological zones of sub-saharan Africa. The immediate objectives was to support on-station and on-farm research in 17 countries (59 experiments), to establish alley farming trials to (a) demonstrate through on station research, the bio-physical efficacy of the system under a diverse set of agro-ecological condition; and (b) to assess, through on-farm research, the relevance and acceptability of Alley Farming especially for the resource-poor farmers.

While IFAD ' financial project has a strong emphasis on on-farm research, it recognised that research would first begin on-station and move as soon as practicable to researcher - managed on-farm trials. At the time of evaluation the research orientation has began to strongly shift towards the on farm context and as envisaged in the project towards the end of this phase a substantial number of farmer managed trials will have been fully operational, with preliminary diagnostic surveys and related PRA exercises completed, for most part.

IFAD's project also has a strong emphasis on participatory technology development and the OFR component supported the project stress the importance of an appropriate level of understanding of the farming systems of the potential users of AF. There is explicit emphasis on the fact that farmer-managed trials would be phased in with increased perception and involvement of farmers in the management of the technology in research-managed of trials. It is recognised that the trial design, emphasis, treatments etc. will be modified according to location-specific condition with accompanying appropriate changes in methodology for data collection and analysis, interpretation and evaluation/assessment of the adoptability and adoptability of the technology by farmers.

There are no specific expected outputs rigid time-frame for tangible results outlined by the IFAD project other than a detailed implementation schedule governing the OSR/OFR dynamics and process shift. The emphasis of the IFAD project is on the process of technology development and testing/validation rather than the outcome itself. This latter is in full recognition of the fact that the adoptability of the technology, in spite of its technical efficacy, cannot be determined as a foregone conclusion.

The premise of the project is that these element will become discernible when the on-farm research is operational over a period of time.

This phase of IFAD's project is however, confined to three years, with a recognition that the research process will continue as the network evolves and linkages with development initiatives, including those financed by the Fund become established

1.3 Purpose of the Evaluation

Type, objectifs et envergure de l'évaluation à entreprendre

Il s'agit d'une évaluation à mi-parcours (projet ACDI/CRDI-IITA) et finale (FIDA), devant servir à situer la progression du projet, donner un bilan contextualisé, confirmer ou infirmer les tendances déjà observées.

L'objet principal de cette évaluation est d'apprécier la performance de l'AFNETA :

- i) en regard des objectifs et résultats escomptés dans les documents de projet CIDA/CRDI et IFAD en support au réseau, et
- ii) en concordance également avec les buts et objectifs assignés au réseau lors de sa constitution.

Cette évaluation devait passer en revue les efforts et résultats de l'AFNETA en matière de développement d'une recherche appropriée menée conjointement avec les NARS et ce, en étroite collaboration avec les instituts spécialisés de recherche que sont l'IITA, l'ILCA et ICRAF.

Compte tenu de l'importance et de l'envergure du projet, du laps de temps écoulé depuis sa mise en opération et de sa couverture panafricaine, les axes d'évaluation devraient concernés l'efficience et l'efficacité et ce, à deux niveaux principaux :

- i) la mise sur pied et la dynamique du réseau lui-même dans ses aspects économiques et ressources humaines, ainsi que
- ii) l'aspect porteur de la technique "Alley Farming" auprès des ultimes bénéficiaire, les populations paysannes africaines.

Par efficience, il s'agissait de rechercher jusqu'à quel point les intrants du projet ont été fournis et gérés, les activités planifiées et exécutées de façon la plus adéquate possible et les résultats produits au moindre coût.

Par efficacité, on devait mesurer jusqu'à quel point le projet a produit les résultats prévus et, de ce fait, a atteint son but et ainsi contribué à la réalisation de l'objectif visé.

Considérant que les deux projets, l'un financé par ADCI/CRDI, l'autre par l'IFAD, ont pour objet de supporter différents aspects d'un même programme, considérant par ailleurs que ces aspects sont interdépendants et étroitement imbriqués, il a été proposé par l'AFNETA/CRDI qu'une évaluation conjointe des différents bailleurs de fonds soit réalisée de concert avec l'AFNETA, plutôt que des évaluations séparées.

Considérant enfin que les deux principaux bailleurs de fonds de l'AFNETA (ACDI et FIDA) possèdent leurs propres critères relatifs à ce type d'évaluation, une évaluation conjointe telle que celle réalisée a exigé une grande flexibilité et la recherche permanente d'un consensus. Un rapport commun a été discuté et déposé à Ibadan à l'issue de la mission.

Justifications de l'évaluation

Cette évaluation est justifiée par le développement rapide des activités de l'AFNETA, la nécessité de faire le point sur la progression du projet et d'en apprécier les résultats obtenus, considérant l'importance des contributions du Canada et du FIDA jusqu'ici et advenant une phase éventuelle de consolidation.

Résultats escomptés

Les résultats de l'évaluation doivent permettre de situer les forces et les faiblesses au niveau des ressources impliquées, appuyer une réorientation éventuelle de certaines activités et donner des avis sur les suites à donner à ce projet.

L'évaluation devait donc déboucher sur un certain nombre de constatations et conclusions portant sur l'efficience et l'efficacité du projet considéré globalement ainsi que sur des recommandations quant à la poursuite de sa mise en oeuvre, l'amélioration éventuelle de la gestion de ses opérations et son efficacité.

Considérant l'expérience différenciée des membres de la mission en matière d'évaluation, une telle présentation a favorisé une compréhension aisée de l'ensemble des dimensions générales devant être couvertes par l'équipe.

Les principales questions examinées, regroupées sous chacun des axes précités, sont présentées en Annexe 2. Elles s'inspirent largement des grilles d'évaluation utilisées par le PNUD.

Matrice d'évaluation

Celle-ci établit un rapport entre axes, questions à examiner et sources d'informations, méthodes permettant de recueillir les données, indicateurs objectivement vérifiables (IOV) et normes qui seront utilisées.

Cette matrice est présentée en Annexe 3. Elle tente d'incorporer à la fois le mandat de l'ACDI et la couverture des diverses questions soulevées par l'AFNETA dans ses termes de référence proposés. Cette matrice a été utilisée non pas comme outil systématique de travail mais plutôt comme document de référence.

Collecte des données et d'informations

Les méthodes de collecte de données qui ont été utilisées dans le cadre de l'évaluation sont :

- observations ;
- rencontres informelles ;
- interviews structurés ;
- documents publiés ;
- documents internes/de travail

Clients de l'évaluation

Les clients de l'évaluation sont les principaux bailleurs de fonds de l'AFNETA (ACDI, CRDI, FIDA), les membres du Comité de pilotage et de l'Unité de coordination du réseau AFNETA et ses membres institutionnels. Les exigences quant aux différents aspects à couvrir et contenu du rapport d'évaluation ont été pris en considération par l'AFNETA/IITA qui a soumis à tous les intéressés des termes de référence globaux (annexe 4) et un modèle de présentation de rapport.

1.4 Evaluation Methodology, Management and Limitations

1.4.1 Methodology

Axes d'évaluation

Les axes principaux d'évaluation considérés font référence à l'efficience et à l'efficacité du projet.

Cependant, compte tenu des écarts existants entre les termes de référence établis par l'AFNETA et ceux confiés au consultant canadien principal par l'ACDI, compte tenu également du modèle de présentation de rapport final proposé par l'AFNETA et des directives opérationnelles, sur plusieurs points différents, régissant l'évaluation des projets par l'ACDI et FIDA, il a été proposé que les axes d'évaluation s'articulent autour des trois principales étapes du cycle d'un projet soit, plus précisément et de façon chronologique :

- fondements théoriques et conception des projets ;
- exécution des projets ;
- résultats des projets, auxquels on peut ajouter :

Les outils utilisés sont principalement :

- plans d'entrevues (entrevues formelles) ;
- guides d'entrevues (entrevues informelles) ;
- listes de contrôle et vérification des informations utilisées lors des examens de la documentation.

Une part important du temps de la mission d'évaluation a été consacrée :

- à l'examen de la documentation disponible tant à l'ACDI/CRDI/FIDA qu'à l'AFNETA et à des entrevues avec les responsables concernés à Hull, Ottawa, Rome et Ibadan ;
- aux observations, enquêtes et analyses sur le terrain (huit pays) ;
- aux échanges avec les deux coordonnateurs.

1.4.2 Organization and Management

Composition

L'équipe d'évaluation était composée de six spécialistes de disciplines diverses. Les trois bailleurs de fonds (ACDI, FIDA, CRDI) étaient représentés à parts égales au sein de cette équipe, à laquelle se sont joints les deux coordonnateurs de l'AFNETA à titre de personnes-ressources. Le consultant recruté directement par l'ACDI a assuré la responsabilité de coordonner les tâches d'évaluation et celles relatives à la confection du rapport. La composition de la mission est présentée en annexe 5.

Organisation et déroulement de l'évaluation

L'évaluation a été réalisée du 14 juillet au 20 août 1992, soit cinq semaines.

Trois d'entre elles ont été consacrées à la visite de projets sur le terrain et les deux autres à la préparation/discussion/finalisation du rapport.

L'équipe d'évaluation a analysé un certain nombre de projets déjà identifiés et implantés dans huit pays d'Afrique subsaharienne. Ces projets de culture en couloirs sont situés dans différentes zones agro-écologiques, se trouvent à des

stades d'avancement divers et, selon l'AFNETA qui les a sélectionnés, offrent une image équilibrée et réaliste des interventions de recherches menées tant en station qu'en milieu paysan. Les dirigeants d'un certain nombre d'institutions nationales membres du réseau ont été également rencontrés ainsi que différents chercheurs et hauts fonctionnaires ministériels. Ceci a permis de soupeser la réalité dans laquelle s'effectue les projets de recherches et d'apprécier le dynamisme et l'implication des équipes travaillant en station et en milieu réel.

L'équipe d'évaluation s'est vue dans un premier temps réunie au Nigéria, a passé en revue les activités à entreprendre et visité quelques projets de l'AFNETA au sud du Nigéria et au Bénin. Par la suite, elle a été scindée en deux groupes, chacun de ces groupes visitant un certain nombre de projets dans trois pays.

Un premier groupe a apprécié des projets implantés en Afrique de l'Ouest et Centrale (Ghana, Côte d'Ivoire, Cameroun). Un second a parcouru l'Afrique de l'Est (Kenya, Ouganda, Malawi). L'équipe d'évaluation a été ainsi en mesure de visiter une quinzaine de projets supportés par l'AFNETA (39 essais).

A la fin de la première semaine d'août, les deux groupes d'évaluateurs furent à nouveau réunis à Ibadan pour entamer les travaux de traitement, analyse des données recueillies et préparation du rapport de mission. Un rapport préliminaire a été déposé le 17 août en soirée. Les grandes lignes de son contenu ont été discutées lors d'une réunion tenue le 18 août et dont le Procès verbal figure en annexe b, et regroupant des représentants d'ITA (RCMD-ICTD), de l'AFNETA (Président du Comité de pilotage, coordonnateurs) et ILCA. Le chef de mission a discuté de certains points du rapport soulevés par l'unité de coordination, avec les 2 coordonnateurs. L'ensemble des commentaires de ceux-ci, du Président du Comité de pilotage et de ICTD ont été analysés par l'ensemble des membres de la mission et, lorsque jugé nécessaire, le rapport a été corrigé en conséquence. Le rapport final a été déposé par le chef de mission avant son départ d'Ibadan, le 21 août.

Responsabilités et Mandats

La Division RCMD de l'IITA, de concert avec l'AFNETA a sélectionné les consultants dans les différentes disciplines requises, coordonné la distribution des rôles et constitué l'équipe d'évaluation. Les fonctions et origines diverses des consultants ont permis une synergie et complémentarité intéressante entre les membres de l'équipe. Excepté le consultant directement recruté par l'ACDI, aucun des autres membres de l'équipe n'avait de mandat spécifique.

1.4.3 Limitations

Un certain nombre de contraintes ont été rencontrées lors du déroulement de la mission :

- le laps de temps très court entre le début des travaux d'évaluation (15 juillet) et le départ de l'ensemble de la mission pour le sud du Nigéria (18 juillet). Le programme de rencontres a été très chargé au cours de ces trois journées, laissant peu de temps à consacrer à l'articulation cohérente des interventions des divers membres de la mission ;
- le programme de visites dans huit pays (présenté en annexe 7) a été parfaitement orchestré et minutieusement préparé. Le temps extrêmement court qui a pu être consacré à chacun des projets (de deux à trois heures en moyenne) était beaucoup trop bref pour permettre aux membres de l'équipe d'approfondir certains aspects ;
- les délais accordés à la mission par l'AFNETA en vue de procéder à la rédaction du rapport se sont avérés très courts : du samedi 8 (après une réunion de synthèse de l'équipe le vendredi 7 P.M.) au lundi 17 août, soit moins de dix jours. De ce fait le souci recherché de valider certaines constatations ou conclusions avec l'Unité de coordination n'a pu être rencontré ;
- enfin, la maîtrise insuffisante de la langue anglaise par le responsable de l'équipe a certainement porté préjudice à l'efficacité des échanges entre celui-ci et les différents participants et a nécessité l'intervention des services

d'interprètes de IITA pour une compréhension adéquate du rapport rédigé dans les deux langues.

15 Organization of the report

Le présent rapport est structuré autour de onze parties principales, l'introduction constituant la première.

Une seconde partie analyse plus particulièrement certains aspects conceptuels des documents de projet ACIDI/CRDI et FIDA avec IITA.

La troisième partie est axée sur la tête du réseau incluant donc l'ensemble des responsabilités relatives au Comité de pilotage ainsi qu'aux aspects organisationnels et développementaux du réseau, à sa gestion et supervision par l'unité de coordination. En somme, c'est l'ensemble des orientations, activités et résultats inscrits dans les trois grands volets d'interventions du projet ACIDI/CRDI - IITA qui se voient ici analysés et commentés.

La quatrième partie quant à elle est essentiellement axée sur l'ensemble du programme de recherche collaborative réalisé de concert avec différentes institutions nationales et financé par l'AFNETA avec le concours du FIDA. Les premiers résultats des essais menés y sont analysés, de même que l'efficacité de la recherche entreprise, l'adaptabilité, l'adoptabilité et la viabilité économique de cette technologie.

Une cinquième partie est relative à la contribution des trois institutions internationales de recherche qui parrainent le réseau (IITA-ICRAF-ILCA) et à l'appréciation globale de leurs implications/interventions auprès de celui-ci, en conformité avec les engagements souscrits au démarrage de l'AFNETA.

L'intensité du suivi apporté par le CRDI et les bailleurs de fonds durant l'exécution du projet et la coordination entre donateurs sont présentées au chapitre six.

Une septième partie concerne l'ensemble des dimensions budgétaires et financières relatives aux projets ACIDI/CRDI et FIDA-IITA.

La partie huit constitue une sorte d'appréciation générale sur la performance de l'AFNETA à date en relation avec les engagements souscrits par IITA envers les bailleurs de fonds et en concordance avec les objectifs poursuivis par le réseau et qu'il s'est donné lors de sa constitution.

Enfin, les trois dernières parties sont axées sur :

9. conclusions;
10. recommandations de la mission; et
11. quelques leçons tirées de l'évaluation.

Le réalignement de certaines activités, la présentation de nouvelles orientations et quelques éléments essentiels devant faciliter la prise de décision relativement à une éventuelle Phase II font partie intégrante des recommandations présentées par la mission. L'ensemble des annexes se voient regroupées dans un autre volume.

2.0 CIDA/IDRC AND IFAD PROJECTS CONCEPT, AND DESIGN

2.1. CIDA / IDRC Project

Le présent examen porte sur trois documents officiels principaux : Le mémoire d'approbation de projet (MAP), soumis au Comité d'examen des projets (CEP) de l'ACDI et approuvé le 28 avril 1988, l'accord de contribution (AC) ACDI-CRDI daté du 20 septembre 1988 pour un projet d'action convergente relatif à la mise en place d'un réseau de recherches sur l'agriculture en couloirs et le "Memorandum of grant conditions" (MGC) signé entre CRDI et IITA, respectivement les 14 octobre et 16 novembre 1988, relativement au même projet. Relevons qu'aucun plan d'opération n'existe pour ce projet ; la procédure de planification n'a pas, sur ce point, été respectée.

- La MAP est un document relativement complet, présentant clairement la finalité, le but, les résultats (extrants) attendus du projet. Il offre une description détaillée des trois grands volets et activités proposées ainsi que des responsabilités, rôles et stratégie de gestion du projet. Un cadre logique en fait partie intégrante ; l'ordre de grandeur des extrants n'est cependant pas précisé et ceux-ci se voient formulés en termes très généraux.
- L'AC fait état de la recherche (en station et dans les fermes) ainsi que des activités de formation devant être menées. L'accent est fortement placé sur l'organisation du réseau : composition et tâches du Comité directeur ou de pilotage (Steering Committee) et de l'Unité de coordination. On y cite la création éventuelle de sous - Comités de recherche et la nécessité d'implanter, au sein du Comité de pilotage, un sous - Comité d'examen des projets de recherche présentés par les NARS. Les rôles et responsabilités du CRDI, agence d'exécution du projet, sont abondamment décrites, incluant les divers types de rapports techniques et financiers devant être produits et transmis à l'ACDI.

- Le MGC signé entre le CRDI et IITA est beaucoup moins détaillé. Si les objectifs spécifiques de la recherche à mener (en station et dans les fermes) sont en tout point conformes aux dispositions de l'AC, le MGC passe sous silence un certain nombre de dispositions convenues précédemment avec l'ACDI telles que Comité de pilotage, unité de coordination, sous-Comités de recherche. Ce document stipule que le CRDI administrera lui-même une enveloppe de 50.000 \$ can. destinée aux évaluations à mi-parcours et finale du projet. Nous avons vu plus haut (6.1) qu'en réalité le CRDI assume en outre la gestion des postes "provision pour inflation" et "imprévus" et que ces postes ne sont pas inclus dans le budget figurant au MGC signé entre le CRDI et IITA.

L'annexe 8 résume les concordances et différences existantes entre ces trois documents officiels précités, en regard d'un certain nombre de points essentiels.

10 *clarify.*
Il demeure que l'esprit et les orientations fondamentales du projet figurent dans les deux conventions signées l'une entre ACDI-CRDI l'autre entre CRDI-IITA sont divergents. L'AC met l'accent sur le réseau, sa constitution, son organisation, les responsabilités du Comité de pilotage comme de l'Unité de coordination. Le MGC est essentiellement une convention en vue de la réalisation d'un projet de recherche mené par IITA en matière de culture en couloirs et la question de la structuration du réseau est à peine effleurée.

Le fait que le CRDI est une société d'état qui relève directement du Parlement du Canada, au même titre que l'ACDI, a sans doute généré quelque peu les clarifications pourtant nécessaires des orientations de ces deux documents.

Il est en outre intéressant de constater que l'essence même du projet "Réseau de recherche sur l'agriculture en couloirs" a été considérablement modifiée au fil des années ; la proposition de projet élaborée par IITA/ILCA et datée de septembre 1987 met de façon particulière l'accent sur la recherche à mener en milieu réel, de concert avec les services de vulgarisation, par le biais d'essais gérés par les scientifiques et les agriculteurs, en vue d'ajuster la technologie aux conditions locales qu'elles soient écologiques, économiques ou sociales. Parmi les résultats escomptés après cinq ans figure l'établissement, dans certains sites, de projets en milieu réel permettant d'évaluer l'efficacité et l'acceptabilité du système d'agriculture en couloirs géré par les paysans. Dans ce document, la recherche en milieu réel occupe une place aussi importante que celle à mener en station. Divers extraits de cette proposition de projet sont présentés en annexe 9.

Chronologiquement vient ensuite le MAP, dont la finalité touche directement la population paysanne (améliorer, au profit des populations, les capacités biophysiques et humaines de production agricole dans le meilleur respect des conditions du milieu) et dont le principal volet d'intervention (recherche et développement) souligne la nécessité d'adapter ce système de production aux différentes conditions agro-écologiques et socio-économiques des pays cibles ;

Puis l'AC ACDI - CRDI, axé principalement sur l'organisation du réseau mais dans lequel la recherche dans les fermes n'occupe plus que trois lignes ;

Ensuite le dossier de projet présenté au Conseil des Gouverneurs du CRDI, le 20 octobre 1988, au sein duquel il est précisé que "le projet mettre l'accent sur des tests concernant l'application, l'acceptabilité et la viabilité économique de l'agriculture en couloirs, au niveau du petit exploitant agricole" (résumé du projet).

Enfin, le MGC entre CRDI et IITA qui escamote la structure organisationnelle du réseau ; il y est décrit les modalités de mise en oeuvre d'un projet de recherche.

L'intérêt que l'ACDI a accordé à ce projet repose, tel que l'ont souligné

MM. Fournier et Mpodji dans leur bilan des activités 1989 - 1990 de l'AFNETA, sur le fait que celui-ci pouvait grandement contribuer à l'amélioration des conditions de vie des populations. Bien que l'ACDI n'ai pas comme mandat de financer la recherche, elle a accepté de participer à ce projet parce que les attentes développementales étaient élevées. L'acceptabilité, l'adoption et la viabilité économique de cette technologie au niveau du petit exploitant agricole auraient donc dû occuper une place toute autre que celle qui lui est accordée dans l'AC avec le CRDI comme dans le MGC avec IITA.

2.2 IFAD Project concept and design issues:

(a) Concept: The evaluation notes that there has been a conceptual evolution about the project's immediate and long-term objectives since 1988 among the initiators of CIDA and IDRC project. By 1989 when IFAD received IITA's proposal for its consideration, an IDRC/CIDA concept of what the project broadly entails had crystallized. Intense interaction among IDRC/CIDA, IFAD and IITA in August/September 1989, led to a substantial congruity among the project documents of the three donors. This was especially true in the context of the general concept of the overall project and the rationale. All the donor project documents and agreements express the compelling rationale for translating the on-station research conducted by IITA and ILCA (directly on Alley Farming) and ICRAF (mainly through AFRENA trials), into the context of NARS-driven research in a diverse set of agro-ecological and socio-economic settings.

The problem statement is clearly outlined in the documents although the mission discerns a certain degree of hyperbole in the description of the efficacy of Alley Farming, which was projected as being the alternative to unsustainable shifting agriculture. There was also an expression of an unrealistic degree of optimism about how close the technology was to widespread farmer-adoption. The assessment of the degree to which IITA-led research had proved the technical efficacy of the technology as being 'internally self-sustainable' could also have been tempered. The project documents were oblivious to a number of technical limits and impediments to the AF system which remain un-resolved to date. They do not recognise that, due partly to the approach chosen for the overall project, the technology's adoptability under specific socio-economic and institutional circumstances was unlikely to become apparent in the very near future.

The rationale of the overall programme as formulated separately for CIDA/IDRC and IFAD, was based on the assumption that the assessment of the adoptability of alley farming could best be established once NARS were adequately equipped to participate in the on-farm exercise. Among the various options available to accomplish this, the IFAD project designers chose to address this latter objective through the establishment of multilocal on-station trials supplemented by a training programme. The resulting delay in commencing on-farm development-oriented research initiatives (the most crucial indicators of the technology's adoptability), was not adequately considered in the sequential

approach adopted vis-a-vis the time-frame of the project. On-station research and on-farm research were seen as being quite separate processes whereas the two should have been integrated from the start. On-farm research should have identified problems which could then be addressed and resolved on-station. .

(b) Content

IFAD has been much more explicit than CIDA/IDRC on the details of the immediate and specific objectives of the research programme, the major issues to be addressed by the research and the approach to be adopted. This conforms largely to the mutually complementary roles chosen by the Donors. CIDA/IDRC focused their joint support on the organisation, coordination and management of the Network itself, including IARC-technical backstopping, whilst IFAD's grant was exclusively earmarked for supporting in-country research by NARS through specific research sub-projects.

The project documents of all the three donors also reveal a consistent emphasis on the interdisciplinarity of research and training. The provision of training and support to NARS scientists involved in establishing OSR/OFR trials reflects an institutional building objective implicit in the IFAD-financed project, and explicit objective of the CIDA/IDRC project. The documents are consistent with each other on the research process adopted by the project. Each invariably emphasizes the maintenance of an appropriate balance between on-station and on-farm research, in order that the OSR/OFR nexus can produce the desired results "effectively and efficiently".

The documents consistently describe such a process to be one which would have initial emphasis on establishing OSR and monitoring the biological interaction of the AF system with the local biophysical environment. The research focus was however programmed to move as soon as considered practicable, into a development oriented set of on-farm research activities. These were supposed to be conducted in parallel once established. Whilst the desirability and effectiveness of this approach is questionable, as discussed elsewhere in this report all of the NARS visited, did express the intention, after the initial period of two years, to move into the OFR mode. This is as was intended in the original design of the IFAD-financed Project. How ready are they, at this point in time, to assume this "new" direction effectively, is assessed elsewhere in this report. It is the view of the evaluation that the project documents are rather silent on the actual process leading to an on-farm research initiative. For instance, a detailed

assessment is required of the institutional framework, desirable capacity, adequate sensitivity and understanding of what developmental OFR entails on the part of the researchers. This is essential before AFNETA can properly seek to promote an FSR-oriented exercise, poised as it is to earnestly pursue that direction.

(c) Design: Following from above, the project documents do not afford sufficiently detailed directions or guidelines for the pursuit of the OFR objectives. No explicit reference was made to the need for an appraisal of individual NARS and identification of specific target areas in order to draw up plans for how, when, and where it was intended that the development-oriented OFR-thrust should be established. The project documents are conspicuously silent on the time-frame required to undertake the comprehensive set of proposed research activities. The long-term nature of the substantive part of the adaptive research is only acknowledged implicitly. This does not pose a problem, as long as it is clearly understood that there are, in the main, two distinct sets of objectives being addressed by the project, (i) the immediate objective of the establishment of OSR and some OFR trials in the seventeen member countries (outlined in Appendix B of the IFAD TA-Financing Agreement), and towards that objective, to initiate training activities; and (ii) the broader (ultimate) objective of the successful adaptation of the technology under farmer conditions. The latter purports to the longer term assessment of the practicability and the socio-economic viability of alley farming "on farmers fields, under their management" and the ensuring of "farmers relevance, workability and acceptability". While a precise implementation schedule for meeting the objectives described under (i) above is available, a separate time frame for realizing objectives under (ii), is absent and has, in fact, precluded an objective assesment of the progress achieved in this regard so far.

Given the long, drawn-out nature of the research process designed and adopted under the project and the sustainable agricultural technology in question, the project agreements could have been more explicit on what was expected to be achieved in the short period of three years, in contrast with what was to be expected in the longer term.

IITA, in its turn, failed to remove this ambiguity in not bringing it to the attention of donors concerned. It should have ben made clear that realistically tangible results in terms of validation and adoption of alley farming by farmers would become discernible, if at all, towards the end of a second phase of the project. (Year six).

3.0 COORDINATION

3.1 STEERING COMMITTEE

The Steering Committee is the governing body of the network made up of 8 representatives from NARS, a representative each from IITA, ILCA and ICRAF and one representative from each of the donor agencies who, however, only holds an observer status (see appendix 10). The Coordinator and Assistant Coordinator are also members of the Steering Committee. The 8 NARS representatives are elected periodically during Annual General Membership Meetings in a manner as to allow continuity within the Committee. It was agreed once in 1986 that NARS members in the Steering Committee should represent equal representation of anglophone and francophone countries (4 members for each language group).

Region	Anglophone	Francophone	Subtotal
West Africa	2	2	4
East Africa	1	-	1
Central Africa	-	2	2
Southern Africa	1	-	1
TOTAL	4	4	8

The Steering Committee is scheduled to meet twice a year to evaluate past operations, review and approve the budget, approve programme of work of coordinators, approve research proposals and any other matter that might advance the aims and objectives of the network.

The Secretary of the Steering Committee is the Coordinator

The IDRC document lists the duties of the Steering Committee as:

- plan network programs
- review progress of network activities
- approve annual budget and financial reports
- select the network coordinator
- seek funding for network or research activities
- appoint a National Project sub-committee which will be responsible for submitting and recommending projects to the Steering Committee for support by the network
- approve small grants to NARCs
- appoint research subcommittees as required and decide their terms of reference
- carry out other functions as deemed necessary to implement network objectives

General Observations

Generally the team recognizes the efforts of and work made by the ad-hoc Steering Committee who, despite all odds, actually steered the affairs of new network during its formative years. The new Committee is now guided by a new team full of dynamism and resourcefulness, and it is hoped that this team will improve on the achievements of its predecessors and guide the network through the coming year.

The evaluation team held a series of discussions with different persons in the Steering Committee, the Coordination Unit, the IARCs and NARS on their perception of the role of the Steering Committee in the network. Our experience can be summarized as follows:

- (i) the IDRC-CIDA grant document describes the Steering Committee as the governing body of the network and so serves as the most senior executive organ of the network. The involvement of Steering

Committee members in Monitoring duties could raise issues of conflict of interests as at the situation in which these members sit in judgement, they might then play the role of being both governors and executors. It is the opinion of IDRC that the Steering Committee should take an active part in the management of the network. It is the view of some NARS that the Steering Committee should be independent and not act as consultants to the network. However opinions vary and some believe strongly that the Steering Committee members could be used strictly on the basis of their technical competence and not because of membership of the Steering Committee. CIDA-IDRC agreement stipulate that projects monitoring must particularly be made by research subcommittees. The IDRC-IITA opines that the Steering Committee and Network collaborators should travel out on behalf of the network to supervise projects. These positions are in conflict with each other.

- (ii) Among the ten duties IDRC has listed for the Steering Committee, the last three (National Projects subcommittee, small grants to NARCs, research subcommittees) have not been addressed by the Steering Committee. The evaluation team did observe however that Nigeria alone currently operates its national subcommittee for AFNETA. However the enthusiasm demonstrated by the existence of such a body has not been supported by funding from any quarters except the funding of an in-country training course by AFNETA in 1991. The issue of research subcommittees will be addressed in 3.2 of this section
- (iii) The evaluation team noted that the duration of membership of the Steering Committee for a maximum of two terms of two years each was sufficient for the growth of the network. However the NARS or the network itself may wish to review this tenure to give a first term of two

years followed by renewal (re-election) of one year each up to a maximum of two years in the second term.

- (iv) It has been argued that meeting only once or a maximum of two times a year by the Steering Committee is too few. The evaluation team is concerned with time, distance and costs. It believes that the present situation is enough for the growth of the network but would advise that subcommittees be made to work more efficiently for the overall benefit of the network.

In a summary it should be assured that:

- (i) The Steering Committee should exercise more powers in overseeing the operations of the network and the coordination unit
- (ii) The Steering Committee should work out strategic plans of operation on a 5-year basis. This strategic plan may be finalized at the level of the Steering Committee or be approved by the network membership so that the network membership will be encouraged to be members in progress with the Steering Committee
- (iii) The Steering Committee should establish its own terms of reference and guidelines for its operations
- (iv) The Steering Committee should encourage more efficiency within the Coordination Unit by appointing relevant committees such as Research Committee, Training Committee, etc. which would relieve the two coordinators of most of the burden now observed by the team. It is necessary that the Steering Committee reviews immediately the workload of the coordinators which appeared to the team to be excessive

3.2. Establishment, Promotion & Organizational Structure of the Network

Alley Farming research in Africa was initiated in 1976 at the International Institute of Tropical Agriculture, Ibadan Nigeria. For a long while, the bulk of the research focussed on the development of on-station trials at the expense of farmer-oriented on-farm trials. The trials were conducted by international research centres and not much could be seen in national R&D institutions nor in farmers' plots.

In 1986 at a workshop jointly organized by IITA and ILCA and attended by over 100 participants from NARS as well as representatives from IARCs and donor agencies, the establishment of an Alley Farming Research Network, to promote and coordinate alley farming research and development within NARS was adopted. Thus was born the network Alley Farming Network for Tropical Africa (AFNETA). The three foundation IARCs: IITA, ILCA and ICRAF were mandated to work together with an elected ad-hoc steering committee to prepare a network strategic plan document and seek funds from agencies for the implementation of the network.

Within $2\frac{1}{2}$ years of foundation work, preparation and fund-raising, the network was subsequently on a take-off path in November, 1986 and effectively started business in February, 1989 with the following objectives:

- (i) To assist NARS in the development of alley farming research programs
- (ii) To assist in the training of NARS scientists, to raise their capability and expertise in conducting alley farming research

- (iii) To coordinate R&D efforts among NARS through information exchange mechanisms and create collaborative linkages with IARCs and other relevant agencies
- (iv) To assist, where possible, in the acquisition of funds for implementing the alley farming R&D programs in NARS.

Observation

The evaluation team has had the privilege of discussing with NARS and some few members of the initial ad-hoc Steering Committee. It has also looked into the numerous network documents made available to it by donor agencies and the coordination unit.

Globally, the network has adhered judiciously to the objectives set up for it and the coordination unit has performed a magnificent job. The activity components of the network comprised:

Administration and coordination

Information exchange and dissemination

Training

Collaborative research

The evaluation team wants to observe that:

- (i) NARS participation in the network has increased tremendously. The composition of the Steering Committee and the bilingual nature augurs well for the growth and development of the network.
- (ii) The involvement of NARS in AFNETA projects varies from one country to another depending on stage of development, national programs and number of scientists. Training in the various AFNETA components should be intensified in order to

raise the capabilities of the scientists and technicians in the NARS.

- (iii) Research has continued to play a major role in the networks' activities but the Steering Committee has still not set up a Research Committee. The donor agencies and members of NARS hold the view that this is a very important committee which should be set up without further delay. Before embarking on Phase II of AFNETA, a Research Committee and other strategic committees like projects sub-committee should be set up. The Coordination Unit sent a proposal to the Steering Committee in this regard in Nairobi in January 1992. The evaluation team notes this and shows the view of both the Coordination Unit and Steering Committee.
- (iv) It was observed that an unofficial Training Committee has been set up composed mainly of IITA staff in the Training Unit with inputs mainly from ICRAF and ILCA to some extent. The involvement of the Steering Committee was not noticed and it is hoped that the future will correct and address this issue.
- (v) It has been observed that IITA where the network is located has a lot of influence in the operation of the network and sometimes cuts its decisions. The team notes that the Steering Committee has now moved forwards and is aware of its responsibilities. It has progressively become independent and progress is made in this direction. The Steering Committee is the governing body of the network and does not augur well for the network if one single member has too much power in the operation of the network. It was observed that the relationship between the

Steering Committee and the Coordination Unit in the early years was not clear cut. This could have been due to the lack of terms of reference or specific guide-lines on the roles of the Committee and the Coordination Unit on IDRC-IITA agreement. In fact it is the view of the team that the Steering Committee should control effectively the coordination unit on well determined issues.

In order to strengthen the network, clear terms of reference and guide-lines must be worked out for the Steering Committee. It should now, after receipt of the report of the evaluation team, set up the next 5-year strategic plan.

Coordination Unit

The Team is extremely pleased with the dynamism and good sense of scientific principle and management practices that the coordinators have worked since the inception of the network. The two coordinators have the ideal combination of scientific innovation and expertise and public relations practice. Both have excellent knowledge of technical and extension concepts as relate to on-farm work.

The team notes that the unit has an excessive work load occasioned by the increase in the number and size of participating NARS in AFNETA projects. It seems obvious that as the network consolidates and develops, the work of the coordinators, presently very much overburdened, will increase unless steps are taken otherwise. The team is unwilling to recommend an increase in the number of coordinators. Rather, the team accepts the need to appoint regional coordinators based, not on discipline but on geographical distribution

and persons with a good overview of the network. Such persons would report directly to the Coordination Unit. To be made more effective, the coordination unit could, as proposed by the Coordination Unit in addition include two experts in the area of livestock and socio-economics. These people could form the core of the research committee work and would be on part-time, paid some honorarium but with no establishment for a permanent secretariat. In a way, the group may even serve as the Research Committee and would be expected to travel within their region and inspect/evaluate projects and submit regular reports to the coordination unit.

The Coordinators, although are directly responsible to the Steering Committee, should be given liberty to demonstrate their organizational and management potentials. So far, the orientation of the coordinators is excellent and with the creation of regional coordinators and the two experts (livestock and socio-economics) the work load of the coordinators would be lightened making for better efficiency and productivity.

After three years of active existence, the network may wish to take another look at its organizational structure. It is being suggested that the steering committee may wish to examine its structure with a view to introducing measures for improvement. The initial framework, in operation with the creation of the ad-hoc steering committee in 1986, needs to be quickly reviewed. The team was informed that a new framework was ready for discussion in Nairobi AGMM meeting but was not discussed. This matter needs urgent attention.

3.3. Opération Stratégie

Précisons d'abord que celle-ci est assez délicate à réaliser, puisqu'elle doit à la fois s'inscrire dans les engagements souscrits envers les bailleurs de fond de l'AFNETA, les orientations stratégiques de développement du réseau élaborées par le comité de pilotage, les contributions possible de IITA, ILCA, ICRAF et les réalités du terrain.

L'un des principes directeurs de la politique du Comité de pilotage qu'à mis en application l'unité de coordination a été le souci constant d'encourager et favoriser le développement d'une capacité nationale, voire régionale, en matière principalement de maîtrise de cette nouvelle technologie qu'est la culture en couloirs comme de transférer une partie de ses tâches et responsabilités à certaines ressources nationales, de façon à ce que l'unité de coordination finalement ne soit responsabilisée que dans les travaux que d'autres ne peuvent faire. Ceci se vérifie particulièrement en matière de transfert de l'organisation et de l'élaboration du contenu de la formation.

Chacun des programmes actuels de l'AFNETA (recherche participative, formation, information, relations avec les bailleurs de fonds...) témoigne d'une bonne articulation et de directives claires. Les voies ont été tracées au démarrage du réseau, il n'y a pas eu hésitation et ces programmes, pris séparément, témoignent tous d'un réel souci de constante amélioration et l'évolution de façon à coller d'avantage aux besoins, préoccupations et attentes des NARS.

Il reste que les résultats ne reflètent pas les efforts entrepris, principalement, selon la mission, parce que beaucoup d'activités

étaient entreprises parallèlement et que, parfois, des choix auraient dû être faits selon les priorités du moment.

Par exemple, le suivi des projets, la parution de "AFNETAN" ou l'importance à accorder aux dimensions socio-économiques ont dû être négligés compte tenu d'autres actions à mener.

A un niveau global, l'articulation de l'ensemble de ces interventions mérite donc davantage d'attention.

Sur base d'un plan stratégique, développé de concert avec le comité de pilotage et approuvé par l'Assemblée générale des membres du réseau, l'unité de coordination devrait:

- i. annuellement et dans le cadre de son programme de travail se donner une ou deux grandes priorités ou lignes directrices pour les douze mois à venir, autour desquelles convergent l'ensemble des interventions;
- ii. semestriellement ou mieux encore trimestriellement, veiller à apprécier l'état d'avancement et la progression, les résultats enregistrés.
- iii. prendre davantage en considération les conditions critiques, risque encourus et possibilités éventuelles de non réalisation de certaines activités lancées, en un mot fixer le seuil de performance à un niveau qui témoigne de davantage de réalisme au niveau des résultats escomptés.

3.4 Project Management by the Coordination Unit

- Les activités du réseau sont assumées par l'Unité centrale de coordination dirigée par un coordonnateur principal le Dr. K. Atta-Krah et un coordonnateur adjoint, le Dr. N. Sanginga. Ceux-ci ont été engagés pour une période de cinq ans et sont entrés en fonction respectivement le 1er février et le 25 octobre 1989.
- L'importance du travail accompli au cours des trois dernières années par l'AFNETA résulte principalement des efforts déployés et de la dynamique engendrée par la symbiose existante entre les personnalités des deux coordonnateurs. Tous deux jouissent d'une bonne réputation scientifique, détiennent une excellente notoriété professionnelle et sont donc parfaitement crédibles. La mission tient à souligner la qualité, la diversité et la quantité du travail réalisé.
- L'Unité de coordination bénéficie en effet de la conjonction de deux profils et compétences complémentaires : l'un en provenance du Dr. Atta-Krah, qui, de par son dynamisme et sa conviction, réussit à faire fléchir les plus réticents ; l'autre apporté par la modération, les capacités de chercheur et la curiosité scientifique du Dr. Sanginga. Tous deux sont bilingues et leur convivialité a certainement beaucoup contribué à la motivation de tous ceux qui oeuvrent ou contribuent aux activités du réseau.
- Le travail accompli doit donc être apprécié en référence à ce qui précède et tout départ éventuel de l'un ou l'autre voire des deux coordonnateurs pourraient avoir des répercussions sur le réseau qui mériteraient examen. Le revers de la médaille à cette convivialité est peut-être, à quelques occasions, une certaine difficulté à prendre les décisions qui s'imposent lorsqu'il s'agit d'arrêter le financement d'un projet dont on sait qu'il ne débouchera nulle part.

- La capacité réelle de l'unité de coordination à maîtriser l'ensemble des tâches et responsabilités qu'impliquait un déploiement à grande échelle du réseau n'a pas été suffisamment suivi de près par le Comité de pilotage et les bailleurs de fonds. L'ampleur des tâches à accomplir a été sous-estimée. Un appui de l'agence d'exécution (CRDI) quant à la mise à disposition de l'unité de coordination d'outils de gestion/contrôle/planification ainsi qu'en matière de mise en place/stratégie de développement/structuration et management d'un réseau aurait été plus qu'utile.
- Les deux coordonnateurs s'adonnent à toutes sortes d'activités mais très peu à la recherche fondamentale. Ils évoluent dans un milieu où leur crédibilité pourrait être sérieusement affectée s'ils ne publient pas régulièrement.
- La charge de travail des coordonnateurs a atteint la limite d'efficacité (en termes de connaissances et compétences) des individus en poste. On observe une saturation progressive face au travail à effectuer. La coordination n'est plus en mesure d'assurer toutes les fonctions comme elle l'a fait jusqu'à présent. Les questions à l'ordre du jour sont désormais axées sur les différences entre diffusion et adoption, mécanismes de collaboration entre chercheurs, vulgarisateurs et paysans, modalités de participation de ces derniers à la définition et à la conduite des essais, influence des régimes fonciers sur l'adoption potentielle d'une technologie, transfert et appropriation de celle-ci par les paysans(nes), rôle et place de la recherche socio-économique etc... La maîtrise de ces dimensions dépasse de très loin les capacités de deux personnes, aussi bien intentionnées soient-elles.

- La création, à l'étude actuellement, de postes de coordonnateurs régionaux est à encourager, dépendamment des suites qui seront données aux recommandations de la mission. Ceux-ci seraient localisés selon une distribution géographique appropriée, s'acquitteraient d'une grande partie de la supervision des projets en cours de réalisation et se verraient impliqués également au niveau des activités formation/diffusion de l'information ; affectés à mi-temps à ces tâches, ils devraient de préférence appartenir à une institution ayant déjà établi de solides relations avec l'AFNETA afin de pouvoir disposer des facilités de secrétariat et communication requises. Ces coordonnateurs régionaux se rapportent directement au coordonnateur sous l'autorité duquel ils sont placés. Les enveloppes budgétaires disponibles d'ici fin mars 1994 sont, selon nous, en mesure d'absorber ces déboursés supplémentaires. Cette option s'inscrit parfaitement dans la stratégie de l'AFNETA visant à renforcer les capacités régionales ou nationales et transférer progressivement une partie des attributions qui sont les siennes.
- La gestion du projet est partagée entre les deux coordonnateurs. La co-gestion de certaines opérations (budget/finances) mériterait d'être envisagée.
- La gestion d'un programme de cette envergure mérite que soient clarifiées et précisées les responsabilités de IITA (RCMD), ICTD), Comité de pilotage et Unité de coordination en matière, notamment, de :
 - suivi du respect des engagements souscrits avec les bailleurs de fonds ;
 - connaissance claire des attentes de ces derniers en matière de rapports techniques et financiers (quels besoins d'information, sous quelle forme et périodicité) ;
 - suivi de la circulation de cette même information ;

- critères sur lesquels les bailleurs de fonds s'appuieront pour juger des résultats et de la performance du réseau ;
- gestion administrative et financière ;
- frontière entre activités de recherche et coordination de ces activités.
- diffusion des documents dans les deux langues officielles du réseau.

3.5. Coordination activities in line with network objectives and achievements

3.5.1. Research collaboration with NARS and support to NARS

AFNETA's stated objective is to explore the relevance and applicability of alley farming as a sustainable farming system adoptable by farmers in tropical Africa. In pursuance of this objective, NARS were to be assisted in the development of their alley farming research programmes and the training of scientists to raise their capability and expertise in conducting alley farming research.

In three years, AFNETA has built up collaborative links with some 32 institutions in 20 countries. Many alley farming trials in a diversity of agro-ecological zones have been initiated as a result. Furthermore, an increasing number of national scientists are being assigned to alley farming research. Without doubt, AFNETA has succeeded in fostering research into alley farming in the countries concerned, although to date most of this work has been concentrated on station. Benefits from collaboration with AFNETA that were mentioned by NARS scientists included the following.

- * Organization and sponsorship of scientists to training courses run by AFNETA at and outside IITA. This has perhaps been the most important and sustaining support that AFNETA has given to NARS.

- * Collaborative meetings of African alley farming researchers, particularly at the Annual General Meeting.

- * Visits of the coordinators to national alley farming programmes to provide advice and support. Unfortunately, the numerous pressing demands upon coordinators' time has meant that such visits have often been brief and infrequent.

- * Information exchange through annual reports, the newsletter *Afnetan*, proceedings of the Annual General Meeting, and the publication on General Methodologies and Design for AFNETA collaborative research.

- * Provision of seed (although see comments in section 4.1.1).

A number of these issues are discussed in further detail in the immediately following sections.

The overall coordination of research by NARS was effected through the preparation of a standardized methodology for the execution of the various trials. It is appreciated that this was felt by the coordinators to be the only practical means of ensuring sound experimental protocol, and some comparability between trials in different countries. Many national scientists lacked experience in such matters at the time that AFNETA began in 1989. However, the standardization of research protocols has had two undesirable consequences. One was an unhappiness on the part of NARS scientists that they had not been allowed to conduct their research in what they felt to have been the most appropriate manner. Leading on from this, there was a severe limitation upon experimental diversity which might otherwise have more closely reflected national and agro-ecological differences. This has had important implications for on-farm research, which by its very nature must be tailored to local farmers' needs.

In encouraging NARS to conduct work on-farm and develop linkages with NGOs and other extension agencies, AFNETA has in many cases served a pioneering role. Many NARS had no previous experience of such research, and their attempts to work on farm must be viewed in this context.

3.5.2 Development of institutional linkages (donors, IARCs, NARS, external institutions, extension organisations)

The network has largely been successful in developing strong institutional linkages between the IARCs, NARS, donors, external institutions and extension organisations.

At the IARC level, three principal centres are involved, ILCA, ICRAF and IITA, which houses the secretariat and provides administrative support.

These centres provide technical backstopping by the provision of information data bases which constitute a major source of information on alley farming to network members, although the extent of their use by NARS was unclear.

IARC scientists serve as resource persons for AFNETA training courses and help in the preparation of training materials. They are also involved in the evaluation of research proposals and in the monitoring of NARS/AFNETA research projects.

IITA provides support in the soil and crop management work while ICRAF provides backstopping on MPT screening, selection and management.

ILCA's input is related to livestock feed production, animal nutrition and management aspects of the alley farming system.

The AFNETA project has fostered greater linkage between IITA and the two cooperating international centres, ICRAF and ILCA. There are a number of sites such as in Cameroon and Uganda where AFNETA projects are located close to projects undertaken by AFRENA, a network coordinated by ICRAF. Also in Kenya's coastal region, ILCA staff have been active in the execution of AFNETA projects. Such AFNETA projects which are located in areas where there are ILCA or ICRAF staff tended to have been executed in a satisfactory manner. There is however the tendency for such ILCA or ICRAF staff to feel that they are not in total control of the AFNETA projects.

The AFNETA Coordination Office has established strong linkage with the NARS through the NARS/ AFNETA collaborative research projects which are implemented by the NARS. These projects are aimed at studying problems in a particular country or region. The AFNETA Coordination/ NARS projects are initiated by the Coordination Unit or by IARC supporting scientists to address particular research gaps identified from the NARS/ AFNETA projects or to address some research issues of regional concern.

AFNETA has also fostered linkages with external institutions by involvement in collaborative projects with reputable institutions to investigate particular issues of a basic and strategic nature. Such projects include:

- Root competition for nutrients and water in alley cropping system with Michigan State University and IITA cooperating
- Multi-purpose tree screening and selection for alley farming (emphasis on acid-soil tolerant species) with Oregon State University, ICRAF and IITA collaborating
- Process-based optimization of tropical alley farming systems involving the University of Hawaii and IITA.
- Land and tree tenure implications in adoptability of alley farming with Land Tenure Centre (University of Wisconsin) and ILCA collaborating

3.5.3 Contribution to capacity building of NARS

The network has made a significant contribution in building the capacity of the participating NARS in undertaking alley farming research.

Prior to the establishment of the network in 1989, many of the cooperating institutions in several countries including the Institut Sénégalais de la Recherche Agronomique (ISAR), Bambey, Sénégal, the Institut de

Recherche en Biologie et Ecologie Tropicale (IRBET), Ouagadougou, Burkina Faso and the Institut National des Sols in Togo did not undertake alley farming research. In other institutions, research was restricted to only on-station work but with the activities of AFNETA, NARS scientists are now gradually becoming involved in on-farm work inspite of several factors which limit the succesful execution of such research.

The training provided by AFNETA has contributed towards the enhancement of the technical capability of NARS scientists, technicians and extension staff in executing alley farming research both on-station and in farmers' fields.

The network with a strong coordination unit has adopted the train-the-trainer program to establish strong capacity building of NARS scientists. This has been reflected in the large number of workshops arranged in IITA and ICRAF for NARS scientists and Directors of collaborating NARS in IITA and ICRAF in 1991. The network has also contributed to building NARS by organizing workshops and training courses on in-country and regional basis. Although the need has arisen for training in laboratory analysis, documentation and library services, these services are not the responsibility of AFNETA. The network has provided crop and tree seeds as well as research support materials such as scales and overhead projectors to NARS scientists thus increasing their capacity to undertake alley farming research work.

3.5.4 Organisation of training activities and monitoring of training

La formation occupe une place majeure dans l'ensemble des activités de l'AFNETA. L'ensemble des interventions revêtent par ailleurs ou véhiculent une dimension éducative. Elle s'est en effet avérée indispensable pour :

- promouvoir la technologie elle-même et son expérimentation ;
- faire comprendre et assurer une maîtrise des aspects techniques ;
- assurer une certaine uniformité dans la mise en oeuvre (en station comme en milieu réel), l'analyse, la compilation et l'interprétation des résultats des expérimentations menées ;
- favoriser le transfert et l'adoption de la technologie via la formation d'agents de vulgarisation ;
- développer les connaissances et compétences du personnel de recherche (scientifiques/techniciens) chargés de mener les essais et favoriser une prise de conscience de l'importance et de la portée du travail à entreprendre.

Relativement à ce dernier point, l'intensité des efforts entrepris surprend quelque peu considérant que l'une des missions de IITA, depuis 25 ans, est de contribuer au développement de cette capacité.

Le programme de formation a été jusqu'ici relativement ambitieux et chargé comme en témoigne les données compilées en annexe 11

Il présente, à l'analyse, un certain nombre de caractéristiques qui retiennent l'attention :

- i) ce programme a été fortement décentralisé, dès le début de l'année 1990, avec la mise sur pied de concert avec IITA, ILCA et ICRAF de quatre centres régionaux de formation (Ghana, Benin, Zaïre, Kenya) auprès desquels sont implantés des projets AFNETA. L'accent a été mis sur la formation de formateurs, chacun de ces centres disposant d'un noyau de quatre chercheurs

de spécialités diverses (agronomie / agroforesterie, zootechnie, pédologie, économie sociale) connaissant tous déjà le concept d'agriculture en couloirs. Vingt formateurs ont donc été formés, incluant quatre nigériens ;

- ii) une seconde caractéristique est l'évolution rapide qu'a connu le contenu même de la formation dispensée : celui-ci est en effet rapidement passé des conditions et critères de mise en place et gestion des essais, à la récolte des données, l'analyse quantitative et qualitative des résultats, la recherche en milieu réel (expérimentale et développementale) ,
- iii) à cette formation de base ont été en outre juxtaposés des ateliers de réflexion réunissant les directeurs francophones et anglophones d'institutions nationales et présidents de comités nationaux d'agroforesterie ou axés sur les liens entre ONG et instituts de recherche ;
- iv) si le pilier de la stratégie de formation demeure une formation collective de masse, celle-ci s'articule également à deux autres niveaux : quatre étudiants consacrent actuellement le volet recherche de leur thèse de maîtrise dans des projets de recherche associative de l'AFNETA (financement FIDA) et trois chercheurs d'institutions nationales poursuivent des études doctorales en microbiologie et pédologie à l'Université d'Hawaï (financement USAID) ;
- v) enfin, l'audience de la clientèle bénéficiaire de cette formation collective va s'élargissant, puisque de plus en plus d'ONG y participent et des relations s'établissent entre, d'une part, les centres régionaux de formation (transferts d'encadreur entre le Zaïre et le Bénin) et, d'autre part, les réseaux (réalisation conjointe

AFNETA/ AFRENA d'un stage au Ghana parrainné par ces deux institutions).

L'unité de coordination en trois ans a réussi à réduire progressivement ses implications dans l'activité formation puisqu'elle ne se contente plus que d'ouvrir et clôturer un stage. Une évaluation de l'efficience de cette activité présente cependant certaines difficultés ; compte tenu d'une demande excessive enregistrée et qui demeure difficile à satisfaire, les critères de sélection des stagiaires devraient être beaucoup plus rigoureux et la représentation des femmes sérieusement prise en considération. Les budgets des projets ACDI et FIDA n'ont pas couvert la totalité des sommes engagées à ce chapitre dans la mesure où des financements divers complémentaires ont été obtenus. En outre, bien que les niveaux de connaissances des stagiaires soient systématiquement évalués au début et à la fin d'un stage, l'utilisation par le stagiaire des acquis de la formation reçue dans ses responsabilités quotidiennes demeure à apprécier. Enfin, la tenue de stages spécialisés axés sur la composante élevage (sous-estimée jusqu'ici), la formation de base des techniciens des stations, chargés de la conduite au jour le jour des expérimentations ou la formation d'agents de vulgarisation devraient faire l'objet d'une attention spéciale dans l'avenir, advenant des besoins exprimés par les NARS relativement à ces dimensions.

3.5.5 Information dissemination and exchange among collaborating institutions and IARC's

i) Information flows are vital functions within any network because there is little point in having a network unless some members can benefit as a consequence of information exchange. In AFNETA the main lines of communication are between:

- coordination unit and members
- coordination unit and other agencies
- member to member
- member to IARC

The main forms of information exchange are:

- Correspondence
- Site visits by coordinators and consultants
- Mailings
- The annual general meeting
- Training courses
- Network Publications
- Network Newsletter - the AFNETAN
- Information data base

This consideration of information is limited to the flows and modalities described and is limited to technical issues. It is not intended to be a consideration of technical support per se or a consideration of information in the context of administration and management of the projects.

ii) The coordination unit has established contacts with other networks and agencies, and obtained information from these sources. Network members report the utility of information exchanges with the coordination unit and their appreciation of the service and technical advice received, showing that a need within the network is being addressed. The face to face contact and interaction at training courses and the annual general meeting has provided a basis for interaction between members. A large proportion of members reported the formation of cells for information exchange between one or two people. As a consequence of membership most members have been placed upon the mailing list of ICRAF and ILCA. Technical support services have also been requested and received. In particular, members appreciate the practical advice and tools (such as statistical software) received from ICRAF.

iii) Related to exchanges by correspondence (ii) are the site visits by the coordinators. These appear to provide valuable support to project groups when they occur. The main problem is that support cannot be given regularly. Some projects have been visited just once in two years and there is a need now to match project numbers with manpower capacity. There are indicators that suggest the need for regular advisory visits. There is a case to be made for exchanges to project sites to be made from regional hubs, and for the appointment of part-time visiting consultants. Two man months of consultancy would enable bi-annual visits to

about seven countries, a cost effective way of providing technical advisory support and a mechanism for helping to steer projects.

iv) Mailings of Agroforestry Today (ICRAF) and other printed information are appreciated by the membership.

v) The annual general meeting and training courses are appreciated as opportunities for interaction on technical issues. Prior to the 1992 annual general meeting much of the emphasis at the AGM's was upon experimental results from immature experiments, not the most useful of activities. A commendable change was made at the 1992 meeting when sessions were given over to presentations and discussions about important network issues such as network functions and current technical issues such as participatory development. This is a step towards a vital function, providing the membership with adequate opportunities to help develop policy, strategy and the network action plan.

vi) There are few network publications. This is not surprising for a young network largely involved in running on-station trials for a period of less than three years. A quality training manual developed with ICRAF collaboration stands out. Along these lines there is opportunity to provide more guidance in such areas as rural appraisal, economic monitoring and on-farm research.

vii) The network newsletter is the main link to stimulate and advise the membership. There have been three issues a year but these are often late and some members reported that they had not received copies. Costs might be saved by printing separately the French and English language editions. There are only four pages and the substance is largely a historical record with a bulletin of future events. Much more could be done to expand the newsletter and provide practical technical advice. For example the work on gross economic margins by the KARI/ILCA group in Kenya could usefully be reported. There have been no printed requests for contributions and there is no record of any contribution from a member. All these matters are worthy of attention. There is need for some reallocation of responsibility and it may be possible to inculcate network ownership by allocating editorial responsibility to one or more of the network members.

viii) The first information data base is in an early stage of formation and is related to the data being obtained from the AFNETA trials. It is clearly possible to derive much more information of predictable value from reviews and supply this on diskette. The subject of databases should be debated fully by the membership, needs assessed, and a strategy developed.

ix) Information flow may be conceptualised as the consequence of a heart pumping life into a network. Much has been gained but there are obvious opportunities to create greater prominence and utility for network information functions.

4. MEMBERSHIP ACTIVITIES AND PRELIMINARY RESEARCH RESULTS

4.1. AFNETA collaborative research programme

4.1.1. Multipurpose tree (MPT) Screening and Selection

Screening

MPT screening trials conducted by the various NARS should have served to increase knowledge about the diversity of tree species potentially suitable for alley farming in different agro-ecological zones. Unfortunately, this has proved to be an over-optimistic expectation. A number of overall points may be noted.

* The overall rationale behind the choice of species for screening seemed, in many of the trials visited, to have been guided more by seed availability than by any other criteria. Both the NARS scientists and network coordinators clearly felt under pressure in the first year of funding to get the screening trials in the ground, and many spoke of difficulties in obtaining seed. With hindsight, it would have been better to make concerted efforts to obtain seed of a wide range of potentially suitable species in the first year, raise healthy seedlings, and proceed with trial establishment in the second year.

Where a rationale for the choice of species screened was stated, emphasis tended to be upon biomass production and soil fertility - particularly in the West African countries visited. In such countries, there seemed to have been little deliberate attempt to identify a range of truly multipurpose tree species which might also provide fuel and/or stakes, fodder, food, etc., - although this issue is stressed in the donor memorandum. In East Africa, more attention had been paid to this aspect - no doubt in reflection of the greater fodder and fuelwood demand in the locality.

* The donor memorandum calls for, "the funding and improving of the traditional or, if not available, the best locally adapted (ecologically and socially) species for meeting farmers' combined needs."¹ The improvement of "traditional" tree species within a three-year time period is clearly unfeasible. However, it was disappointing to find that in the NARS visited, researchers had made little investigation into what species are locally valued by farmers for various products, and used this information to select species that might also be suitable for alley farming. In fairness to them, they had not been asked to conduct such an investigation (due, it would seem, to the afore-mentioned perception of time constraints). However, the screening trial protocol did stipulate that at least four indigenous species should be included in the screening, and in most cases this requirement was not fulfilled. Where indigenous species were included, they tended to be slow growing species valued locally for their timber. These are unlikely to be suitable for alley farming; it would have been better to focus upon fast growing, proven nitrogen-fixing species with a bushy habit.

* The selection of species found in screening trials tended to be limited (quite often to

¹ Technical Assistance Financing Agreement between IFAD and IITA: 12.

below 10, although in the research protocol this was recommended as the minimum number to be included), and confined to species which have already been extensively tested in tropical Africa, and in most cases, internationally.² It is of course necessary to include in a screening trial species already known or expected to perform well on a given site, as a control; the trials cannot be faulted in this respect. What was unfortunate was the uniformity in species selection, corresponding to a "seed package" supplied by IITA. This surprisingly included a number of species that may be considered unsuitable for alley farming, either due to their thorny habit (Faidherbia albida, Prosopis juliflora) or because trials have indicated a low tolerance of repeated pruning (eg. Acacia mangium). There was little evidence of species selection having been tailored to agro-ecological zone, and in some cases species highly unsuitable to a given site had been included. It is accepted that sometimes it may be justifiable, for demonstration purposes, to include in a trial a well-known species which is unsuitable for the given site. However, where "likely failures" were included, it would have been desirable to increase the total number of species screened.

* In several screening trials, a number of provenances of Gliricidia sepium (local hybrid, ILG 50, 55 and 58) had been included in lieu of other species.³ Where G. sepium is performing well on a site, the testing of provenances to determine the most locally suitable is to be welcomed. Nevertheless, it should not have taken place as a replacement to species screening. In contrast to the variety of G. sepium germplasm being screened, it was noted that there was no screening of different species and provenances of Leucaena. Given the many varieties of L. leucocephala now available, as well as the prominence being given in international research to investigations of other Leucaena species, this was a little surprising.⁴

* Some concern was felt over the location of screening trials - on research sites that were not always representative of the soil and other conditions found locally on farm. An example was provided in Cameroon (although the screening trial there was established by ICRAF, rather than AFNETA), where the soil pH was significantly higher than the area in which on-farm work was conducted.

In conclusion, the screening trials cannot be said to have greatly increased knowledge about the species suitable for alley farming in different countries and agro-ecological zones. However, they have served to create an awareness amongst NARS scientists of the need to investigate a variety of tree species, and this is something that should be built upon in the future.

² Notably, Leucaena leucocephala, Gliricidia sepium, Calliandra calothyrsus, Cassia siamea, Acacia auriculiformis, A. mangium, Faidherbia albida, Prosopis juliflora, Albizia lebbek, and Cajanus cajan.

³ For example, at Bouake, Cote d'Ivoire and at Bawku, Ghana.

⁴ Seed is readily available from the Nitrogen Fixing Tree Association (Hawaii) and the Oxford Forestry Institute (UK).

Selection

Due to the limited time period, the selection of species for on-station and on-farm alley farming trials took place before the results of the screening trials could be known. The species employed in the majority of observed trials were L. leucocephala and G. sepium, these being stipulated in the experimental protocols. This heavy dependence on two species is not to be recommended, especially when there are known problems with L. leucocephala. It is recognized as an invasive, weedy species⁵; furthermore, it has been devastated by the psyllid Heteropsylla cubana in much of Asia and there is always the possibility of the pest reaching Africa. Emphasis should have been on identifying a variety of species, both exotic and indigenous, that thrive in each of the agro-ecological zones of AFNETA's coverage.

There is a large body of information currently available about the performance and site adaptability of most of the MPTs grown in AFNETA trials. The IITA library contains many examples of general literature on the subject, as well as accounts of screening trials conducted in countries which now have AFNETA programmes.⁶ ICRAF, furthermore, has developed a computer programme to assist in species selection. It is sad that the available information does not appear to have been disseminated to the NARS.⁷ Perhaps the most striking example of this was seen in Cameroon, where in 1990 L. leucocephala and G. sepium was introduced to farmers cultivating soil said to be of pH 4.8. It has been known for over 20 years that L. leucocephala performs badly on acid soils⁸, particularly those with a pH below 5.0, and it is disturbing that despite all experience this same mistake could be made again.

There is still a need to identify more woody species suitable for alley farming, for a wide range of soil types and situations. To conclude this section on a positive note, the collaborative project between ICRAF, Oregon State University and IITA to screen MPTs suitable for acid soils in the humid tropics is a welcome development. With 336 accessions of 210 species collected so far (Ladipo, pers. comm.), it is to be hoped that the results of this work will be disseminated to AFNETA collaborators as soon as they become available.

⁵ This has received academic attention - eg. Atta-Krah, K. (1983) 'The weediness of Leucaena leucocephala (Lam) De Wit and its Control in Leucaena based Agroforestry Systems' Seminar paper at IITA, June 17. It was also commented upon by workers with on-farm experience in countries such as Ghana and Cameroun.

⁶ A notable example is an MSc thesis detailing the screening, through field trials in three locations, of 23 MPTs in Sierra Leone (S. D. Mansaray, 1989).

⁷ In fact, provision for use of the IITA library (photocopying, etc) was specifically included in the IDRC grant.

⁸ NAS (1977) 'Leucaena: Promising Forage and Tree Crop for the Tropics': 6.

4.12 ALLEY FARMING MANAGEMENT

Alley farming management trials undertaken by AFNETA researchers involved detailed management and productivity studies with selected MPTs in alley farming systems. The trials included studies of spatial and temporal arrangement of the hedgerow trees, fertilizer use response, the management of hedgerow prunings and their contribution to soil fertility and comparison of cropping systems. The evaluation team saw several of those trials in the countries visited.

Initial indications on crop response to alley farming shows that certain crops like maize, rice and cowpeas appear to be more adaptable to alley farming than some others like cassava. It has also been shown in all the ecological regions that generally, the growth and foliar biomass production of hedgerows is positively influenced by tree density within the hedgerow.

Management studies also gave some indication of good response of crop plants to added organic material from alley crops. The addition of inorganic fertilizer usually results in even higher yields showing the cumulative response by the crops to mulch and fertilizer. As the cost of inorganic fertilizer continues to increase beyond the reach of most farmers in tropical Africa, the use of reduced amounts of fertilizer together with biomass from alley crops to achieve high crop yield could be very attractive.

One of the problems that researchers have experienced relates to the establishment of the trees especially if they are planted at stake. In Uganda, rodents have consistently destroyed experimental plots, necessitating the erection of fences. In Malawi and other countries visited by the evaluation team, household ruminants eat up the alley trees especially during the dry season when they are allowed to roam freely in villages.

As the alley farming technology slowly moves on-farm, farmers have been quick to modify standard management techniques to suit their labour and other requirements. An interesting case in point is that of a female in Mityana, Mubende

District of Uganda. She planted an alley crop of leucaena with bananas within alleys. She cut the alley crop at a very low height to mulch her bananas, feed the ten cows the family owns and provide firewood for home cooking. Droppings from the animals are returned to the farm to fertilize cabbage that was being grown in the alleys. This is an indication of the potential for modification of alley farming by rural farmers to meet their specific requirements.

Also, as the alley farming technology moves from theory to practice, the need arises to elucidate the farmers' wishes, ambitions for sustainability and their constraints. Questions also arise on the kind of simple technologies, experimental designs and analytical methods to be tested on the farmers' farms. This has called for a participatory approach and the team observed in most sites visited that NARS scientists now use farmers as partners in the dissemination of results of research on their own farms. NARS to a very large extent manage research on farmers' fields to be the extent that other farmers copy the overall benefit of the new technology.

Our visits to the various on-farm trials suggest that projects supported by AFNETA are beginning to interact with NSOs in countries like Nigeria (ECWA, Jos) and Ghana (Ghana Rural Reconstruction Movement, Yensi Valley) as well as some international organisations in promoting management practices.

4.1.3. LIVESTOCK INTEGRATION/INTERACTION IN ALLEY FARMING

i) *General Overview*

Livestock production in tropical Africa is constrained by poor quality and quantity of feeds especially during the dry season when the productivity of grasses is at its worst condition. Leguminous trees in alleys have the potential for improving soil fertility, enhancing crop production by serving as nutrient pump and providing supplementary feeds to livestock.

ii) *Livestock in farming systems*

Small ruminants—sheep and goats—are the principal livestock reared in the humid zone of West Africa. Over 75% of rural farmers especially women, keep 3—5 goats. In Kenya, about 60% of farmers keep livestock, mainly small ruminants. Currently, livestock do not play a major role in farming systems. Livestock production is limited by diseases and seasonal variability in the quantity and quality of feed resources.

iii) *Animal Scientists in AFNETA*

The four main areas of research in Phase 1 of AFNETA projects were:

- Screening and evaluation of MPTs
- Alley farming management trials and system comparison studies
- Integration of livestock into alley farming

- On-farm research and development and socio-economic studies

Of these four research areas, there were a total of 140 experiments distributed for each area as 28, 43, 8 and 61 respectively. Livestock therefore occupied the lowest in the group with only 8 experiments. Besides, there were only about 7 collaborating animal scientists. It has been established that participating scientists in livestock research are very few. The projects undertaken by animal scientists involve feeding trials and fodder production. As the project moves on-farm, developmental concern for livestock comes on-stream even though there will be no direct feeding trials.

However, once on-farm trials are initiated, livestock become a component of the project. This has been observed in Mono province in Benin, Kenya work in Mombassa with dairy cows and the work at KEFRI. With the KEFRI work, napier grass is cut and fed to dairy cows.

In this situation the typical scenario was observed:

- tree with maize
- tree with napier grass

In the latter case, use is made for forage production in that the trees are incorporated in existing napier situation.

The alley farming concept has been under test in a series of field trials at IITA since 1976. Trials at ILCA in humid and sub-humid zones of Nigeria and Togo have concluded that supplementary feeding with browses increases productivity by as much as 55%.

At the point of evaluation, it has again been established that although the number of animal scientists in NARS has increased tremendously, research focussed on livestock integration/interaction is still rudimentary among NARS scientists.

iv) Livestock Projects in AFNETA

AFNETA has focussed on two types of trials viz:

- Production of fodder and availability of fodder from AF system
- Assessment of the feed quality of the fodder through evaluation of acceptability, digestibility, protein value and weight gains.

The team observed that generally NARS scientists worked well in both areas, the exception being IRZ in Cameroon where the research was not properly conducted. In KEFRI and KARI, experiments were established with two leucocephala alley cropping experiments, one on fodder production based on Napier grass and the other on maize production. In this system, positive results showed green leaf manure for the maize crop. Forage from L. leucocephala biomass was used to improve weight gains and milk production of dairy cows. In Uganda, a female farmer with 10 dairy cows used pruned L. leucocephala to feed her cows, mulched her banana in the alleys while the manure from the cows in the form of slurry was used to fertilize fodder grass, bananas and cabbage grown in the alleys. As more and more projects move into developmental OFR activities,

livestock will form an increasingly important component in AFNETA research and developmental efforts.

In the second type of experiment, results from West Africa showed that goats first refused Gliricidia sepium but with time readily accepted it, whereas L. leucocephala was much more easily accepted.

The team observed that some NARS have gone on-farm with trials. This was noted with small ruminant farmers in Nigeria and Benin where on-farm studies have attracted peasant farmers to the use of hedgerow trees to feeding livestock especially during the dry season. The improvement in nutrition through use of tree fodder has also been shown in on-farm trials in Mombassa with studies using dairy cows. Although on-farm trials with livestock have not been very extensive, there is room for improvement and with sustained effort and adequate funding, more and detailed on-farm studies are called for.

v) *Linkages Programs*

The three IARCs (IITA, ICRAF, ILCA) have a major role to play in supporting AFNETA in its drive to dissemination of the new technology. ILCA is thus closest in the sphere. In the three-year period (1989—91) during which IFAD awarded a grant to ILCA,

23 trials were conducted by ILCA.

8 trials for evaluation of forage legumes

2 trials for the use of sheep manure as fertilizer

8 trials on strategic feed supplementation, and

2 trials on socio-economic analysis

Although library and documentation have been supplied to NARS and AFNETA scientists on an individual basis, the situation is different with laboratory analysis. There is the potential for use of laboratory analysis and this has to be requested for by NARS scientists themselves. It appears to the team that when the need arises in the field, AFNETA should arrange for adequate support for laboratory analysis from IITA or any of the collaborating research laboratories.

vi) Training

Training is one of the most important and useful activities of AFNETA. In order to develop alley farming, adequate adaptive and participatory research in different agro-ecological zones will be required. The onus rests on NARS in different countries to accept this challenge.

The team notes however that most NARS do not possess prior experience in the new technology. The animal scientists within NARS are worse hit. The team notes also that the function of AFNETA is to work with NARS in the organization, initiation and execution of research on alley farming and to assess the acceptability and adoptability of the new technology for small scale farmers.

Although the IARCs are to support AFNETA in both individual and group training, ILCA has trained a postgraduate student within its facility in Mombassa. Courses are indeed necessary for NARS. These courses can be regional, in-country or local. So far, no course has been organized in the principles

and practice of livestock integration in alley farming. Of the three themes around which courses are to be designed, only the one on livestock integration in alley farming has not been organized since 1989 when AFNETA was established. This calls for urgent consideration on the part of AFNETA and the three IARCs to, as a matter of priority, enhance the performance of animal scientists in NARS by organizing a workshop for animal scientists in NARS on livestock integration in alley farming.

4.1.4. On-Farm Research and Socio-Economic Assessment

i) As discussed elsewhere in this report, the establishment of on-farm research (OFR) through NARS has generally been slow (Annex 12). The commencement of associated socio-economic research has been even slower, despite explicit emphasis placed on it as one of three main "research issues to be addressed by the programme" (IFAD Technical Assistance Financing Agreement). The comprehensive set of guidelines for socio-economic research set out in that Financing agreement proved to be extremely optimistic.

ii) Given the situation that has developed, most NARS are not currently in a position to begin investigating many of the important questions set out in the programme document. Almost all of those visited lack a sufficient sample of farmers who have been practising alley farming for any period of time. Where such farmers do exist (for example, in Mono Department, Benin and to a lesser extent in Matomb, Cameroon), they are the product of extension work conducted by other organizations. Issues that can only be addressed once on-farm trials have properly begun include comparisons of alley farming with "traditional" practises in terms of economic efficiency, and economic complementarities or socio-cultural conflicts. In most cases it is also not yet possible to address the intensity of labour involved in alley farming versus alternative cropping patterns. Variability of crop and livestock performance (particularly the latter, given their limited representation in work to date), and how this affects risks and uncertainty facing farmers, are also issues which cannot be investigated in the trials as they stand to date.

iii) This said, it is important that on-farm trials are set up in a way that will allow the collection of relevant socio-economic information. There was little indication from the limited research protocols available for the projects visited that such matters had been given adequate thought; socio-economic research was not made an integral part of on-farm experimental design.

iv) In the absence of on-farm trials, what could have been expected of NARS at the very least is a general investigation into and reporting of factors immediately influencing the adoption of alley farming in the locality. These include matters such as land availability and tenure, traditional customs, national economic and development policies, institutional regulations, and the existence (or otherwise) of infrastructural support and services. Gender issues could also have been addressed, identifying the main tasks conducted, and crops grown, by women and men. This information could then have been used as part of diagnostic studies, in planning future on-farm work. A number of NARS researchers were in fact well aware of the importance of these parameters and a few provided the evaluators with good written material.¹ Such researchers had also made a

¹ For example, Doumbia, S. (1988) 'Strategies de Fonctionnement des Exploitations Agricoles en Région Centre: L'étude des temps de travaux au niveau des exploitations agricoles en culture manuelle de la région de Katiola' IDESSA Note Technique 46/88, Côte d'Ivoire; Tonye, J. (1992) 'AFNETA Rapport d'Activités 1990 - 1992' IRA, Cameroun. A

creditable effort to address their on-station research to farmer needs. Unfortunately this was not true of all NARS visited.

v) Many of the projects visited acknowledged the generally weak treatment of socio-economic issues in the research conducted so far. For the most part, they stated that they intended to address such matters in a planned Phase II. The absence of a socio-economist on some of the research teams (or a delay in the appointment of one), was sometimes cited as a problem. Where a socio-economist did form part of the research team, the person had often only joined recently, as a result of directives from the Coordination unit. Although the intention behind recruiting socio-economists is to be welcomed, the team felt that greater stress should be placed on research teams being fully inter-disciplinary. There appeared to be a danger of research becoming compartmentalized, with socio-economists conducting their work in isolation from the biological scientists. Training courses in socio-economics for non-social scientists conducting OFR could be one way of redressing this tendency. Attendance at the one AFNETA training course in socio-economic issues held so far was largely dominated by social scientists (14, against 6 non-social scientists). There were also few women participants (3 out of 20).

vi) Of the limited number of socio-economists met by the mission, some tend to indulge in comprehensive exercises without an apparent understanding of how relevant it might be to the immediate (or overall) research objectives. Complex and lengthy questionnaires such as that conducted by Rivers State UST, Nigeria are highly resource intensive and of dubious use. There is a danger of such questionnaires being viewed as an end in themselves, rather than a tool to assist in problem identification. The questionnaire observed will have generated very little information that is relevant or useful to the biological scientists. Its design and conduct, furthermore, appeared to lack sociological sensitivity. For instance, it is a known fact that questions concerning farm income are likely to elicit vague and erroneous responses. Yet the questionnaire highlighted these elements at the expense of other valid considerations not addressed. Moreover, the detailed nature of the data appeared to be beyond the capacity of the researcher to adequately collate and analyse statistically. The team is aware that in future the coordination unit intends to use PRA methodology, which does not utilize detailed socio-economic surveys.

vii) Although the evaluation team did not see a large number of farmers who have adopted alley farming, they were taken to meet a number. Again, it should be noted that many of these farmers had commenced alley cropping as a result of local extension projects, rather than AFNETA activities. There is an excellent opportunity for AFNETA to build upon the work of such projects, particularly in socio-economic matters, as planned by the coordination unit. It would seem highly desirable for greater linkages to be developed with local NGOs and other extension projects which have already introduced alley farming to local farmers, or feel that it would be appropriate to do so. Such projects will often have already collected a large amount of basic socio-economic data, or if they

specific socio-economic analysis was conducted in Kenya, KEFRI by Paul Ongugo, "Socio-Economic issues in assessing the impact of alley farming".

have not, will be able to so with efficiency and sensitivity, assisting researchers new to the on-farm situation. Farmers in such project areas may also be far more amenable to participating in trials investigating issues such as the time taken to prune hedgerows, observing gender divisions in work, etc.

viii) In some situations, linkages with agricultural development investment projects may have potential. This could be investigated further in the future, if and where appropriate.

ix) Farmer modifications to the basic technology of alley farming is an important issue that should be given much future consideration. This is discussed elsewhere (3.1.6), but should also be mentioned briefly in the socio-economic context. The team was fortunate to meet a few farmers who have already deftly modified the basics of alley farming to fit their own particular needs. How and why farmers make such modifications should be a focus point in socio-economic research. It is also important to analyse the socio-economic reasons behind the failure of farmers to adopt alley farming, in situations where this occurs.

x) In conclusion, socio-economic research should be treated as an integral parameter of on-farm research and not an "add-on". Guidelines for the collection of socio-economic data are set out in Annex 13 for situations in which a survey approach is felt to be suitable. An assessment of socio-economic parameters will be implicit if, as is recommended elsewhere in this report, a diagnostic approach to on-farm work is developed, beginning with a PRA exercise. Future training programmes should strongly reflect this approach, enabling scientists to gain the necessary skills and confidence to work with farmers in a participatory manner.

4.1.5. Effectiveness and Efficiency of Research Implantation

i) Effectiveness refers to the extent that the two projects have achieved their outputs and purpose, whilst efficiency may be seen as a measure of the conversion of inputs to outputs in relation to the costs and time involved. As "The Research Programme is the principal membership activity" (AFNETA, 1992)¹, a review of effectiveness and efficiency is particularly important in this evaluation.

ii) The direction of the research was provided in the project objectives; both record objectives for on-station and on-farm research. The IFAD research objectives are more demanding and precise than those of CIDA, and it is implicit that the principal thrust intended is to move towards on-farm research to assess the relevance and acceptability of alley farming in various agro-ecological zones. A massive and wide-ranging programme of activities was set out, which was well beyond the human resources allocated for coordination. They are set, furthermore, within an impossibly short time frame. Any subsequent comments pertaining to AFNETA's coordination unit should be viewed in this context. The coordinators have been faced with a workload that was far too large for two people, and which has occupied much of their time inefficiently in administrative matters rather than utilizing their capabilities as scientists to the full.

Whilst research objectives are intended to provide a clear sense of direction, outline a realistic agenda and indicate the output, those laid down do not. As the project agreements do not incorporate an activity framework or indicate the expectation for project outputs, problems arise in evaluation. This confirms the problematic conceptualization and design. In these circumstances, the documents supplied to the mission as project protocols are the most relevant baseline documents available for the evaluation of activity and output. It is unclear whether all protocols have received and whether those in hand have received the assent of the steering committee, and in some cases reports from the projects or proposals have been submitted as protocols. For those projects visited, the document submitted has been accepted as a protocol. There is a need to improve administration in this important area. All protocols conform with project objectives and, because of lack of qualification, cannot be faulted in regard to the selection of subject matter or site placement.

iii) For the sample of countries and NARS visited by the team, the number of experimental protocols and an indication of their condition on site is given in Annex 14. Table 1 provides a summary of the subjects researched.

¹ AFNETA, 1992, Third annual general membership meeting, AFNETA report series 1992/1, IITA, Lagos

Table 1 Alley farming subjects researched in the countries visited by the evaluation mission

Tree	Crop	Fodder	Nutrition	Fertilizer	On-farm
Screening	Productivity	Productivity			Research
7	15	6	2	4	5

iv) In general the NARS scientists have observed the experimental protocols faithfully and established the on-station trials satisfactorily. No AFNETA trial has been running for a full three years, and therefore no output from the experiments can be properly assessed. All reports presented at AFNETA AGMs, detailing results after less than three years, must be treated with caution.

v) In a few cases member scientists are involved with additional agroforestry work over and above their protocols, often in other projects. In other cases, protocols have not been carried out completely and/or correctly, and there are cases of delayed start-up. Few experiments recorded in the protocols were on farm and of these there is evidence that only one of five has been implemented, suggesting financial and other implications that should be addressed by the coordination unit and the steering committee. The coordination unit has moved recently to promote on-farm activity on an *ad hoc* basis, and a number of initiatives have been taken. AFNETA has received project proposals for developmental on-farm work from the ongoing DRA project in Benin and from IDESSA in Cote d'Ivoire. Both proposals allow for diagnostic surveys and on-farm adaptive work with alley farming.

vi) The main output from the three years of research work is that a number of national research scientists, almost all men, have acquired research capabilities in some technical aspects of alley farming through on station trials. This may be seen as a constructive development, but it is important to recognise it as largely a manpower training exercise, from which some research information will arise. In respect to research, most of the trials are unlikely to build on current knowledge as they tend to repeat earlier work, from which it is possible to predict the broad outline of the results. The NARS themselves cannot be blamed for this. However, an opportunity to extend knowledge has been missed. This could have been achieved through the projects by agreeing responsibilities to venture into new and straightforward areas of research. These include timing of pruning, time taken to prune, and other aspects relevant to studies of the economics of these systems.

vii) There is lack of balance in the work of the projects, not just in respect to on-station and on-farm activities. Only technical issues of the production process are considered by most NARS, and many pertinent questions that might have advanced general knowledge have not been asked. The KARI/ILCA personnel in Kenya deserve credit for undertaking field work on social and economic issues, and have produced information on such relevant issues as gross and net margins in respect to milk production based upon alley systems. However, they are something of an exception. The general lack of socio-economic information is a most important omission. Despite three years of activity, many scientists remain unfamiliar with sociological and economic issues, associated investigatory methodologies, and the realities on farms. This last point is most unfortunate, since it cannot yet be determined from empirical evidence whether there is a potential for alley

farming in most of the project sites.

viii) In the context of farms and farmers, research conducted does not have a sharply focussed purpose. If farmers recognise soil infertility as a problem this may be accepted but there is need to identify the problem components and potential solutions by in depth appraisal with farmers. Researchers have related experiments to their perception of local needs, rather than designing their research to address a specific problem identified on farmers' fields. There tends to be an emphasis on soil fertility, whereas this is often not what farmers identify as their main problem. Farmers may be more interested in income generating opportunities, and, in the sub-humid zones, with problems related to water deficits. The research work must be shaped to produce a product to meet perceived needs of the farmers. This work may require emphasis upon profitability and other benefits as the priority, with soil fertility and other aspects of conservation incorporated as a "side effect".

There was always a need for work beyond the site specific situation of the research station, if only to determine just how alley farming might be appropriate for building on whatever farmers already do. Site-specific information that is needed includes matters such as the relevance of alley farming to the whole farm situation, whether labour requirements are acceptable, and the roles of men, women and children. Above all, it is necessary to determine whether alley farming is adaptable and adoptable; this information cannot be derived on research stations. That research needed to be pushed on-farm is explicitly stated in the IFAD support documents. Unfortunately, this was well beyond the capacity of NARS at the time without AFNETA input to training and project preparation, and the application of additional financial resources for the fieldwork.

After many years of research the specific priority is clearly for research activities that investigate adaptability and adoptability, and also involve a contribution from farmers working in partnership with researchers and extensionists.

ix) The siting, setting, number of NARS, and human input to project implementation all require careful consideration in the future. There is a heavy need for technical support from the project coordination unit, which, with 32 NARS in 20 countries, cannot service all projects on a regular basis. Clearly, some projects are being implemented more vigorously than others. It is important to identify the NARS in which individuals and groups are capable and interested to become fully involved in on-farm work for those areas where alley farming may be a suitable technology (4.1.6).

The siting of projects must receive greater attention, the choice of a number of currently supported NARS being questionable. In Malawi, for example, projects at the Tobacco Research Institute and the Bunda College of Agriculture are similar in several respects, sited on similar soil types in the same agro-ecological and cultural zone, upon a small plain that is atypical of Malawi conditions, and for which no fieldwork has been undertaken to determine a case for alley farming. The two projects of the institutions are also outside the mainstream research and development of organizations in the country. After screening trials at many sites and other agroforestry work, including some on-farm work, the National Agroforestry Steering Committee have agreed standard recommendations

for alley farming and some other agroforestry technologies as part of a renewed extension effort. This suggests that the AFNETA-supported trials are inappropriate in their present form. It is with close relation to the main research-extension efforts that AFNETA could perhaps best help to facilitate research support to on-farm work.

The recent attempts of the coordination unit to consider targeting agro-ecological or cultural zones is a welcome step, and there should be further steps towards the rationalization of research locations.

x) Most of the work undertaken provides no documentary evidence to show that it is well related to established global findings and to precedents within each country. Many African countries have witnessed numerous alley cropping initiatives during the previous decade but none of the scientists met were able to summarise this experience. In Kenya at least 48 different alley farming experiments had been initiated at several sites before AFNETA. There is need to review the work supported by AFNETA and fit activities to national strategies in line with set precedents.

xi) Documents prepared during the development of the proposal for AFNETA describe the intent to work in an on-farm context, and emphasise sociological and economic work. They contain statements such as, "each sub-project will have ...a socio-economic component to reflect" concerns about issues such as gender, labour demands, and customs. By the 1992 report of the Annual General Meeting, these earlier views are modified. "It was intended from the very beginning of the AFNETA project that the ultimate focus of activity would be in on-farm research. However... it was felt necessary to focus the early activities in on-station trials to raise awareness (and) to deal with the issue of adaptability of alley farming by assessing the biofeasibility of the system". This issue and others that relate to the gap between the spirit and purpose of the project agreements and what was actually done are subjects that should have been brought to notice through the steering committee. The quotation suggests, and is validated by the team's own observations, that the competence to do the research was not in place and that in most cases training was required before research. In practise the research components of the projects appear to have been converted to training components, but limited to technical considerations in a research station ambience. The inference here is that there should have been an in depth internal review of the projects at an early stage and the proposed revisions sanctioned.

xii) The points above suggest the need for some strong decisions and changes, as was discussed at the 1992 AFNETA AGMM. Changes should aim to focus the network activities, prune the number of collaborative NARS to assure a manageable situation, and emphasise adaptive research to determine whether alley farming is an adoptable technology.

xiii) Recent findings indicate that root penetration from alleys into controls may confound the results of many experiments (Akyeampong E. 1992). It would seem sensible that most NARS continue with experimentation as training for a minimum three year period with financial support from AFNETA only where absolutely necessary. Now that the trials are established they should be maintained as far as possible with available labour and facilities on the research stations.

xiv) A focus upon on-farm research issues with funds dedicated to that specific purpose will help determine whether farmers will utilise alley farming and in what conditions. This emphasis towards the on-farm situation would complement the strategic and site adaptive work of the AFRENA network. It may be appropriate for AFNETA to reach an agreement with AFRENA about withdrawal from AFRENA sites that permits AFRENA to take over and manage any useful AFNETA experimental situations, since AFRENA is better placed to provide local training and support. In regard to who does what and where, it is essential that ICRAF, ILCA and IITA jointly review their situations, and allocate responsibilities on a collaborative basis.

xv) Subsequent to a review and synthesis of alley farming (3.1.06), there is need for a 'think tank' operation to develop strategy, tactics, priorities and an action plan for the research activities. This might be achieved by developing a consultancy task force with membership from the CGIAR centres, and some independent practitioners.

xvi) At the network's inception, most of the work concerning the selection and design of research topics was assigned to the coordination unit. Due to time constraints, some protocols did not receive adequate peer review or the sanction of the steering committee. Whilst the team commends the recent attempts of the coordination unit to initiate participatory research, the detailed conceptualization and design of new projects should arise within country, even if help and training are prerequisites. One way in which this may be facilitated may be through training courses in project conceptualization and design, with post-course funding for in-country participatory rural appraisal. This would be required prior to proposal preparation, ensuring a shift to on-farm research. Any on-station research should be designed to support the fieldwork and address a specific on-farm problem.

xvii) Future project proposals should be submitted to a thorough peer review process. It is appropriate that third party specialists provide rigorous comment before the submission of proposals to the steering committee.

xviii) In order to adequately support the coordinating unit, it is vital that the steering committee has clear terms of reference, good guidelines, and meets to take the major policy decisions. Meetings should be at six monthly intervals at least, and one meeting should coincide with the AFNETA AGMM.

xix) Implementing the above should help markedly to improve the efficiency and effectiveness of the research activities. Given the heavy financial investment already made, it is strongly recommended that the achievements of AFNETA in training and institutional collaboration are developed and built upon in a future on-farm research thrust.

xx) According to Lukas Brader (IITA, Pers. Comm.), "The main interest now ... is to look at transfer especially after 10-15 years of research". This view is echoed by Pedro Sanchez (ICRAF, Pers. Comm.) who stated that the data now available should be enough to predict the work necessary to test the potential of alley farming in the on-farm situation.

4.1.6. Issues of adaptability and adoptability and economic viability

i) Five terms should be clearly distinguished. Technology generation refers to a conventional process of on-station identification of site specific technology packages for smallholders. In this "top down" approach, technology generation is followed by technology transfer - an attempt to sell the developed package to farmers. By contrast, participatory technology development (PTD) is a "bottom up" approach, whereby the initial thrust is on-farm in order to ensure appropriate problem orientation and the adaption of "best bet" technologies. On station research will usually be required to support PTD as problems are identified in the field. Technology adaption refers to the process of developing an acceptable technology within a particular recommendation domain. Implicit in this process is an active partnership with farmers to determine a technological improvement to their existing farming system(s). Adaption may include attempts to refine technological packages that appear to have potential, or to identify system improvements through thorough rural appraisal and work with farmers. The targets may be communities, or households and the lands that they manage. Technology adoption is restricted to a situation where an individual or group have accepted a technological package or one component of it over a prolonged time period - at minimum, some three years.

ii) The projects under evaluation represent a conventional 'technology generation and transfer' approach, and are based upon two key assumptions. The first is that NARS would field experienced researchers and provide facilities to implement research in accordance with the spirit and purpose of the project agreements. The second is that alley farming is a well founded technology of proven acceptability to farmers, one that merely requires some modification to fit with existing farming systems. This is argued without qualification in the draft AFNETA proposal, which states that the "alley farming concept is being tested in various African, Asian and Latin American countries. Promising results to date and the ready acceptance of alley farming in various parts of the tropics augur well for the concept..." "ILCA started with on-station trials..(and) quickly moved to on-farm trials which raised considerable interest among farmers... It is on the strength of their experience with about 100 farmers, together with IITA's similar experience, that IITA and ILCA feel ready to move into more widespread network activities".

iii) The intention for a thrust towards on-farm work was thus explicit in AFNETA project proposals and was carried forward into the IFAD support agreement. This states that, "The two-way interaction will...bridge the gap between researcher-farmer and resolve issues about technology transfer, since it will be generated for the farmers, with their participation right from the inception".

iv) Unfortunately the initial intentions were confounded by a range of project objectives that permitted a different research direction. The result is work that for the most part may be classified as technology generation. However, in recent months the project coordinators have made considerable attempts to promote work that is more orientated to the original issues of adaptability and adoptability, as evinced at the 1992 Annual General Meeting and in other documentation. This initiative is welcome, but there is a need to go further and effect a thorough reorientation of AFNETA along these lines.

v) A fundamental requirement is a full review of current experience in alley cropping with the aim of gaining an improved understanding of where and how alley farming might be appropriate. Since the 1970s, hundreds of experiments have been established in many countries, and many students and professionals have carried out short and longer term studies. Yet research and development agencies have not succeeded in gaining the widespread adoption of alley farming. What lessons have been learned?

vi) IITA and ILCA have carried out adaptive work with farmers in the vicinity of Ibadan since 1981. Their results are "disappointing"¹ and do not augur well for economic viability. A recent field survey (Whithome, 1992)² has indicated that of 363 out of 447 experimental alley fields of IITA and ILCA identified, 160 were abandoned, 97 were in a post cassava fallow, 49 were under cassava, and 41 were under other crops. This summary is of work by different workers, for different periods and different experiments. Nevertheless it is sobering and suggests a need for a careful review of the findings. In the humid forest zone maize yields 20-80% lower than controls without alleys have been noted. Competitive effects have been recorded, difficulties in establishment of trees, and two-year delays in obtaining benefits. Other on-farm work showed an increased maize yield of 44% (not a high margin), whilst yam yields decreased by 5%. In these trials farmers complained about the labour requirements of alley farming.³

vii) According to a draft document to FAO⁴, "Adoption of alley farming by the Nigerian farmers has been very poor although attempts have been made to transfer this technique..." It is also clear that other countries are not reporting major advances arising from alley cropping on farms, even after ten or more years of on-farm work by public sector and NGO agencies. This is a compelling reason for AFTNETA to play a leading role in an objective review process, by adding more information about the potential for adoption. In the AFNETA context of Africa this might be accomplished over a period of months by appointing pairs of professionals with independent minds and no vested interests to provide a review of alley cropping, each pair being responsible for two or three countries. The culmination might well be a workshop in two parts, the first to agree the material, the second to develop a strategy for alley farming relevant to AFNETA, AFRENA and other networks with similar interests.

viii) There are successes involving farmers and alley farming. In Nigeria, FAO (ibid) reports farmers in Ondo state utilising alleys of Gliricidia sepium to provide yam stakes. In practise

¹ IITA 25 year anniversary draft document, handed officially to the evaluation team.

² Whithome M. (1992), Initial report on the cropping status of all alley fields of farmers who have at any time participated in IITA and ILCA on-farm projects, Unpublished data, IITA - University of Cambridge.

³ Source: see footnote 1.

⁴ Draft document (1992) "The extension of alley farming with small ruminants in Nigeria" FAO-Nigeria Cooperation Programme, Rome.

they have adapted components of alley farming to suit their circumstances. It is a normal expectation that farmers will accept those parts of a technological package that they deem to be beneficial. It is success such as this that demonstrates the need for adaptive work with farmers to determine what is useful to them. It is likely, in many cases, that components and revisions from alley farming will be most appropriate. Alley farming is but one possibility in an array of choices that can and should be presented to farmers as potential solutions to their problems. Having begun with a technology driven approach, AFNETA's future efforts should be orientated towards problem identification first, and the determination of appropriate technologies, including alley farming, second.

ix) The most immediate need is a careful evaluation of the situations under which alley farming is likely to have good adoption potential. Research should be focussed on such areas, with a limited programme of key experiments with farmers.

x) Numerous reports indicate the unsuitability of alley cropping for drier regions due to competition between trees and crops for scarce water. An example is provided in the AFRENA work at Machakos, Kenya (Akyeampong E. et al, 1992).⁵ This work also indicates possible confounding of results from many trials because of roots from alley trees penetrating into experimental control areas. In semi-arid and sub-humid regions where there are common resources and stock are free to graze in the dry season, alley farming faces obvious problems.

xi) The literature records that alley cropping has not so far been successful on strongly acid soils, especially those with low activity clays and/or a high coarse fraction. This includes locations in southern Nigeria and the strongly leached soils of northern Zambia and Zaire. Highlands are also an extreme case where temperature and other weather conditions are inhibiting.

xii) Socio-economic factors must be considered, as the following few examples serve to illustrate. In all areas where customary use rights remain for standing woodland, alley farming may have limited potential. In such areas, woodland products are available and people may see no advantage in growing trees on their cleared land. In Uganda and parts of Kenya, married women have no rights of ownership over the land that they farm. When men perceive trees planted by women as a move to establish ownership rights, there are difficulties. Tenants of land may be similarly restricted in all zones; land ownership was commonly reported as a prerequisite to tree planting in all the countries visited during the evaluation. In forest zones and areas such as the coastal strip of Kenya, animal disease is a restrictive factor. In the latter case the Kenya Cooperative Creameries will not collect milk locally. As the mobility of the local farmer is restricted to foot or bicycle, marketing problems must arise once the immediate market area around a farm is satisfied. If there is no market, or the financial margin is unattractive, there is no opportunity for the products of alley farming. In the populous zone of southern Nigeria opportunity costs for labour are

⁵ Akyeampong E. et al, 1992, ICRAF's experience and future programme on alley cropping, Draft paper, ICRAF, Nairobi.

likely to inhibit alley farming since there are better alternative employment prospects. Clearly there is a need for a thorough appraisal of issues such as these before adaptive work with alley farming is commenced.

xiii) In all locations identified for research focus, there is a need for information about the economic viability of alley farming. Some on-farm investigations from the west coast of Africa and elsewhere point to low margins as a major disadvantage. Recent results from AFRENA (Akyeampong E. et al, 1992) have shown maize yield responses ranging from 12 - 60%. This suggests possibly a low or negative economic advantage for this crop, given the low farm-gate prices for maize and a realistic costing for labour. In the Solomon Islands alley farming on steep slopes for butterfly production gave conservation advantages but also potential gross margins many times higher than any other on-farm opportunities. This fact generated interest and activity, but when farmers discovered that they could as easily use isolated trees instead of alleys, this is what they did. Financial margins are important, but it is one amongst many factors that will be considered by the farmer.

xiv) Rolling plateaux are a major land facet of sub-saharan Africa. Two soil families prevail, ultisols and oxisols. The better ultisols, upon which alley farming was developed, are of limited distribution. Ultisols and oxisols under woodland are often effectively base saturated. Taken out of woodland for cultivation, they acidify rapidly. Acidity can often be ameliorated but alley farming is unlikely to be the best means of achieving this. Planting woodlots or taking other steps to restore soil fertility is probably necessary before alley farms can be established. An alternative is natural fallow, but this is what alley farming originally sought to replace, due to the increasing impossibility of allowing adequate fallow periods. The distinction between rehabilitation and maintenance is important in its own right, but it also reinforces the basic need already stated, which is to identify exactly where alley farming will fit within a production system.

xv) It is perhaps in the more reliable rainfall regimes of the sub-humid zones, in areas with suitable socio-economic conditions and with fuel and/or fodder shortages that alley cropping may have real potential. Even here, careful appraisal and evaluation is needed. In Malawi advantages for the farmer may arise not from the opportunity to plant trees on steep slopes as a conservation measure, or from improved food security from maize or low commodity prices for tobacco, but because of the potential to produce wood for fuel. It is difficult to offset labour costs with low priced products such as maize. In the area visited by the team, one piece of wood about 50 cm x 5 cm x 5 cm costs about US\$ 0.15, a very high price for poor people in a poor country. Many people occupy themselves as gatherers, transporters and vendors of fuelwood. It is potential profit from fuelwood that may prove to be the main attraction to the farmer when introducing alley farming as a sustainable system of land management. However, it remains to be determined whether there is a distinct advantage over a woodlot. Common grazing in the dry season will limit opportunities for tree foliage being returned to the soil as manure, but may prove beneficial to stock at a difficult time. The ubiquitous goat may ensure that the establishment of palatable tree species is very difficult. Whatever the strategy and tactics for adaptive work it will have to be carefully thought through, and derived from strong interaction with farmers in-country before research takes place.

xvi) In the Philippines and other island states in the South-East Asian region successes are reported with sloping land technologies. Contoured lines of trees with crops between provide good barrier effects and infiltration lines for crop and tree growth. In spite of sloping land being a specific opportunity for alley farming this aspect has not been emphasised by AFNETA, there being 4 of 32 projects with experiments on such sites. In most cases the on-station work is being conducted on better soils of low slope that are distinct from on-farm conditions. Work on sloping lands should be intensified.

xvii) There is need for problem orientation first and technology fitting second. According to the draft of IITA 25 year synthesis, "Alley cropping is least likely to succeed under an approach to technology transfer in which researchers start with the solution and then go in search of suitable niches for it". Alley farming is just one technological option that may be found suitable, following in depth rural appraisal. As IITA now recognises, it is not a panacea. This suggests the need for a broader technological perspective. In the context of AFNETA there is need for a reorientation and focussing of activities so that limited but well supported work can be initiated in paired socio-economic and physical zones where there appears to be real opportunity for alley farming within existing land-use systems.

xviii) For some years the need to test the real potential of alley farming has been recognised, but efforts have been unrewarded. Part of the reason is a failure to identify those situations where alley farming is likely to have the best chance of success and to relate this information to adequate hypotheses for testing. It is now appropriate to identify a few, perhaps two/three sub-humid and two/three steep land sites, and to place reasonable resources for well designed work to test the potential in on-farm situations.

4.2. Institutional building and linkage issues and mechanisms for strengthening institutional aspects of AFNETA Project

AFNETA has worked towards the establishment and development of strong linkages within the NARS as was demonstrated in most of the countries visited by the evaluation team.

In Kenya, the Kenya Forestry Research Institute (KEFRI) and the Kenya Agricultural Research Institute (KARI) come together to execute the AFNETA Project. The Project is linked to Government Ministries responsible for the Environment, Natural Resources, Agriculture and Livestock Development as well as to numerous NGOs which have requested assistance in issues related to social forestry.

In Malawi, an agro-forestry commodity team made up of researchers from the Department of Agricultural Research, the Tobacco Research Institute and Bunda College has been formed while in Uganda, the research system has been reorganized with the establishment of a National Agricultural Research Organization (NARO) that has produced a prioritized research programme in which agro-forestry features prominently.

In Nigeria, it was not easy to identify the linkages since the number of sites visited was limited. However, Imo/Abia ADP has strong research linkages with the Universities and research institutes in both states as well as the Michael Okpara College of Agriculture. In Ghana, the IRNR has strong collaborative and interdisciplinary linkages with the Agro-forestry Unit of the Crop Sciences Department, of Ministry of

Agriculture and the Rural Forestry Division of the FORIG. Both Agro-forestry Unit and the Rural Forestry Division are Government parastatals charged with the development and promotion of agro-forestry in Ghana.

In Ghana, Nigeria and Kenya, resource persons have been provided by the Universities for AFNETA sponsored courses. The Nigerian Government in cooperation with FAO has established a project on the extension of alley farming with small ruminants. The project, which is designed to promote alley farming with integrated production of sheep and goats at the small farmers' level in Nigeria, Benin and Ghana, seeks to exploit transferable research findings in the new technology with the aim of improving the economic situation of small scale farmers.

In all other countries visited, the team observed collaborative linkages at various stages of development. The strength of such development depended on the age and the number of institutions involved with AFNETA projects.

The process of institutional building and establishment of strong linkages within the NARS is a slow one especially when different institutions within the NARS have been used to operating independently. However, with the assistance of AFNETA, most of the participating NARS have realized the importance of strong inter-institutional linkages. Concerted effort will have to be made to consolidate the gains already achieved and further establish new linkages.

and practice of livestock integration in alley farming. Of the three themes around which courses are to be designed, only the one on livestock integration in alley farming has not been organized since 1989 when AFNETA was established. This calls for urgent consideration on the part of AFNETA and the three IARCs to, as a matter of priority, enhance the performance of animal scientists in NARS by organizing a workshop for animal scientists in NARS on livestock integration in alley farming.

4.3 Linkages with development agencies in the public and private sectors

i) Within AFNETA very few links have been established with either public sector or NGO development agencies. In 1991 the AFNETA coordinator and a few members participated in a research-extension linkages workshop in Kenya. Since then the network coordinator has been encouraging existing network members to link up with extension agencies. It is commendable that the first proposals relating to such linkages are in house.

ii) There is an enormous gap between research interests and the problems on farmers fields. Researchers are prone to maintain themselves on their research stations and to argue endlessly that more factorial trials are needed because their specific package is still not ready for delivery. This phenomenon is well known and in many countries there are movements that will eventually result in a situation where research is largely orientated towards service of the client and on-farm problems are addressed. The difficulty of promoting on-farm research is well known. In Kenya it was personal visits of a minister to several government research stations that pushed researchers to investigate on farms, and now that the plunge has been taken some are beginning to get excited about the opportunities. One way of promoting problem orientation is to bring the research services into a collaborative role with extension services, though it must be realised that this step may be innovatory. Making a practical working link is good sense because it is a route to bridge the research - client gap and to enable a focus upon farmers problems and two-way flows of information.

iii) It is the public sector agencies that have considerable potential strength to assist in collaborative effort, and these will usually be the first port of call. NGO's and IVO's also have a potential for linkage but care is needed with NGO's. In some the strong commitment of staff may enable considerable assistance in research activity but others, technically and administratively weak, may provide more problems than solutions.

3.3.06 It is useful to promote partnership through research-extension-client linkages. In order to enable on-farm work it would be appropriate for the steering committee to direct that all new projects will be initiated on a research - extension - farmer target group partnership. In this context it will be most useful if the three groups are formed as a true partnership, with full rights to collegial decision-making to provide all with a sense of ownership, an arrangement where the work arises out of consensus and a consideration of client needs.

4.4 Financial Management and Reporting

The principal legally binding agreement drawn up between each of the NARS institutions and IITA is the Memorandum of Grant Conditions. By virtue of its being the primary recipient of IFAD's grant funds, IITA is signatory to these memoranda, on behalf of AFNETA. IITA is primarily responsible for the management of the grant resources. The IFAD Technical Assistance Financing Agreement governs the utilization of IFAD's grant to IITA to support the in-country research projects.

The memorandum of Grant Conditions is explicit on the manner in which the Grant funds would be administered by the NARS, the frequency of tranches, requirements for periodic financial statements and narrative reports apart from other conditions governing the use of In-country grants, channelled through IITA.

Given the large number of NARS beneficiaries involved and the accompanying complexities associated with the establishment of formal bilateral financial arrangements with individual NARS, the coordination unit performed effectively. The Memoranda of grant conditions were prepared soon after the signing of the IFAD Financing Agreement. Formal individual financing agreements were entered into between each participating NARS institution and IITA remarkably early in the programme.

Despite the existence of the formal memoranda of grant conditions, in the initial two years of the programme there was a considerable backlog both in terms of poor frequency of financial statements received from NARS as well as the quality of the financial reporting, which in many cases did not adhere to the standard format. This was in spite of relentless efforts of the AFNETA coordination unit to convey to the NARS on various occasions and at various fora the specific reporting requirements governing each tranche of the grant. Indeed, this is also explicit in each Memorandum to which the recipient institutions are signatories, which states that the "financial statement will be in the same format as the approved budget for the project".

Each memorandum was also explicit on the modalities relating to the disbursement of funds. An initial payment of the first tranche was to be made immediately subsequent to the NARS entering into an agreement with IITA on the basis of the Memorandum of grant

conditions. The rapid establishment of the bilateral financial protocols was thus followed by disbursement of a first tranche, representing 50% of the year I budget, in advance to each of the participating research institutions. This advance was meant to facilitate the initiation of each approved experiment. However, it was also understood that the disbursement of subsequent tranches of the approved grant would be contingent on the receipt of financial statements adequately reflecting how grant funds pertaining to the preceding tranche were expended and on the approval of estimated expenditure budgeted for the subsequent six month period.

This procedure standard and quite acceptable. However, the evaluation noted significant institutional weaknesses and structural constraints which, in some instances, conspired to cause considerable problems in the flow of resources to the NARS (River state, Abia/ADP, Cotonou) and the feedback in the form of expenditure statements to IITA. In most institutions, the scientists involved with the research are indirectly involved in the management of financial resources by institutions. An additional level of bureaucracy, while legitimate in the context of operational convenience and accounting, proved sometimes to cause unnecessary delay in the handling of funding disbursed from IITA, while not necessarily contributing to adequate financial reporting.

AFNETA has no convenient way of keeping regular contact with those directly responsible for handling financial matters on behalf of the sub-project scientists (eg, University Registrars /financial Controllers - Rivers State, Makarere). In any case there is always a significant turnover of NARS staff handling financing matters and there is often no interaction between the scientists who actually prepare the budget and plan expenditure and those who are also the primary source of information on project requirements. Under the circumstances, scientists were sometimes unaware of how much funding had been disbursed and when, and also how much was actually available under each line item, with their own institutions. Cumbersome banking procedures requiring transfers through North America were also cited as causing delays initially (Cotonou) apart from the attendant problem of conversion and exchange rates applied. In many instances, the magnitude of resources received in local currencies declined over time owing to the depreciation of the dollar against other european currencies (notably the French Franc) to which the NCCs are pegged.

Given the overwhelming number of NARS who experienced problems in submitting financial statements in time and in the appropriate format acceptable to IITA, the Central Coordination Unit

was faced with a hard option - that of suspending further disbursement of grant funds in line with the legally binding conditionalities expressed in the Memorandum. This would have caused serious impediments to the establishment of the trials themselves at a stage when the flow of financial support was absolutely essential. Continuous flow of resources was of critical importance to the trials in the initial stages - gaps in financing and consequent disruption in activities during this period could have done irreparable damage to the trials and affected output/results in subsequent periods, jeopardizing the research effort and undermining the very significance of the grant support. There was a need felt to divorce the issue of financial impediments from the effective execution of the research activities.

Accordingly, the central coordination took the decision to adopt an initial liberal interpretation of the stringency required by the memorandum of grant conditions, in the interest of maintaining the continuum of research. The evaluation feels that this decision did not tantamount to relaxation in the rigour and manner in which IITA Central Coordination carried out in the financial management of the programme. The evaluation also notes that in certain instances not directly reviewed by the mission, the coordination unit adopted a firm stand on "cutting off" those NARS which remained delinquent in financial reporting and failed to provide an adequate explanation of how grant funds were expended (Tanzania, for instance). In other instances, a percentage of funds was withheld from the total amount disbursed in subsequent tranches and retained until technical and financial reports were received in the adequate format and in line with acceptable standards of reporting. However, in other circumstances in which work performed by projects was unsatisfactory, funds were not reviewed or withheld (e.g. IRZ, Cameroon). Some of the project staff wondered why there was a considerable delay in receiving monies after reports were despatched to AFNETA coordination. Some of these delays have been attributed to the internal bureaucratic procedures of the NARS institutions themselves in conveying receipt of funds to the scientists. In other cases poor financial or technical reporting required further screening and evaluation before a subsequent tranche was disbursed. In yet other circumstances, the administrative workload of the Secretariat was cited as a constraint.

A commendable effort was launched on the part of the coordination unit to sensitize NARS to the issue of financial management and provide technical assistance in this area. Directors of NARS were invited to a network-wide workshop in

April 1991 and they were exposed to the appropriate financial management/reporting requirements of the programme. The workshop particularly addressed the modalities for streamlining the modalities for receipt of funds, management of the grant and financial reporting. There was a remarkable impact of this exercise on financial reporting in the period following the workshop and the responses received have served to ease the financing management problem considerably.

V. MANAGEMENT AND TECHNICAL SUPPORT BY IARCS (IITA-ILCA-ICRAF)

5.1 Administration, Coordination and Management of the network research

Ces trois centres internationaux de recherche assistent techniquement le réseau dans les domaines de l'information, la formation et la recherche. L'IITA fournit en outre une assistance administrative et logistique.

La mise sur pied de l'AFNETA s'inscrit dans la stratégie de IITA en vue de la mise en application de son concept d'agriculture durable (sustainable agriculture). Si IITA reconnaît le leadership du Comité de pilotage de l'AFNETA, elle occupe encore une place considérable au sein de ce Comité. La collaboration de l'ICRAF et de l'ILCA est appréciée et reconnue comme essentielle.

Le projet AFNETA est placé sous la juridiction de la Division RCMD de l'IITA. Celle-ci entend développer des systèmes de production durables et économiquement viables tout en perpétuant la ressource, qu'il s'agisse du sol, de l'eau, de la main-d'oeuvre ou autres intrants.

La Division ICTD est pour sa part plus particulièrement chargée des relations de IITA avec les autres pays africains, particulièrement les services nationaux de recherche, et se voit donc impliquée dans la mise sur pied de mécanismes efficaces permettant de faire bénéficier les programmes nationaux de cette technologie. ICTD s'occupe des termes des contrats signés avec les SNRA, en effectue le suivi de la mise en oeuvre, voit au respect des échéances des rapports techniques et financiers.

L'une des articulations les plus étroites de IITA-ILCA-ICRAF au sein de l'AFNETA est sans doute leurs interventions conjointes dans le cadre du programme de formation. IITA assure la coordination de la formation, ILCA la publication de certains manuels spécifiques et ICRAF l'évaluation des programmes.

5.2 Technical backstopping of network research and limitations

5.2.1 International Institute of Tropical Agriculture (IITA)

Dans le cadre de l'accord de contribution signé entre CRDI et IITA, la contribution propre de IITA au projet est évaluée, sur cinq ans, à 627.000 US \$; cette contribution s'opérant financièrement, matériellement et par l'affectation provisoire, dans le cadre des activités de l'AFNETA, de spécialistes de disciplines diverses.

Par conséquent, les frais d'administration de 18,8% prélevés par IITA, sur l'ensemble des déboursés occasionnés lors de l'exécution du projet - et évalués à 501.000 US \$ sur cinq ans - ont pour objet de compenser cette institution pour le support administratif, technique et financier offert au projet.

L'annexe 15 présente, en détail, l'ensemble des contributions techniques et financières attendues de IITA, offrant, pour chacune des activités de support prévues, un résumé succinct de ce qui a été réalisé à date.

Dans l'ensemble, on peut considérer que le support de IITA à l'endroit de l'AFNETA a été effectif. Ce support, essentiellement technique, demeure cependant fonction de la disponibilité du personnel scientifique requis. Il s'est avéré plus important sur certaines dimensions comparativement à d'autres, compte tenu des besoins rencontrés par le réseau au cours des trois dernières années. Il demeure toutefois extrêmement difficile et délicat de valoriser cette contribution. En outre, les relations personnelles/professionnelles et la tenacité des deux coordonnateurs ont beaucoup contribué à faire en sorte que l'AFNETA bénéficie du soutien dont elle dispose actuellement.

Quelques points sont à souligner cependant :

- 1) L'appui technique aux centres nationaux de recherche agricole constitue l'un des éléments principaux de la mission générale de l'IITA.

- ii) que le projet, AFNETA ait vu le jour ou non, un grand nombre de chercheurs de l'IITA auraient travaillé de toutes façons sur cette technologie ; de ce fait, les engagements souscrits par IITA envers le CRDI concernent davantage les implications, intérêts et travaux du personnel de recherche de l'Institut envers la culture en couloirs que, spécifiquement, envers l'AFNETA. Il est à noter toutefois que les résultats des travaux de recherche fondamentale entrepris sont accessibles aux membres du réseau AFNETA et qu'un grand nombre de ces travaux ne pourraient pas être exécutés par les organismes nationaux de recherche ;
- iii) L'ensemble des activités de recherche en matière de culture en couloirs menées par l'IITA ne s'articule donc pas nécessairement autour des besoins et préoccupations de l'AFNETA comme de ses membres. Par contre, l'implication d'un nombre de chercheurs de IITA dans les activités de l'AFNETA à l'extérieur du Nigéria a contribué à renforcer leur intérêt et motivation envers l'agriculture en couloirs.
- iv) la contribution/collaboration de l'IITA connaît ses propres limites, par exemple si elle a mis et continue à mettre gratuitement à la disposition de l'AFNETA les semences/plants de leucane et gliricidia, pour 2 autres espèces végétales l'AFNETA doit elle même passer commande à l'extérieur et régler la facture. De même, en raison d'un débordement des services de traduction de IITA et des délais très longs que cette situation occasionne l'AFNETA est contrainte de s'adresser à des traducteurs externes ;
- v) enfin, une attention particulière devrait être apportée aux coûts auxquels sont facturés à l'AFNETA certains services de l'IITA. Ces coûts s'étant avérés à diverses occasions largement supérieurs à ceux facturés à d'autres projets pour des services identiques. La direction de RCMD a rassuré la mission d'évaluation en précisant clairement que

l'AFNETA était parfaitement intégrée aux activités de IITA. Elle devrait donc de ce fait, jouir des mêmes privilèges que n'importe quel autre projet et ne pas être, parfois, considérée comme un projet "spécial".

5.2.2 International Livestock Centre for Africa (ILCA) and International Centre for Research in Agroforestry (ICRAF).

La contribution de ILCA et ICRAF est également importante. Environ une quinzaine de chercheurs de ces 2 organismes ont apporté leur soutien au réseau. Le très petit nombre de projets de recherche intégrant l'activité élevage présentés par les centres nationaux de recherche agricole explique pourquoi, jusqu'ici, la collaboration technique d'ILCA est demeuré en deçà de ce qui était attendu. Cet organisme s'est avéré cependant très actif au chapitre de la conception et de la publication de manuels de formation/perfectionnement destinés aux membres du réseau AFNETA et les résultats à ce niveau sont de très loin supérieurs à ceux escomptés.

L'ICRAF pour sa part collabore étroitement avec l'AFNETA, particulièrement au Malawi, Cameroun, Ouganda et Kenya, pays où des projets de recherche différents mais menés de concert sont en cours. Le personnel de l'ICRAF affecté localement vient appuyer ou compléter les compétences nationales. ICRAF assure en outre la composante évaluation des programmes de formation de l'AFNETA. Aucune compensation financière n'est versée à l'ICRAF pour les services rendus.

Un représentant de chacun de ces organismes siège au Comité de pilotage. Les contributions techniques et financières attendues et apportées par ICRAF et ILCA figurent également en annexe 15.

5.3 Logistical support

L'AFNETA bénéficie d'un support logistique comparable à celui qu'offre IITA à chacun des projets de recherche dont elle assure l'exécution. La gamme de ces services logistiques est très large puisqu'ils incluent aussi bien l'accueil à l'aéroport de Lagos, le logement des coordonnateurs, les facilités d'hébergement aux visiteurs de l'AFNETA de passage à Ibadan, communications et messageries, impression et reproduction, véhicules et entretien, bureaux . . . En outre, les différentes stations de IITA implantées sur le continent sont largement mises à contribution dans le cadre des activités du réseau, par exemple, la station de IITA au Bénin accueillait récemment une vingtaine de stagiaires francophones de l'AFNETA.

Il demeure que l'accès à ces services connaît ses limites et que le déploiement rapide du réseau conduit très vite à une saturation des facilités pouvant être offertes par IITA à l'AFNETA. Il s'ensuit que ce seuil une fois atteint, les coordonnateurs devront eux-mêmes s'acquitter d'une partie de la logistique. Le support logistique de IITA est donc, en principe, acquis. Automatiquement pour les deux coordonnateurs qui font partie intégrante du personnel de l'Institut, de façon négociée pour les interventions auprès des différentes composantes du réseau. C'est à ce niveau que le problème se voit posé : la négociation incessante par l'AFNETA de services que IITA s'est engagé contractuellement à fournir constitue l'un des problèmes majeurs du réseau. Les tâches administratives des coordonnateurs sont beaucoup trop élevées.

L'AFNETA constitue sans doute le projet le plus vaste de IITA en termes de nombre de pays participants et nombre d'essais de recherche implantés.

Il reste que l'apport de IITA à ce niveau demeure essentiel et que cet apport se voit en outre complété par les appuis logistiques reçus de l'ICRAF, particulièrement lors des déplacements des coordonnateurs ou en appui aux projets des centres nationaux de recherche agricole.

Les relations interpersonnelles jouent là encore une place prépondérante et le réseau a bénéficié jusqu'ici de la tenacité de l'unité de coordination. Il demeure

néanmoins que les appuis de IITA à ce niveau auraient avantage à être précisés au début de chaque année, lors de la présentation du programme de travail et que des assurances fermes devraient être obtenues sur les supports logistiques de IITA nécessités par sa mise en oeuvre. A défaut le programme devrait être révisé.

Un dernier point majeur mérite d'être évoqué sur lequel IITA devrait intervenir rapidement. Les locaux que l'IITA met à la disposition de l'AFNETA sont exigus et de plus en plus insuffisants.

5.4 Complementarity and competitive relationships between AFNETA and those three IARCS.

L'agriculture en couloirs étant une technologie intégrée (agriculture, foresterie, élevage), ces trois IARCS ont, chacun dans leurs champs de spécialité respectifs, une contribution significative à apporter, d'autant que toute implication ou participation de ces trois institutions au sein des activités de l'AFNETA réduit la charge de travail des coordonnateurs.

La question qui fait l'objet du présent chapitre concerne presque exclusivement les relations entre IITA et ICRAF ainsi que les articulations des interventions des deux réseaux qu'ils ont lancé : AFNETA et AFRENA, tous deux actifs dans le domaine de la diffusion de la technologie de l'agriculture en couloirs.

Une différence tout d'abord : ICRAF est impliqué dans la recherche stratégique et fondamentale (ce qui n'est pas le cas de l'AFNETA) et son réseau (AFRENA) s'intéresse à toutes les options relevant de l'agroforesterie, incluant l'agriculture en couloirs. L'AFNETA jusqu'ici ⁽¹⁾ a focalisé ses interventions exclusivement sur l'agriculture en couloirs.

L'AFRENA, présente actuellement dans la plupart des zones agro-écologiques, est implantée dans 8 pays auprès d'une institution nationale avec laquelle elle collabore. L'objectif vise est de mettre rapidement sur pied, si nécessaire.

- (1) L'Unité de coordination avait émis l'idée que, dans les pays où le potentiel de la culture en couloirs s'avérerait limité, d'autres alternatives pourraient être envisagées. Le Comité de pilotage a rejeté cette proposition.

un Comité directeur national chargé des questions d'agro-foresterie, auquel participe souvent des ONG et autres organismes de développement et d'apprécier le potentiel réel qu'est susceptible d'offrir cette technologie pour le pays concernés. L'ICRAF est particulièrement actif dans la région semi-aride (Sahel) insi que dans les régions de moyenne et haute altitude, plus particulièrement en Afrique de l'Est. L'AFNETA est plus présente en zones sub-humide et humide.

ICRAF reconnaît qu'il n'a pas la capacité technique et financière d'être présent partout et que les problèmes actuels et futurs d'agro-foresterie sont tels qu'il y a place pour tous.

De ce fait il est généralement accepté par les deux institutions :

- (i) que si l'AFRENA est fortement implantée dans une région, l'AFNETA y sera faiblement active et vice-versa ;
- (ii) qu'advenant une intervention majeure de HTA ou ICRAF dans l'une ou l'autre zone agro-écologique, le réseau qui lui est rattaché suivra
- (iii) qu'AFNETA, dans un pays où ICRAF est déjà implanté, occupera les places vacantes en vue de créer une complémentarité d'intervention et maximiser la couverture des besoins à satisfaire

L'AFNETA a de tout temps souhaité davantage d'implication de l'ICRAF dans son devenir. La collaboration entre projets AFNETA-AFRENA au Malawi (dans ce pays l'AFRENA a été introduite aupres des services agricoles de recherche par l'AFNETA) - Ouganda - Cameroun et Kenya est excellente

Un stage de formation a été d'ailleurs organisé et financé conjointement au Ghana.

La question demeure l'identification et la mise en place de mécanismes susceptibles de formaliser puis maximiser, au niveau d'un pays ou d'une région, la synergie des interventions menées par ces deux organismes. Au plus haut niveau de IITA et ICRAF comme sur le terrain les contacts sont bien établis et un souci réel de collaboration et d'articulation est manifeste. Il demeure qu'au niveau de ces deux institutions un partage clair des interventions (AFRENA) : recherche stratégique - AFNETA : potentialités d'adoption de la technologie en milieu réel ?) devrait être opéré. Le plan stratégique de développement de l'ICRAF ne fait nulle part allusion à l'existence de l'AFNETA. Enfin, au niveau des donateurs tels que le Gouvernement du Canada impliqué dans ces deux institutions via IDRC, une attention particulière devrait être apportée à favoriser les collaborations, rencontres et synergies souhaitées et des fonds devraient être prévus à cette fin dans les enveloppes accordées à chaque institution.

6.0 IDRC / CIDA and IFAD PROJECTS MONITORING

6.1 Participation, backstopping, contribution to network implementation and quality of monitoring

6.1.1 CIDA / IDRC

Le projet financé par l'ACDI est un projet d'action convergente. Le CRDI, agence d'exécution, jouit donc d'une grande liberté d'exécution.

Le suivi technique et financier exercé par le CRDI est demeuré jusqu'ici nettement insuffisant en relation avec les engagements souscrits. Ce n'est qu'en juillet 1990 qu'un tableau de prévision des décaissements annuels sur toute la durée du projet a été préparé ; les rapports financiers trimestriels établis par IITA ne sont pas transmis ; le plan de travail annuel de l'AFNETA ne répond pas aux exigences de l'Agence et nous n'avons pas vu d'évaluation technique annuelle du projet préparée par le CRDI. Il s'en est suivi une certaine insatisfaction de l'ACI et la mise en place à compter de novembre 1990, de mesures destinées à savoir ce qui se passait (missions Fournier / Mbodji du 17 novembre au 7 décembre 1990, Lalonde / Mbodji / Lavergne du 29 avril au 3 mai 1991). Récemment, l'arrivée d'une nouvelle équipe de projet à l'ACDI a conduit à une amélioration notable des relations / communications avec le CRDI. Culture organisationnelle propre ou non, le CRDI se doit répondre aux exigences que le Conseil du Trésor a établi pour l'ACDI.

La mission estime globalement, tout en soulignant l'apport et le support des missions de suivi effectuées régulièrement par le Dr. Koala (CRDI/Dakar) que le Centre était certainement en mesure de faire beaucoup plus qu'il n'a fait jusqu'ici pour le réseau. Les frais d'administration prélevés par cet organisme sont loin d'être excessifs (\pm 27.000 \$ can. / année) et advenant une implication plus grande du CRDI ils devraient sans doute être révisés en conséquence. Le CRDI était pleinement en mesure d'épauler l'AFNETA et son Unité de coordination sur des dimensions telles que :

- recherche en milieu réel

- pouvoirs du Comité de pilotage
- politiques / procédures / gestion du réseau
- consolidation des actions appuyées par le CRDI en matière d'alley farming dans un certain nombre de pays avec celles de l'AFNETA.
- articulation / cohérence des interventions de l'ICRAF (AFRENA et IITA (AFNETA) tous deux financé par le CRDI
- mise en place / stratégie de développement / structuration / management d'un réseau.

6.1.2

PARTICIPATION, BACKSTOPPING, SPONSORSHIP AND
CONTRIBUTION TO NETWORK IMPLEMENTATION

IFAD interacted closely with IITA and IDRC/CIDA during the conceptualisation and formulation of the programme. It was particularly involved in articulating the need for introducing a departure from conventional OSR and injecting a more farmer responsive OFR-oriented approach into the overall project design. It laid emphasis on aspects of socio-economic research in the project's design. Guidelines for this set out in the project document were meant to facilitate researchers to draw from a broad set of relevant parameters which could be addressed when surveys/socio-economic assesment studies were initiated. The set of parameters has since been modified by the present misssion to take into account different requirements for baseline surveys (See Annex). The modifications proposed by the mission are partly the result of lessons learnt over the first two years of the project,. During this period IFAD has constantly placed emphasis, notably through supervision missions, on addressing whole or part of the comprehensive set of socio-economic parameters outlined in the Fund's TA Financing Agreement.

During the programme IFAD has had a strong participation in the annual general meetings (on three occassions, August 1989, September, 1990 and January, 1992) and each time, IFAD representatives have shared with AFNETA member-NARS the Fund's expectations from the programme, making explicit its emphasis on the need to address the opportunities and constraints of its target groups - the resource poor farmers, considered potential (ultimate) beneficiaries of the technology. The missions also had occasion to visit in-country trials in selected countries. A fourth supervision mission visited AFNETA/IITA in April 1991. The programme was thus supervised by IFAD at an average frequency of six to eight months.

IFAD also followed-up such efforts at monitoring the programme by leaving with the AFNETA Secretariat a number of written issues for its consideration and response, as appropriate (a list of some of the important issues and recomendations are attached in Annex 16, together with AFNETA's response in terms of how they were addressed). These written recommendations were meant to assist in guiding the IFAD-financed research activities towards achieving the stated objectives of the programme. While the recommendations were considered by the evaluation to be pertinent, they were not addressed to any specific personnel but

cast in a manner which applied to various groups in the network. As a result, the evaluation notes that whilst a number of recommendations were responded to some others are still in the process of being adopted as practicable. For instance, IFAD has emphasized the usefulness of establishing linkages with specific IFAD investment projects, where these were found appropriate, in order to facilitate the assessment of the adoptability of the technology (if other conditions were found to be adequate). While institutional and agro-ecological suitability of many of the projects suggested explicitly by IFAD (with contact addresses) were not found in some instances, there is significant progress and potential in this regard elsewhere, as reported in Annex 13.

6.2 Coordination Among Donors

Despite the fact that IFAD and IDRC/CIDA are financing mutually exclusive sets of activities, there have been several occasions on which they have interacted and jointly discussed issues related to the AFNETA programme as a whole. These donor consultations have gone a long way towards raising mutual awareness of the emphasis placed by each donor. The understanding so built has helped to shape the network's activities over time.

All three donors were represented at the three AGMMs held since the inception of AFNETA. These meetings provided a suitable forum at which the donors exchanged their concerns and views about the progress achieved by the programme. An effort was made by the donors to express their views to the AFNETA management in a manner which was consistent with the thrusts and expectations of the individual donors. This served to minimize the possibility of conveying any conflicting recommendations or messages. This was best exemplified by the decision of the three donors to make a joint presentation at the Third AGMM held between 27-31 January, 1992, which was delivered by the IFAD representative on behalf of CIDA and IDRC as well.

Representatives of Donors also met on two earlier occasions. Both these meetings were held at IITA Headquarters. The first meeting which was held on 1-3 August, 1989 was particularly useful in that it provided an opportunity for the donors to inform themselves about the roles each donor intended to play in AFNETA and the specific areas for which the individual donors planned to support. An important result of this consultation was the decision relating to financial modalities governing the cofinancing of AFNETA. The meeting was thus crucial in facilitating a common understanding about the complementary, albeit different immediate target objectives of each of the donors. This interaction facilitated the donors to agree on IFAD and IDRC/CIDA undertaking parallel cofinancing of the programme in line with the mutually exclusive components the two sets of donors intended to finance. This donor cooperative spirit has prevailed throughout the programme and to date there has been no conflict of interest, whatsoever, which has been extremely beneficial for the smooth functioning of the network.

7.0 FINANCIAL ASPECTS (DONORS - IITA)

7.1 IITA-IDRC-CIDA

- L'ensemble des tableaux financiers relatifs à ce chapitre sont regroupés en annexe
- La contribution de l'ACDI au projet sur cinq ans s'élève à 4.346.000 \$ can., incluant administration IITA (18.8%), CRDI (4.0%), imprévus et inflation. Enveloppe à laquelle il faut ajouter 250.000 \$ can de contribution propre du CRDI, dont 200.000 \$ can destinés au financement de la recherche effectuée par certains centres nationaux de recherche agricole et 50.000 \$ pour les évaluations mi-parcours et finale. De ce fait, le budget global du projet s'élève à 4.596.000 \$ can. soit encore, sur la base d'un taux de change de 0.78 US \$ pour 1 \$ can (1), 3.584.880 US \$ (tableau 1).
- L'accord de contribution signé entre le CRDI et IITA fait Etat de :
 - (i) 4.060.000 \$ can. ou 3.166.000 US \$, au taux également de 0.78 US \$ pour 1 \$ can qui représentent la contribution du CRDI au projet et qui sont gérés par IITA ;
 - (ii) plus 50.000 \$ can ou 39.000 US \$, administrés par le CRDI, et relatifs aux deux évaluations à mi-parcours (an 3) et finale (an 5) ;
 Pour un total donc de 4.110.000 \$ can (la responsabilité du Centre étant limitée à ce montant établi en \$ can.) ou 3.205.000 US \$
- Il existe donc entre les enveloppes budgétaires globales de ces deux accords de contribution ACDI - CRDI et CRDI-IITA une différence de 486.000 \$ can ou 379.880 US \$. S'il est compréhensible que les frais d'administration du CRDI (135.000 \$ sur cinq ans) n'apparaissent pas dans les fonds gérés par le bénéficiaire du projet qu'est l'IITA, le solde, soit 351.000 \$ can correspond en fait aux imprévus et provision pour inflation, qui totalisent cependant 366.000 \$ can. dans le budget ACDI-CRDI.

(1) Taux de change figurant dans le MAP ainsi que dans l'accord de contribution IITA-IDRC

Le budget confié par le CRDI à IITA pour la réalisation de la totalité des activités du projet est donc en réalité supérieur à 3.166.000 US \$ et cet organisme, en cas de besoin, pourrait bénéficier de fonds supplémentaires totalisant 351.000 \$ can. ou 274.000 US \$.

- En date du 31/03/92, soit 38 mois après le démarrage effectif du projet ou encore 61.3% de sa durée totale de 62 mois puisqu'il prend fin le 31/03/94, les déboursés réels totalisent 1.495.391 US \$, soit encore 47.2% du budget administré par IITA (3.166.000 US \$) et 80.9% des prévisions établies pour ces trois premières années (tableaux 2 et 3)
- au 31/06/92, les avances :

- versées par l'ACDI au CRDI s'élèvent à 1.651.295 \$ can.
- versées par le CRDI à IITA et reçues par cette dernière à 1.660.643 \$ can. (ou 1.432.706 US \$), dont 86.998 \$ can. proviennent cependant du transfert au budget du projet du solde résiduel d'un autre projet de recherche sur l'agriculture en couloirs . FSR 39 - 86 - 0270 - 01. On peut donc en déduire que les transferts nets du CRDI à IITA des sommes reçues de l'ACDI pour le projet AFNETA sont de 1.573.645 \$ can. (tableau 4)

On en conclut donc que les transferts CRDI - IITA sont légèrement inférieurs à ceux opérés par l'ACDI au CRDI et que les 200.000 \$ can. de contre-partie du CRDI n'ont pas été versés à date, plus de trois ans après le début du projet, conclusion que confirme les relevés financiers les plus récents du CRDI (tableau 5). Ceux-ci attestent qu'à date 601 \$ can. ont été déboursés sur le budget géré par le Centre (évaluations + imprévus + inflation) relativement au paiement d'un billet d'avion au nom de Monsieur Atta-Krah lors d'un déplacement aérien à l'intérieur du Canada.

- Les derniers déboursés trimestriels présentés par le CRDI à l'ACDI, tel que stipulé dans l'accord de contribution signé entre ces deux organismes, remontent à juillet 1990 et couvrent la période du 01/11/89 au 31/12/89 (deux mois). Depuis cette date, aucun relevé trimestriel n'a été transmis

par le CRDI à l'ACDI, mais uniquement, par poste budgétaire principal, les déboursés cumulés depuis le début du projet.

Cette situation est d'autant plus surprenante qu'à la suite des demandes répétées de l'ACDI au CRDI de bien vouloir s'acquitter des engagements souscrits contractuellement en matière de rapports financiers, demandes transmises par le CRDI à IITA, ce dernier organisme produit (particulièrement depuis Octobre 1990) des rapports financiers trimestriels qui sont régulièrement transmis au CRDI/Dakar mais non transmis cependant par le CRDI à l'ACDI (tableau 6).

- Entre octobre 1988 et juillet 1990 le CRDI a reçu de l'ACDI des avances totalisant 957.631 \$ can. D'octobre 1988 à décembre 1990 IITA a reçu du CRDI des avances totalisant 600.867 \$ can. Le délai moyen d'autorisation de paiement accordée par l'ACDI à compter de la date de réception d'une requête du CRDI a été, en moyenne, de trois semaines.
- Depuis environ deux ans IITA préfinance régulièrement le projet. Une situation trimestrielle à cet effet couvrant la période du 30/9/90 au 31/3/92 est présentée au tableau 7.
- L'ensemble des pièces justificatives appuyant un rapport financier trimestriel ne sont pas transmises par IITA au CRDI/Dakar. Cependant, annuellement, l'ensemble des opérations financières effectuées sur le projet sont vérifiées par Arthur Andersen. Il n'y a donc guère de vérifications comptables à effectuer à Dakar comme à Ottawa et la mission s'explique donc mal les délais importants de transfert de ces rapports financiers à l'ACDI.
- La structure du système comptable de l'IITA permet difficilement de sortir rapidement la situation d'un projet particulier. Un rapport financier global est produit mensuellement. Les rapports globaux trimestriels font systématiquement l'objet d'une vérification interne effectuée par le "special

project accounting unit", ce qui fait que ce rapport n'est officiellement disponible que 6 à 8 semaines après la fin du trimestre considéré.

L'année financière de l'IITA prend fin le 31 décembre, il faut compter un mois environ pour préparer les états financiers annuels. Cependant les résultats du 4^e trimestre (octobre - décembre) ne peuvent être publiés qu'après vérification de l'année financière par A. Andersen. D'où un retard important dans la publication des résultats de ce dernier trimestre, généralement en mars ou avril de l'année suivante. En outre, la comptabilisation de certaines dépenses effectuées par les centres nationaux de recherche agricole est longue à effectuer compte tenu des délais enregistrés dans la réception des pièces justificatives transmises à Ibadan par ces institutions.

- Une autre difficulté soulevée par la Division Budget et Finance de l'IITA résulte du fait que CITIBANK New-York, auprès de laquelle le CRDI dépose les avances relatives au projet, n'identifie pas dans ses relevés la source des fonds crédités au compte de l'IITA en ses livres.
- D'ici l'achèvement du projet, qui pourrait aisément se voir se voir prolonger d'une autre année sur la base des décaissements réalisés après trois ans, une attention particulière devra être apportée aux postes "équipements informatiques et fournitures de bureau" ainsi que "achat - entretien d'un véhicule", les budgets globaux prévus sur ces postes ayant déjà été totalement épuisés.
- Les déboursés sur le poste "déplacements internationaux des coordonnateurs et des membres du Comité de pilotage" méritent clarification :
 - (i) en année 2 et 3 les déboursés enregistrés par les déplacements des membres du Comité de pilotage correspondent au double de ceux relatifs aux déplacements des coordonnateurs, et

(ii) il existe une différence importante au sujet de ces déplacements dits "du Comité de pilotage."

- la convention IITA-IDRC stipule qu'il s'agit de fonds alloués "To finance monitoring tours by Steering Committee members and Network collaborators following a well defined program approved by the Steering Committee".
- La convention ACIDI - CRDI prévoit que des visites de suivi périodiques seront effectuées, particulièrement sous les auspices des sous-Comités de recherche, elles auront pour objet de promouvoir les échanges d'idées et d'améliorer la qualité de la recherche. Les visites devront être planifiées d'avance et tout projet en ce sens devra être soumis au Comité directeur [de pilotage], qui approuvera le décaissement des fonds nécessaires."

A noter que la même convention précise que les membres des sous-Comités de recherche ne sont pas nécessairement membres du Comité de pilotage.

L'intitulé de ce poste "International travel : Steering Committee" ne correspond donc pas aux termes de la Convention CRDI - IITA et encore moins à ceux de la Convention ACIDI - CRDI. Une correction devrait rapidement être apportée.

7.2.

Financial Management (IITA-IFAD)

As stated in section 4.4, the principal legal document which describes the research programme objectives and related financing modalities is the IFAD Technical Assistance Financing Agreement, (TAG No. 191-IITA). This Agreement governs the utilization of IFAD's grant to IITA to support the in-country research projects.

Pursuant to the decision of the Fund's Executive Board, at its thirty-ninth session held in December 1989, to approve a technical assistance grant in the amount of US\$1,220,000 to IITA, the above-mentioned agreement was entered into on 17 March 1990 and the IFAD project formally commenced on that date. As stated in the agreement, the grant amount was apportioned among four major categories of expenditure: research personnel, training, Capital equipment and research operational costs. The major portion of the grant was thus meant for meeting expenditure directly incurred for research conducted by the NARS in the 17 participating countries. The total amount earmarked for financing the in-country research experiments was US\$ 945,000, constituting 77% of the grant. An amount of US\$ 180,000 was provided for supplementing the CIDA/IDRC contribution to specific aspects of research coordination and NARS research monitoring and supervision. The amounts described by the line items pertaining to the in-country experiments was to be disbursed to the NARS institutions by IITA, on behalf of AFNETA, in appropriate installments determined on a case-by-case basis. The frequency and magnitude of the installments are described by bilateral financial protocols entered into by IITA with the individual NARS institutions - the Memorandum of Grant Conditions.

As described in section 4.4, the rapid establishment of the bilateral financial protocols was followed by disbursement of a first tranche, representing 50% of the year I budget, in advance to each of the participating research institutions. This was meant to facilitate the initiation of each approved experiment. The advancing of monies to the NARS programme as envisaged, led to some prefinancing of the programme on the part of IITA in anticipation of IFAD's grant funds. The level of IITA prefinancing in year I was US\$259,260. This level increased considerably in 1991, due to delays in financial reporting on the part of NARS. As discussed in detail, elsewhere in chapter 4.4, IITA was obliged to advance a

second tranche to many of the NARS , even in the absence of expenditure statements for the preceding payment, a prerequisite which was waived in the interest of maintaining a research continuum.

This subsequently impeded the process of IITA's submission of expenditure statements to IFAD in conformity with requirements stipulated in the Financing Agreement between the Fund and IITA. In turn, it affected the regular flow of IFAD grant resources to IITA, which was constrained by the conditions governing the withdrawals of the proceeds of the grant. The Agreement states that any installment, except the first may be withdrawn only after IITA has submitted a statement, satisfactory to the Fund and certified by the Director General of IITA, with respect to the utilization of the immediately preceding installment. Clearly, IITA was unable and unwilling to furnish such statements until it had satisfactory evidence that the funds disbursed to the individual NARS were fully and exclusively used in accordance with the agreed requirements of the programme. As a result institute bore the burden of prefinancing over the initial period of two years. The situation worsened over 1991, as the statements of expenditure not received by IITA from the NARS delayed accounting disbursements in the amount of US\$ 335,000.

Since, the prefinancing gap continued to grow well into the second year of the programme, IITA had to resort to the convening of an emergency meeting, in April 1991 of the NARS directors involved with the administration of the individual sub-projects. The meeting drew the attention of the participants to the alarming situation created by the irregular submission of appropriate expenditure statements and sensitized them to the need to resolve this issue. The meeting was instrumental in eliciting a positive response from the NARS. As at 31 December 1991, a cumulative total of US\$ 744,280 had been disbursed to the NARS, (see tables in Annex 18) of which US\$ 202,081 is yet to be accounted by NARS. A very significant number of satisfactory expenditure statements have been received from the NARS and submitted to IFAD, of which the payable amount of US\$ 542,000 accounted for by the NARS, has been duly disbursed to IITA. IITA's prefinancing has thus been maintained at the level of US\$202,081, the amount which NARS are still in the process of accounting for.

In order to bridge the pre-financing gap it may become necessary to modify the IFAD technical Assistance Financing Agreement to include a provision for occasional advance installments at the request of IITA whenever the prefinancing gap

exceeds a given level. It is recommended that, in any case, IITA should strive, through AFNETA, to further streamline the procedures for on-disbursement of grants to NARS and the receipt of statements and ensure a smooth flow of resources to close the prefinancing gap.

8.0 PERFORMANCE OF AFNETA

INFORMATION

The network achieved overall average accomplishment in view of its age. The coordinators provided very good contacts and support to the network. A very good training guide was produced and could serve as a network standard document. The newsletter, AFNETAN needs to be strengthened in terms of circulation and contents. Further improvement should emphasize production of a mailing list, publication of abstracts of papers and the constitution of an editorial board.

TRAINING

The programme on training was good and is commended. What was found lacking was the setting-up of a standing training committee in which the steering committee should be represented. Some additional training courses could have been arranged e.g. participatory rural appraisal and livestock in alley farming. Regional field-based training is good and needs to beef up the emphasis upon hands on field experience. Greater training opportunities should be given to the technical staff who have direct contact with both the farmers and the researchers.

Coordination

The coordinator and his assistant have carried out their functions in an efficient manner. They were however over stretched by the enormity of the task of directing a network which presently consists of 32 institutions from 20 countries and the possibility of more being added in the near future. Their workload could be considerably reduced by the appointment of regional coordinators with clearly defined duties and responsibilities.

HTA has backstopped the network in a satisfactory manner by providing technical expertise from its research divisions and other logistical support.

The governing body of the network the Steering Committee comprising representatives from the NARS, IARCs, the coordinators and observers from donor agencies was functional but its powers were not too obvious and need to be considerably strengthened to effectively direct the affairs of the network.

Research

The NARS scientists have generally performed well in project execution. This performance was however affected in some cases by weaknesses in the projects which relate to conceptualization and design.

NARS scientists should be given technical support in the preparation of the projects, which must have specific objectives which can be achieved within the time frame of the project. On-site visits and discussions prior to the submission of the proposals could be helpful.

There should be a thorough review of existing literature as it relates to alley cropping in the ecological areas in which the experiments are to be cited. Peer review to ensure the production of good project documents should be encouraged.

On-farm research was generally slow in taking off and some protocols were not implemented. Future on-farm research should be targeted in areas where there is good adoption potential.

9. Findings

9.1. Introduction

The four main components of AFNETA are the coordination unit and three areas of activity:

- Information
- Training
- Research

Implementation to date has revealed operational and developmental lessons for the CIDA/IDRC and the IFAD funded projects, in each component and in the overall context of the support projects. The main points are presented in this section. It is interesting to consider that many of the findings and recommendations (9.00) are in sympathy with and similar to others found in the revised project proposal submitted to CIDA (IITA/ILCA, 1987).¹

9.2. Overview issues in relation to the projects

9.2.1. Operational issues

i) From the outset the implementation of the projects faced difficulties as a result of differences between the documents, internal problems in the documents for each project in respect to conceptualization and design. This is evinced particularly by sets of objectives that are both too broad in scope and impossible to achieve within the time-frames set. In addition there is an associated problem of insufficient specification. A project agreement should specify the project goal(s), a set of realisable objectives, activities and expected outputs and indicate the coherent linkage between all these components. In addition the work indicated has to be related to appropriate manpower and other resource indicators to confirm that everything can be done within the time-frame. A useful and effective tool for project design is a logical framework matrix. It would have been useful for the coordination unit to have access to the logical framework matrix prepared by CIDA.

ii) In situations where problem diagnosis and inter-agency liaison are prerequisites to the development of a project proposal, there may sometimes be a case for providing seed money at a pre-proposal stage. This can be used to enable the thorough preparation of the proposal, ensuring that the project undergoes an adequate design phase with participatory rural appraisal. In the absence of such assistance, project preparation is often rushed due to a perceived need to obtain funds, and the resulting project design may have fundamental flaws. It is clearly in the interests of both donor and client to make sure from the outset that projects are well designed.

¹ IITA/ILCA, 1987, Un projet de soutien au réseau de recherche collaborative en Afrique Tropical, IITA/ILCA project proposal.

iii) Research is stated to be AFNETA's major activity. In collaborative work with NARS, research is based upon agreed protocols. In many cases examined, the research protocols agreed could have been improved. Protocols have not been produced for all sub-projects and it is not clear that the AFNETA steering committee have played a strong role in considering and approving in this important area. This situation can be rectified by implementing procedural steps as follows:

- Preparation of research protocol with assistance from the project coordination unit, through on site visits and discussions prior to any written submission.
- Preparation should include a risk analysis (to determine the chances of the project being completed) and an assessment to ensure that the proposal fits with historic precedents and the national plans and programmes.
- Investigating the capacity of the proposed collaborating institution to perform and provide evidence of good financial management.
- Independent peer review of proposals by at least three specialists representing a range of relevant disciplines, one of which should be closely associated with AFNETA.
- Presentation of proposals, the outline protocol and review comments to the steering committee and acceptance/rejection by that committee. Where there is likely to be a conflict of interest in any consideration the appropriate committee member(s) should retire from the meeting until the next item on the agenda.
- All comments and documents should be retained together with the letter from the steering committee, signed by the secretary and chairman, confirming approval of all approved projects. All approvals and rejections should be recorded in the steering committee minutes.

iv) The need for independent peer review in addition to the conventional review process is a major lesson applicable at the level of the project agreement. Prior to signing of the agreement technical appraisal, in addition to the conventional project formulation process, should have revealed some of the inherent flaws.

v) Background documents, including the revised draft project proposals submitted to CIDA in 1987 and the project support agreements, all imply an early development of on-farm research, and this has not yet been realized. There was a shift in direction between proposal submission and implementation that emphasised the work as a training exercise and not research per se. It is essential that an interim steering committee should be operational from the outset of a collaborative project to consider policy and strategic subjects. It will then be in a position to monitor, liaise, and approve all changes to the project, especially those at the level of policy and finance, and to bring them to notice when

it is appropriate to do so.

9.2.2. Developmental Issues

i) Alley farming was developed as a package for technology transfer on research stations. As a package, it may have useful attributes for some farmers but these must be identified on-farm so that alley farming, or a modified version of alley farming, fits into the given production system. As alley-farming is unlikely to be "the solution" for the "millions of small farmers of sub-saharan Africa", the prospects for its adoption need more precise determination by cultural and bio-physical zones. Identifying the potential for adoption cannot and should not be attempted initially in many countries. Sites at which there is good adoption potential should be identified, and research with farmers focussed there. Such research should concentrate upon testing relevant hypotheses vis a vis adoption, and determining a model to predict where and how alley farming might be appropriate elsewhere.

ii) The fundamental question of whether or not alley farming is adoptable has not been addressed so far. An answer is clearly needed. In addressing the problems of the whole farm, alley-farming is one possibility in a selection of technologies. This suggests the need for alley-farming research to be associated with other technological components designed to assist sustainable and profitable improvements for the whole farm.

iii) The bio-physical attributes of alley cropping have been subject to much research, but there is little well reviewed information about its potential for adoption. Indeed, most of the information available points to disappointing results. There is a need for thorough review, and the development of a policy, strategy and priorities before the conceptualization and design of future alley-farming projects.

iv) The available reports and literature from recent years identify the testing of the adoption potential of alley farming as the priority area for action. Indeed this aspect is emphasised in the spirit and purpose of the funding proposals and the support agreements. Making this the priority for the projects supported would have resulted in a tighter and more appropriate focus for AFNETA activities. Moving into an on-farm situation of appraisal and testing from the outset may have avoided the problem of too many trials that cannot be adequately serviced. It would have made obvious the necessity of concentrating manpower and other resources on fewer sites, as well as the need to provide hands-on field training in participatory rural appraisal and other appropriate techniques.

v) AFNETA is currently supporting too many projects with too few resources. Priority should be given to developing a role model for the adoption potential of alley farming. To achieve this, choice must be exercised in selecting a few sites where the best chances for adoption are perceived, so that significant manpower and financial resources can be applied to each.

vi) Protocols emphasise technical issues in on-station research. There is need for a holistic approach to project design to ensure that the protocols result in a balanced programme of

research aimed at producing new information in areas where present knowledge is weak, such as economic viability.

vii) Initiatives involving agricultural conservation and production must seek to improve the whole farm. Alley farming may be one appropriate technology, but it will probably be modified by farmers. As previously noted, there will be a need for other technologies in support. The limited data available about the prospects for alley farming suggest the following to be the most fruitful areas of research:

- work with farmers to improve farming in selected sub-humid zone sites, using alley farming as one in a range of possible technologies
- work with farmers to improve sloping land technology, including the alley-farming components, at selected sites
- simultaneous work with both approaches.

This is discussed in more detail in Chapter 3.

viii) Project implementation by the coordinating unit has identified significant needs for training and information. Coordinating aspects of national research may be appropriate in some circumstances, but it is in training and information exchange that a network can be of great utility in promoting sustainable development in many countries. A number of opportunities for strengthening the support already provided by AFNETA are outlined below.

- Improvement of the newsletter to give information about all aspects of alley farming and related work - not just work supported by AFNETA. A review of past research, focussing on different topics, would be useful.
- Development of a database for abstracts, reviews and practical information, especially in relation to on-farm adoption and socio-economic issues.
- Development of guidelines on relevant topics such as economic monitoring and utilization of trees by livestock
- Development of training courses on rural appraisal, project conceptualization, interdisciplinary R+D, sociological and economic methodologies, and the role of livestock in alley farming

This training and information activity will apply to a broader context of agroforestry technology and is likely to complement and support other agencies working in this field. In some areas such as project conceptualization and economic monitoring there is an opportunity for AFNETA to take a lead position.

ix) Research protocols should allow for and encourage technical backstopping and advisory

support to any development agencies/farmers declaring an interest in alley farming.

9.3. Research

9.3.1. Operational Issues

i) Some parts of protocols, notably those involving on-farm work, have not been implemented. In others, modifications have occurred when it is not clear that these have been approved by the steering committee, and their budgets reviewed. These issues require attention. It may be difficult to rationalize the financial situation in respect to current protocols, and for the future it could be useful to allocate funds to specific experimental activities.

ii) Considerable financial resources have been disbursed to meet labour costs. Whilst it is recognised that institutions are frequently underfunded, it is general convention that a partnership requires a joint commitment. On the part of the recipient this usually includes the provision of wages and base facilities. There should be a clear statement to indicate what the commitment from the recipient will be. Within the context of some protocols circa 50% of the disbursements might have been utilized to strengthen equipment, mobility or other essential aspects of agreed projects, or to establish other activities, instead of being recorded as a cost for wages. It would seem appropriate to meet employment costs in special situations, for example the payment of an honorarium to a person engaged to teach rural appraisal or some other subject. However, the overall limit should not exceed 20% of the budget.

iii) Projects are often highly dependent upon a single researcher, although a consequence of AFNETA has been the development of inter-departmental and inter-institutional linkages. Development of linkages within agencies and between IARCs and NARS were the forms of linkage most often noted. These forms of linkage have not generally had the effect of moving researchers to on-farm realities, or to their work having a clearly defined problem orientation. This should occur if linkages are extended on a full partnership basis to include researchers - extensionists - target group of farmers right from the start. At all levels of the AFNETA operation, from IARCs to in-country activities, the creation of true partnerships from conceptualization through implementation will advantageous.

9.3.2. Developmental Issues

i) Some projects are not problem orientated. There is therefore need to put in place a three phase approach to project identification and development:

- Phase 1 : Participatory rural appraisal
Conceptualization and design
- Phase 2 : Pre-implementation evaluation

- Phase 3 : Completion of support agreement
- Phase 4 : Implementation.

As considerable work by national staff is implied by phases 1 & 2 there may be need to provide seed money (see 8.2.1) to enable the work, although this will depend upon the project appraisal approach of the donor.

ii) Overall the research projects have not given sufficient consideration to previous work, trials and results about alley farming. Considerable work on alley-farming was done in the 1980s in many countries and there is scant evidence that this has been taken into account in either a regional or in-country context. Some projects disregard in-country precedents and are poorly matched to national needs. Part of the conceptualization process must include a thorough review of the in-country literature and appropriate liaison to fit the work into the mainstream of national research and development, taking into account its historical precedents. In this context it is important that projects are generated from in country and not superimposed from an external position.

iii) There has also been little reference made to previous research on the multipurpose trees utilized in alley farming. An inadequate number of species has been screened, and little attention has been paid to the investigation of little known exotic and indigenous species.

iv) Livestock have been poorly represented in "alley farming" work funded by AFNETA to date. As future work focusses on-farm it is assumed that this issue will be more fully considered.

iv) The choice of countries, sites and the amount of funding provided is sometimes questionable.

v) Resources have sometimes been applied without a clear indication of purpose. All protocols require a sharp focus and sufficient detail to explain what data is being collected for what purpose. Site selection should also be conducted with care to avoid atypical and unsuitable locations.

vi) Work is in progress to collect, analyse and store data arising from the research undertaken. This work should be extended to include a full review of historic precedents in order to improve the memory bank at AFNETA HQ and in the countries where there is practical collaboration.

vii) There is a need for technical support to NARS scientists right through from conceptualization to the presentation of findings. Regular support visits will help to keep projects on track. Much more use could be made of visiting consultant scientists to provide services, so reducing the workload of the coordination unit.

viii) Within country and region there are opportunities to study traditional farming systems

with components that relate to alley farming (e.g. the Acioa barterii system of Southern Nigeria), in order to try to diagnose why people are doing what they do.

9.4. Information

9.4.1. Operational Issues

i) Delays in completing the newsletter and getting it out to the membership need to be rectified. Its limited subject coverage suggests a need for greater resource allocation. This could be achieved either by the coordination unit allocating more time to the newsletter (and correspondingly less on other matters), or by reallocating editorial responsibilities to one or more network members (an editorial group). Specific responsibilities might be passed more widely into the network to generate greater participation in newsletter production.

9.4.2 Developmental Issues

i) Numerous members pointed out information needs. It would seem clear that there is opportunity to strengthen the network information functions (see 2.2.viii).

9.5. Training

9.5.1. Operational Issues

i) Operationally it is more cost effective to bring people from neighbouring countries to a regional focus and make use of membership expertise. This is an important lesson already learned within the project, and an approach that should continue. Considerable advances have been made in the development of centralised and regional based training, and through the development of a training guide.

ii) The coordination unit have initiated and implemented with others a range of training courses that have been well received as a contribution to institution building. An effect of this work has been the identification of a considerable training need. Training could be further strengthened, usually by extending the training of trainers to produce small regional cadres in the membership who can pass on additional knowledge and skills to others.

iii) There are opportunities to improve candidate selection, and to bring more women into training courses.

iv) Arising from the manner of protocol implementation and the training activities is the contribution to institution building within collaborating institutions. By virtue of the fact of implementing on-station technical experiments a number of scientists have improved their skills and gained new or additional experience in some aspects of alley farming.

9.5.2. Developmental Issues

- i) There is an opportunity to address needs by developing more specialised courses, and by the development of additional guidelines and training manuals (see 8.2.2viii).

9.6. Coordination Unit

9.6.1. Operational Issues

- i) In respect to the professional work done the choice of coordinators is excellent.
- ii) Considerable work has been done in the last three years by the coordinators in all the activity components, but their workload is too great to perform all the tasks needed. Unfortunately the practical capacity of the coordination unit to perform all the work required as a consequence of the support agreements and the research protocols was never properly identified or studied by the steering committee or the donors. There needs to be a reallocation of the work. This should preferably be done within the network membership, promoting a greater sense of participation.
- iii) The coordination unit has begun the process of decentralization by encouraging informal coordinators and activities based on regional hubs. This principle can usefully be extended since the coordination workload can be better distributed. A consequence should be an improvement in cost effectiveness.
- iv) The coordination unit has received good technical support from ICRAF in particular, as well as ILCA. Both agencies have provided this without financial compensation. Not enough technical support has been received from IITA and IDRC which receive money to assist.
- v) A supervision report completed and signed by the supervisor and the principal investigator on site should record the main points drawn out during the visit.

10. Recommendations

10.1. Operational recommendations

- i) The steering committee should meet to review its guidelines and executive mandate, and to plan and implement changes in its mode of operations to permit sufficient time and input of specialist skills to enable an effective decision-making process.
- ii) The steering committee should be clearly empowered with the mandate to approve and reject all major issues of policy, strategy and tactics, and should have a particular responsibility to ensure that project activities are shaped and steered to meet project objectives and outputs. In this context the steering committee would be in liaison with the senior management of the collaborating IARCs, and cognizant of their view but not beholden to follow it.
- iii) The steering committee should meet formally at least twice a year, with one meeting coinciding with the AFNETA AGM and one meeting six months later.
- iv) Network membership should be encouraged to participate in the planning processes, particularly at the AGM. Needs assessment procedures can be implemented there and views obtained in plenary sessions passed to the steering committee for further consideration. In addition the implementation of network committees in such areas as research & development, training, editorial and publication activities should involve more of the network membership in the planning and decision-making processes.
- v) Peer review systems should be implemented immediately as indicated in the body of the report. These should be applied at all appropriate levels, and in the case of AFNETA sub-projects should be clearly sanctioned by the steering committee.
- vi) More use should be made of visiting consultant scientists to ensure that projects are regularly visited and provided with technical support.
- vii) The principle of regional coordination has been established. The formal appointment of part-time regional coordinators is recommended, and their number and roles can best be decided after further development of policy and strategy (viii - developmental recommendations).
- viii) Project documents should be placed in an 'under review but active status', and be restated, once the alley cropping review and strategy documents are in place and considered (see items viii - developmental recommendations).
- ix) Opportunities should be sought within the framework of investment projects to promote work on alley farming and associated technologies at appropriate sites. Investment projects may welcome linkage with AFNETA and input from AFNETA members. In this context it will be useful if CIDA and IFAD Africa Division staff seek to set a lead by helping to facilitate linkages with projects that they support. Efforts from AFNETA

coordination unit in this area should be matched by a reciprocal effort from the donors themselves.

10.2. Developmental recommendations

i) All on-station experiments are now funded for a three year training cum data collection period after the initial injection of funds, and should be continued thereafter at the discretion of the collaborating institution. Further development of research should relate to findings from key projects (see iv). A proportion of the projects are unsatisfactory for technical and/or administrative reasons covered in the report. The coordinating unit should review these projects in depth and make their own recommendations about terminations to the collaborating institutions and the steering committee.

ii) AFNETA should proceed into a second phase with revisions as indicated hereafter.

iii) There should be an immediate research shift to implement work designed to identify the adoption potential of alley-farming.

iv) All new research and development work should be preceded by participatory rural appraisal, conceptualization, design, pre-implementation evaluation (including peer review). On-farm research and on-station research are not mutually exclusive but any necessary on-station research should now be problem orientated and respond to field experience and the field situation.

v) The research functions and funding arrangements should be remodelled to provide for a few, perhaps four to six, well designed and distributed sub-projects to investigate the adoption potential of alley farming and associated technologies for the whole farm. The careful identification of sites should try to identify locations with the best chance of success which are on sloping land and in the sub-humid zones. These activities should be the main thrust of research. Half of these projects should be on sloping land. The development of these projects should follow the sequence of :

- regional macro-level appraisal by a task force (agreed by the steering committee) to identify a set of sites as a first approximation
- in-country participatory rural appraisal by the coordination unit and any necessary specialists with assistance from national staff to confirm and provide more detail about some of the promising sites
- identification of a collaborative partnership with AFNETA comprising a group of researchers - extensionists - target group of farmers, with the researchers and extensionists representing relevant institutions
- careful pre-selection of site, pre-implementation evaluation, choice of sites by the task force, approval by the steering committee, and then implementation.

It is envisaged that these projects would be in different countries and involve an interdisciplinary assembly of AFNETA membership in each country. This work is applied research en route to an investment scenario, and each project may be considered a pre-investment pilot project. It may be appropriate for the financial responsibilities to be split between CIDA/IDRC and IFAD. IFAD may wish to consider this aspect within the context of ongoing projects of those in the pipeline. It is important to note that these projects will have to be much better funded than the small projects hitherto and should enable inputs and overview from regional specialists, including IARC personnel.

vi) The information and training functions should be strengthened as indicated in the body of the report. Training should complement the revised research thrust and emphasise new areas where there is need such as in rural appraisal, methods of social and economic monitoring, and the livestock component in alley farming. While the focus upon alley-farming will remain it is clear that the training components can be very useful for other activities also.

vii) New small projects should only be encouraged in those few cases where there is good rationale and very vigorous personnel in place. For example, it would be appropriate to initiate one or two small projects to study traditional forms of alley-farming technologies in order to add substance to present knowledge about farmer rationale. In essence new work should be limited to those situations where a fresh contribution to knowledge about adaption and adoption can be expected. All new activities should fit to historic precedents and complement national plans and programmes. This general position should be maintained until there are clear signs that key projects (v) are making progress vis a vis adoption. Once the signs there are more positive than they are now it would then be appropriate to seek an expansion of activity to include more sites at different locations. These sites should be selected in the light of knowledge gained about adoption from the key projects.

viii) Immediate steps should be taken, prior to all other considerations, to undertake the following:

- a review of alley farming with emphasis upon adaptability and adoptability
- development of a detailed policy, strategy and identification of priorities for AFNETA. Views taken should include those of the collaborating IARCS and of the membership
- preparation of proposals for each of the key sites identified, to include precise specification of objectives and activities, and clear indications of output and costs.

This is a major task that should be completed within six months. To finance it, funds should be reallocated from those remaining. The work should also provide the proposals for the four role model projects described, including firm indications of financial requirements. Participating donors should be aware that while it may be possible to reallocate funds

unspent, the time frame for this work is five years. This suggests that additional funds may be required for the work and for the information and training activities. As the workload will be considerable, all involved IARCs and AFNETA should cooperate with an appointed independent consultant (4 man months) charged with the responsibility of contributing to, editing, and preparing the final documents. As many of the individual members will assemble at IITA for a workshop in September it is envisaged that time could be allocated to enable the membership and steering committee to plan and initiate these important activities.

ix) Donors and recipients should review and revise the support agreements in the light of other recommendations and information arising from the implementation of item vi. The revised support agreements should have realizable objectives, activities and outputs, all set within a precise timeframe. Activities should also be matched to manpower availability.

x) After 1994 CIDA/IDRC should continue to provide financial support to the coordination unit and any of the key projects established in the CIDA first phase (v), but assuming positive feedback from the key projects, the majority portion of any financial contribution should be given to in-country collaborative groups, these comprising researchers, extensionists and farmers.

xi) The recommendations are selected from material set within the body of the report where fuller information indicates their spirit and purpose. In the report are numerous other suggestions that should also be considered also as advisory statements.

11.0 Lessons Learned

- Il s'avère important que soit entrepris par le(s) bailleur(s) de fonds un exercice consistant à analyser, sur base de l'ensemble des documents élaborés, quelle a été l'évolution de "l'esprit" d'un projet tout au long de sa conception. L'exemple du projet AFNETA démontre que cette "essence" a considérablement évolué au cours de cette étape du cycle d'un projet, de la proposition déposée par IITA/ILCA fin 1987 jusqu'à la signature du MGC entre le CRDI et IITA fin 1988;
- Lors d'un exercice d'évaluation, ne devraient être recrutés que des consultants indépendants n'appartenant pas aux structures décisionnelles du projet considéré ou n'ayant aucunement été, de près ou de loin, impliqués au niveau de la conceptualisation même du projet;
- Le type d'évaluation à mi-parcours tel que celui entrepris aurait pu tout aussi bien être réalisé avec quatre personnes (au lieu de 6), en visitant une dizaine de projets (plutôt que 15), le coût en aurait été considérablement réduit;
- Les délais accordés à ce type de mission pour, d'une part permettre aux membres de la mission d'articuler leurs interventions, d'autre part valider leurs analyses, conclusions et recommandations avec les responsables du projet évalué, doivent être suffisants. Un mandat clair devrait être préparé pour chacun des membres de l'équipe;
- Une vérification des informations/affirmations contenues dans une proposition de projet transmise à un bailleur de fonds, devrait être opéré. Dans le cas du projet AFNETA, certaines

données figurant dans le dossier de projet soumis par IITA/ILCA et reprises dans les divers documents de planification de l'ACDI/CRDI ne reflètent visiblement pas la réalité existante;

- Dans la mesure du possible, les communications entre responsables de l'exécution d'un projet et bailleur agricole financés par les bailleurs de fonds devraient nécessairement passer par le canal d'une société d'exécution, lorsque celle-ci existe;
- Un projet, tel que celui de l'AFNETA, devrait davantage s'articuler avec les projets de développement agricole financés par les bailleurs de fonds, gouvernements concernés/ONG, ainsi qu'avec les appuis techniques et financiers apportés par le Canada (ACDI/CRDI) ou IFAD à des institutions qui y sont impliquées, telles que IITA/ICRAF/ILCA;
- La stratégie d'intervention de l'AFNETA repose sur une responsabilisation progressive des membres de son réseau dans le fonctionnement de celui-ci. Ce projet démontre que la mobilisation des compétences de responsables, chercheurs et techniciens nationaux autour d'objectifs bien articulés peut conduire à certains succès;
- Il est indispensable que les principaux responsables et exécutants d'un projet soient clairement informés de l'ensemble des documents de référence à partir desquels une évaluation sera menée.