

# Integrated Natural Resource Management Research for the Highlands of East and Central Africa

AHI External Review Report and  
Response of the Task Force

August 1996



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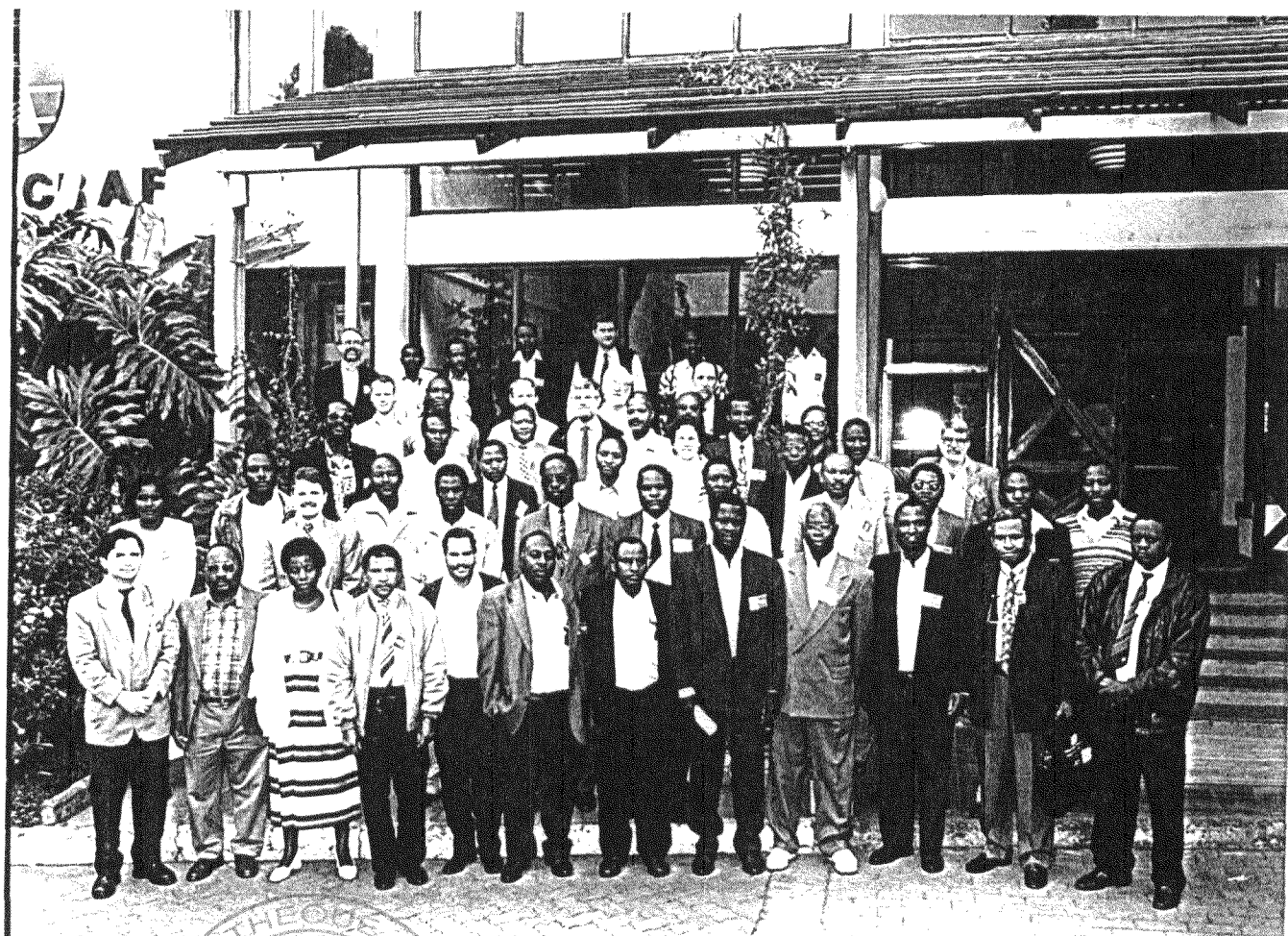
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## AHI External Review Report and Response of the Task Force

August 1996



African Highlands Initiative  
International Centre for Research in Agroforestry

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1 August 1996

Prof. Geoffrey Mrema  
Executive Secretary  
ASARECA  
PO Box 765  
Entebbe, UGANDA

Dear Professor Mrema,

Ref.: AHI External Review and Response by the Task Force

The African Highlands Initiative (AHI) was reviewed by external consultants in April/May 1996. This review was intentionally scheduled at an early point in the implementation of AHI to provide guidance in terms of the implementation of the programme and to assist us in the preparation of a Work Plan for Phase II of AHI.

The report was prepared and submitted to the AHI Task Force. The Task Force reviewed the Report on 18 and 19 June 1996 and has prepared a response. In general the External Review was favourably impressed with the implementation of AHI. They have recognized the complexity of the programme and have made many useful recommendations on how to improve future implementation. The Task Force commends the consultants for an inciteful and useful review.

The AHI is an ASARECA Programme. Therefore as Chairman of the AHI Task Force, it is my pleasure to submit to the ASARECA Directors, a copy of the AHI External Review and the Response of the AHI Task Force. With your permission, as AHI Task Force Chairman, I will be available and prepared to present this document to the ASARECA Directors Committee on 19/20 September 1996 in Entebbe.

Yours sincerely,



R. Bruce Scott  
Chairman, African Highlands Initiative

# **AHI Task Force Response to the AHI Review Report**

**Submitted by**

**AHI Task Force**

**to**

**Association for Strengthening Agricultural Research  
in Eastern and Central Africa (ASARECA)**

**and**

**AHI Consortium of Donors**

**AHI Task Force  
International Centre for Research in Agroforestry (ICRAF)**

**July 1996**

# AHI Task Force Response to the Review Report

## 1.0 BACKGROUND TO THE REVIEW

The main purpose for commissioning an external review of the African Highlands Initiative (AHI) after less than two years of its operation was to assure that the initiative was established on a solid foundation and that the necessary structures and mechanisms were in place for a successful implementation of its programmes. The review was thus expected to make recommendations that would strengthen the initiative's operation in governance, project implementation and capacity building.

The review was conducted by a two-person team of consultants, from 20 April to 11 May 1996. The Review Report was submitted to ICRAF on 10 June, and a meeting of the AHI Task Force was held on 18-19 June to consider the report and prepare a response on it for the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) and AHI donors. The Task Force response to the review is presented below.

Structure of the response: The response is presented following the structure adopted in the Review Report. The main sections of this report will therefore be:

- Introduction
- Governance, planning and coordination
- Research programmes
- Capacity-building programmes
- Cross-cutting issues
- Conclusions – what next?

## 2.0 INTRODUCTION: VISION AND THE NRM PARADIGM OF AHI

The Task Force would like to express its satisfaction with the work done by the two reviewers. The Review Report has helped to highlight the complexity of AHI and has identified a number of areas that require strengthening or modification. Specific recommendations that would enhance the operations of AHI have also been made.

The Task Force was happy with the overall recommendation of the Review Team that, notwithstanding the need for improvement in and strengthening of a number of areas, the initiative as a whole has taken off well and made reasonable progress. They called for continued support by donors and collaborators to the initiative.

*The Vision and NRM Paradigm of AHI:* The Review Team noted that, whereas there appeared to be a consensus of opinion among the various partners in AHI on what

the central vision of AHI is, there did not appear to be a consensus on the approach or strategy for reaching that vision.

Secondly, the Review Team felt that AHI was not, at least as at now, approaching the issues of natural resources management (NRM) in as broad and as integrated a manner as is required.

*Task Force Response:* Our central vision consists of a number of components:

- (i) development of approaches and methods for a better understanding and management of natural resources in the mandate zone, through
- (ii) increased partnership and collaboration among various stakeholders (IARCs, NARS, NGOs, farmers, etc.), thereby
- (iii) enhancing knowledge and practice of NRM by the various client groups (policy-makers, researchers, developers and, most importantly, farmers)

The overall goal therefore is for better management of natural resources for increased and sustainable agricultural production and better conservation and sustainability of the natural resources and environment.

The AHI paradigm for natural resources embodies soils, water, vegetation (agricultural and forestry) and air as the principal components. It recognizes the links between cultivated land and uncultivated land (forests, grazing lands, open lands, etc.).

The Task Force recognizes the fact that there are areas where solving soil fertility problems would not necessarily solve other NRM issues such as genetic resources erosion. The outcome of characterization and diagnosis (C&D) studies is expected to contribute towards addressing this aspect. To create a central focus for the initiation and implementation of the programme, however, the Task Force has decided that the central NRM issues of focus for AHI should be soil productivity and soil fertility depletion. There are two main rationales for this:

- (i) most of the other natural resource elements are either influenced by soil or influence soil. Focusing on soil allows interactions with the other elements to be studied
- (ii) it is strongly believed that finding a solution to the problems of soil productivity and soil fertility decline would significantly reduce the stress other elements of natural resources are under.

It must be emphasized that the focus is not on soils *per se*, but on 'Soil productivity research and development within a natural resources management perspective'. Other essential perspectives in this focus are:

- systems approaches and analyses
- multi-scale focus and interaction
  - plot level
  - watershed/catchment level
  - regional level
- integrated and multi-institutional collaboration

The Task Force agrees with the Review Team that a lot more needs to be done to define the path that AHI needs to take towards achieving the NRM programming focus (see section 5.2.2 of Review Report). The Review Team's concern was that AHI seems to have "concentrated on a more conventional agricultural production focus of IPM and soil fertility, at plot-scale" rather than an integrated NRM focus. The Task Force has proposed the following responses and actions to address this:

- active involvement of all thematic components of AHI in joint planning and implementation of the characterization and diagnosis studies being planned for various AHI benchmark locations
- new research activities to be developed directly from such characterization and diagnosis studies and be planned and executed in an integrated fashion
- increased focus on resource shed (e.g. watershed, catchments, community) scale of operation
- increased interaction among the technical advisory panels (TAPs) in the development of research
- reduced focus on single TAP research initiation<sup>7</sup>
- an 'advisory group meeting' on NRM would be conducted after the completion of the characterization and diagnosis exercise to bring in fresh ideas from other NRM projects and experts for the formulation of the research proposals for the operation of the second phase.

### 3.0 GOVERNANCE

The Review Team did a detailed analysis of the governance, structure and management of AHI as these constitute the engine that drives the initiative. A number of areas were highlighted that required clarification or modification. Some of the key areas queried and the Task Force responses to them are summarized below.

*a. Relationship among AHI, ASARECA and the CGIAR*

The Task Force confirms that AHI is a programme of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA). It also forms the east African ecoregional component of the Global Mountain Initiative of the Consultative Group on International Agricultural Research (CGIAR). It is thus a priority programme of both ASARECA and CGIAR for the region.

The Task force is happy about the strong acknowledgement of ownership and endorsement made by both ASARECA and CGIAR of AHI. The Task Force does not see any conflict in the situation and further sees AHI as the middle ground between ASARECA and CGIAR with respect to NRM research in the highlands of eastern and central Africa. AHI is happy to have received full recognition as a programme of ASARECA.

*b. Over-dominance of ICRAF in AHI*

This issue was raised in the Review Report as creating a negative feeling among some AHI partners.

The Task Force recognizes that for a programme like AHI to progress, it is essential to have one institution that takes over responsibility for ensuring the overall operation of the programme on a continuous basis. Experience shows that interaction and collaboration entails people mobilization, which requires constant support. In the case of AHI, ICRAF is playing this role very actively.

The apparent over-dominance of ICRAF is possibly because the issue of NRM has been central to the operations of ICRAF—even prior to the initiation of AHI. There is, therefore, a stronger overlap of activities for ICRAF with AHI than probably it is for the other partner institutions. This overlap, however, does not necessarily mean the over-targeting of AHI resources into ICRAF activity. On the contrary, it implies an enormous contribution and cost to ICRAF in support of AHI. The Task Force recommends that this contribution by ICRAF, and indeed by all the other partner institutions, be calculated and presented as part of the overall AHI operation budget and operation cost.

The Task Force felt that instead of focusing on ways to dilute the input and contribution of ICRAF, we ought rather to explore ways to strengthen commitment, involvement and ownership of partner institutions and countries. One way of doing this is to re-allocate responsibilities for technical direction among a wider spectrum of institutions and also to decentralize coordination by invigorating and enabling the operation of in-country coordination and management.

Specific steps taken in this regard are reported under other sections of this response (p. 5 and 6).



#### 4.0 AHI COORDINATION AND MANAGEMENT

The Review Team made several useful comments and suggestions relating to the coordination, management and planning of activities within AHI. Task Force responses on issues relating to the levels of coordination and management are provided below.

##### *a. Overall coordination (regional)*

The Task Force agrees with the Review Team (Review Report sections 2.3.1. and 6.2.3) on the need to have coordination as a full-time activity. Presently, the coordinator also doubles up as coordinator of the ICRAF Agroforestry Research Networks for Africa programme for eastern and central Africa (AFRENA-ECA).

The Task Force has advised ICRAF to plan to separate the two coordination functions. For the immediate short term, however, ICRAF is to explore ways of providing additional coordination support and to advise the Task Force on this. It needs to be realized that recruiting a full-time coordinator for AHI will have cost implications for the initiative.

##### *b. In-country coordination and management*

The Task Force agrees with the Review Team on the need to strengthen and operationalize an in-country coordination mechanism. There is a strong and an urgent need for a site coordinator for each AHI site (review report sections 2.3.3 and 6.2.3).

The Task Force also agrees that there is a need for a national coordinator to be identified to provide overall coordination within each country (review report sections 2.3.2 and 6.2.3(2)): (i) the Task Force has requested the AHI coordinator to contact each country's host institution to discuss this issue. Most countries have already identified people for these responsibilities; (ii) subsequent AHI coordination budgets should have in-country coordination components.

For the present, the AHI coordinator should allocate some money from existing coordination funds to in-country coordination expenses.

##### *c. The AHI Task Force*

The issues raised in connection with the AHI Task Force were:

- Over representation of IARCs and ICRAF staff
- Under representation of NARS
- Non-representation of NGOs

The AHI Task Force responses and planned actions in this regard are as follows:

- IARC (including ICRAF) representation to be reduced by having representatives of only the IARCs actively involved in AHI implementation on the Task Force.
- NARS participation to be increased by having the AHI national coordinator in each country as a member of the Task Force, in addition to the representatives of the directors of the host NARS.
- There would be two NGO representatives on the Task Force. It was accepted that a representative of the African Mountain Association (AMA) or one of the NGO representatives would be invited to serve on the Task Force.
- An NRM expert from the University of Nairobi will also be invited to serve on the Task Force to provide a 'university perspective' and enhance the NRM thinking in the Task Force.

With these proposed changes, the distribution of the membership of the Task Force is as shown in the following table. This distribution has a much stronger NARS/NGO representation:

NARS/NGO/ASARECA	11
ICRAF/IARCs	11
Donors	2
Total	24

Organization	Membership	Comments
ICRAF	5	3 TAP leaders: C&D, MISP, information AHI coordinator Task Force chair
Other IARCs	6	2 TAP leaders: IPM and training 4 centre representatives
NARS	8	4 representatives of NARS directors 4 AHI national coordinators
NGOs	2	1 representative of AMA 2nd NGO rep. (yet to be identified)
ASARECA	1	Executive secretary
Donors	2	IDRC and Rockefeller Foundation
Total	24	

#### *d. Chairing of TAPs*

The Task Force agrees that in future TAPs will be co-chaired by IARCs and NARS.

### **5.0 FINANCIAL ADMINISTRATION**

The Review Team expressed concern on the complex nature of fund allocation within AHI. It reported that there are “multiple (uncoordinated) channels of fund flow from AHI to the same institution”. This creates confusion in determining overall fund input for a particular country or location, as well as confusion and concern over use of different finance policies on AHI funds by different institutions.

The Task Force agrees with the Review Team and has taken the following decisions:

- AHI budget should now show a consolidated fund for planned expenditures within each country
- All AHI country funds should go through the director of the host NARS institution or a deputy
- The AHI national coordinator should be aware of all fund inflows and should assist with in-country fund allocation
- Each AHI partner institution should be made to quantify the nature of its contribution in cash or kind to the AHI programme. This should then enable the development of a consolidated budget for AHI.
- The AHI coordination office should develop finance management guidelines to standardize the use of AHI funds for per diem, travel allowances, etc., across institutions in any one country. The Task Force would suggest that ASARECA defines these standards for AHI and other initiatives to avoid the tension being experienced.

### **6.0 BENCHMARK LOCATIONS**

The Review Team expressed concern that the issue of the choice of locations for AHI research in some countries is still not resolved (review report section 2.4.2.2) and stressed the importance of concluding this issue urgently with the respective countries.

The Task Force shares this concern and makes the following comments with respect to the current status of benchmark locations in respective countries:

Kenya: Embu and Maseno have been confirmed as the two locations

Uganda: Kabale/Kalengyere is the main location, with Mbarara as a subsidiary location for banana IPM-based research

A suggestion for an additional site in the Kampala area was rejected, as that would have led to the dilution of interest and commitment in the main highland location of Kabale. The special problem of Kabale being far from Kampala where most of the scientists are based should be taken into consideration when budgeting for Kabale activities (e.g., to provide sufficient funds for travel expenses).

It may also be necessary at some point to station a soil scientist as a regional research fellow in the Kabale/Kalengyere zone.

Ethiopia: Holetta/Ghinchu has been identified as a benchmark location. It is, however, not clear what this means to the scientists currently involved in the Ghinchu Joint Vertisol Project. The Institute of Agricultural Research's (IAR) assistance should be sought to clarify the situation.

Nazret has been proposed as the second benchmark location. However, there is some concern regarding the suitability of this site. The Awassa-Areka transect has been suggested as an alternative. It is said that this zone fits the characteristics required for AGI benchmark locations—high agricultural potential, high population, intensive cultivation systems, soil degradation/erosion, etc.

The Task Force has requested ICRAF to liaise with IAR to settle this issue once and for all.

Madagascar: Three locations have been identified by FOFIFA—Tananarive, Antsirabe and Fianarantsoa.

## 7.0 RESEARCH PROGRAMMES

### *a. Characterization and diagnosis*

The Review Team raised a number of concerns regarding characterization and diagnosis (C&D) activities. The Review Team recognized the central importance of the C&D programme to the overall achievement of the AGI goal. The team also recognized various challenges and limitations faced by the programme, which could potentially affect the full attainment of the AGI goals. Some of the specific concerns or questions raised have to do with:

- delay in implementation of C&D activities
- delayed involvement and constitution of a C&D TAP
- questions of the technical strength of the C&D TAP

- clarity in programme orientation, strategy, approach, methodologies, etc.
- the GIS linkage factor

The Task Force accepts that the delayed implementation of C&D programme has created some confusion and also put the C&D leader and partners under a lot of tension. The Task Force agrees with the concerns raised by the Review Team and advises ICRAF to explore ways of strengthening and speeding up the C&D process.

Prior to the Task Force meeting, however, the leader of the C&D programme resigned. This, though seen as a further setback for the programme, provided an opportunity to re-organize the C&D plan of operation, strengthen both regional and national technical and implementation teams and enhance the joint participation of all AHI research theme programmes in the planning and implementation of C&D activities.

The following decisions have been endorsed by the Task Force for the continued development of C&D:

*Regional level*

- A consultant to be hired over 9 months to take over leadership in C&D and direct field operations in various countries
- The C&D TAP to be strengthened with additional membership and expertise. This panel will provide technical support and advice to the consultant

*National level*

- Broaden the national C&D teams to involve MISP and IPM scientists in the countries
- Provide funds to country teams to continue with the development of plans of work and of a questionnaire for the C&D surveys
- Plan a meeting with national C&D leaders and the C&D consultant for September 1996, to discuss various country plans of work and the questionnaire and finalize plans for field surveys

*Delay in Phase 2 proposal development*

The outputs of the C&D studies are one of the expected inputs for developing a Phase 2 proposal for AHI. As a result of the delay in C&D programme implementation, the Task Force has decided to extend Phase 1 into mid-1997 to provide adequate time for C&D studies to be conducted. ICRAF will seek funds

from certain donors (for example the Swiss Development Cooperation) for operations during the Phase 1 extension.

The Phase 2 proposal is expected to be ready in April 1997.

*b. Maintenance and improvement of soil productivity*

The Review Team commended MISP's implementation strategy of commencing operations with a comprehensive review and synthesis of soils research to identify status and gaps in knowledge in soil productivity research in the region (review report section 3.3.4). The MISP programme also allocated grants for specific collaborative research activities to complement ongoing research. MISP's association with Soil, Water and Nutrient Management (SWNM) Initiative and the Systemwide Livestock Initiative (SLI) also received commendation from the Review Team.

The Review Team, however, expressed misgivings over the principal focus placed on small grants projects during Phase 1. The team remarked that "this approach has limitations in terms of spreading resources too thinly, and lack of an integrated watershed scale research".

An additional concern noted by the Review Team is the lack of integration between MISP and IPM programmes in developing the small grants projects. Also, even at the level of the benchmark locations, there was inadequate consultation among individuals developing proposals, resulting in duplication of effort in some cases.

The Review Team was concerned about the inadequate technical supervision and follow-up of small grants projects by the MISP leadership.

The Task Force agrees with the views of the Review Team, but stresses that these observations were recognized by the MISP TAP even prior to the review. As acknowledged in the Review Report (section 3.3.4(5)), "MISP-TAP have identified the need to change approach to a stronger focus on large-scale integrated projects, with major thrust on four sub-themes:

- characterization and diagnosis
- nutrient management
- agriculture-environment interaction, and
- policy and dissemination"

The Task Force endorses these proposals and, additionally, recommends a stronger integration of MISP programmes with the IPM activities in forging truly integrated MISP-IPM collaboration at specified locations. A joint meeting of MISP and IPM TAPs has been scheduled for 12-13 September 1996 to deliberate on this. It is intended that C&D leaders from the four countries will be invited to this meeting.

The question of inadequate technical follow-up and support will also be addressed by the MISP TAP, with specific recommendations made to the Task Force.

*c. Integrated pest management*

The Review Team recognized the central role played by regional research fellows in the implementation of the IPM programme. It also recognized the programme's link with particular IARCs and commodity networks in the development and support of research.

The concern raised, however, is that this has resulted in a 'TAP-down' priority setting approach, which implies a strong commodity perspective in the IPM research thus far, with little interaction across commodities. The Task Force acknowledges that the lack of a cross-commodity perspective in IPM is just one of the elements hampering a more coherent NRM perspective and that there may be other elements that need to be identified.

The Task Force has decided to retain the regional research fellows concept, but has instructed the IPM TAP to take necessary steps to encourage:

- interaction across commodity-pest complexes
- stronger involvement of scientists and MISP staff in research development
- retention and strengthening of collaboration with national soils and IPM scientists
- stronger involvement of MISP staff in C&D activities
- taking on 'regional' responsibilities

The IPM TAP will deliberate on these issues and others and will advise the Task Force of the outcome.

*d. Small grants projects*

The concerns and comments expressed by the Review Team on MISP also apply to the small grants projects. The IPM TAP will need to work together with MISP to consolidate these projects and also find mechanisms to provide more technical support and monitoring to ensure that these projects fit logically into the overall IPM-MISP research framework.

## 8.0 CAPACITY BUILDING

The Review Team made a major recommendation that the two AHI capacity-building themes of training and information be merged into one, with one leader and one TAP.

Even after exhaustive discussion, the Task Force was not able to determine what the advantages of this fusion would be. However, considering the transitional nature of

the initiative, the Task Force decided not to pursue this idea at this stage, given the very diverse nature of the activities that each TAP is undertaking and recognizing that each requires unique expertise. The Task Force acknowledges the need for more explicit contact, interaction and collaboration between the training and information components and recognizes the possibility of using them as the main facilitators of the coordination/collaboration drive in the initiative. It is expected that the information and training components will facilitate collaboration among the other AHI programmes. The two components also should be constantly alert to help develop and reinforce concepts and principles of NRM as applied in the AHI research setting and farm production (selecting literature, courses, identifying contacts etc.)

Some specific comments relating to the respective themes are provided below.

#### *a. Training*

The major concern of the Review Team was with respect to the present TAP or commodity orientation of the training activities. The first training activity was an IPM course organized for the IPM TAP. The second was a C&D workshop, organized for the C&D TAP—(probably the third will be a soils course for the MISIP TAP!!).

The Review Team would like to see more attention and orientation towards training in natural resource management. Emphasis should be on issues such as plot-farm-watershed scale integration, systems approaches in NRM, GIS in NRM, etc.

The Task Force fully endorses this recommendation and has proposed that the Training TAP addresses this issue as a matter of priority. This would require developing a curriculum and training materials.

The Task Force is of the opinion that while training in Phase 1 was designed in direct response to progress and needs in the research TAPs, in Phase 2 it should take a longer term planning approach towards human resources development in the NARS.

The Task Force also addressed the issue of institutional leadership for AHI training. The original responsibility was allocated to CIMMYT, with a CIMMYT scientist, Fred Palmer, as leader of the training TAP. Fred Palmer has resigned from CIMMYT, and the institution is no longer in a position to provide the contribution required of it.

The Task Force proposes that the AHI Training portfolio now be offered to ILRI, with Dr Habib Ibrahim (an erstwhile co-leader in the Training TAP) as the leader. This is felt to be appropriate as it will support ILRI's role as convenor of the inter-centre collaboration in training projects. The Task Force also proposes that the



CMRT Project of Egerton University be invited as member or co-leader of training, while ICRAF (Jan Beniest) will remain on the Training TAP.

ICRAF has sent a formal request to ILRI in respect of the above.

The Task Force emphasizes that the responsibility for training will not only involve organizing courses as requested but will also require a clear knowledge of other expectations. The leader will be expected to be proactive in supporting progress in the fronts of NRM and collaboration.

#### *b. Information*

The Review Team was satisfied with the information processing, compilation and distribution channels being developed by the Information Programme. According to the Review Report, the big challenge for this programme is how to make AHI partners fully aware of what is available, and also how to make better use of the data being collected as inputs into the research-development process (Review Report sections 4.2.3 and 6.3.5).

The Task Force agrees with the Review Team on the need to make people more aware of the facilities and data banks available in the Information Programme. The e-mail connectivity exercise, which is currently going on, and the CD-ROM information package on AHI, which is also under development, will revolutionize information exchange within the initiative.

The Task Force recommends that the Information TAP should have an 'information article' in the next issue of the *AHI Updates* to highlight the information packages and data banks that are available, as well as to provide information on the status and future plans for the e-mail connectivity exercise, amongst others.

The information leader will be expected to be more proactive in supporting progress in the fronts of NRM and collaboration, including the interaction between information and training components. The Information Programme should help AHI participants to link up with expert centres and libraries where NRM experiences and information exist and can be accessed. It should also promote and facilitate those linkages. The AHI documentation centre should be reinforced accordingly.

### **9.0 CROSS-CUTTING ISSUES**

A number of issues of general relevance for AHI as a whole were raised in the Review Report. Some of these have already been discussed in this document. A summary of the AHI Task Force responses on the key issues is provided as follows:

*a. Management issues*

- (i) *Allocation of funds:* A new mechanism that will allocate funds on country/site and thematic (regional) basis will be adopted.
- (ii) *AHI assets:* An assets policy will be developed to clarify ownership of and accountability for assets during and after operation of the initiative's programmes.
- (iii) *Unrealistic expectations from 'part-time' TAP leaders and other professional staff:* Mechanisms are to be found to allow staff (both national and international) associated with AHI to be able to spend more time for AHI activities. The special case of the MISP TAP's leadership will receive special focus in this analysis.

*b. Research integration issues*

- (i) *IPM and MISP collaboration:* This is being addressed at the regional level (inter-TAP deliberations), at the national level and through the C&D programme.
- (ii) *Natural resource management and scale issues:* This has been addressed under other sections of this report. Efforts are now being made to strengthen the NRM focus in research, development and training at all benchmark locations. The Task Force has, however, identified soil productivity as the issue for AHI's core focus. This implies that soils would form the bedrock of AHI's NRM research programme.

An NRM expert from a university (most probably the University Nairobi), will also be brought into the AHI Task Force.

- (iii) *Inter-institutional partnerships and collaboration:* This is one of the basic principles on which AHI is based. The Task Force intends to continue to encourage member countries and partner institutions to adopt an open-door and welcome attitude to partnership and collaboration.

Where problems and/or difficulties arise, however, the Task Force proposes that these be dealt with these on a case-by-case basis, with the particular institutions concerned.

*c. Future expansion*

The Task Force agrees with the recommendation of the Review Team that AHI should take a conservative approach to expansion of activities into new countries, more benchmark locations within a country or new programmatic areas. One possible exception, however, could be the establishment of a site in northern

Tanzania in the mountain ranges of Mt. Kilimanjaro in Arusha District. This expansion would be considered for Phase 2, but would be subject to availability of resources.

The Task Force has endorsed the initiation of exploratory and introductory contacts with the relevant Tanzanian NARS in respect of this.

Another area of possible 'expansion' could be in the livestock component in NRM. There is a call for increased focus on the role of livestock in NRM and soil productivity in the highlands. This would, however, continue to be seen within the context of the MISP theme.

## 9. CONCLUSION

The Task force would like to clarify that it is not proposing the creation of an institution or a separate team to cater for the NRM and collaboration perspectives in agricultural research. It recognizes that AHI is a transitional effort to find the most effective and efficient ways to facilitate collaboration of institutions working in agricultural research in addressing NRM issues. Central to this is to influence the mind-set of researchers and leaders so that they will capture the concepts of sustainability while responding to the need for efficiency in satisfying the demand for agricultural products.

This review was highly beneficial in highlighting issues in management and research operation of AHI that require attention in order to strengthen the programme as it moves into a second phase. The Task Force is satisfied with the Review Report and believes that the suggestions and recommendations made will help in the formulation of the Phase 2 document.

The Task Force wishes to formally thank the two consultants for a good job on a rather complex programme. Thanks also go to ASARECA for commissioning the review and to our donors who provided the funds to run the review exercise. Special mention is made of three donor partners—IDRC, the Rockefeller Foundation and the Swiss Development Cooperation—who have provided technical input into the development of the initiative and actively supported the review process.

## Acronyms

AHI	African Highlands Initiative (coordinated by ICRAF)
AMA	African Mountain Association
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
C&D	characterization and diagnosis
CGIAR	Consultative Group on International Agricultural Research
CIMMYT	International Maize and Wheat Improvement Centre
CMRT	Crop Management Research Training (course organized by Egerton University, Njoro, Kenya)
FOFIFA	National Agricultural Research Organization (Madagascar)
GIS	geographical information systems
IARC	International Agricultural Research Centre
ICRAF	International Centre for Research in Agroforestry
IDRC	International Development Research Centre
ILRI	International Livestock Research Institute
IPM	integrated pest management
MISP	maintenance and improvement of soil fertility
NARS	national agricultural research systems
NGO	no-governmental organization
NRM	natural resource management
TAP	technical advisory panel

**Draft**

**EVALUATION OF THE  
AFRICAN HIGHLANDS INITIATIVE**

**A report prepared for the  
International Centre for Agroforestry  
Nairobi, Kenya**

**by**

**Dr Kenneth T. MacKay  
and  
Dr Francis N. Gichuki**

**May 1996**

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## Acronyms and Abbreviations

<b>AHI</b>	African Highlands Initiative
<b>ASARECA</b>	Association for Strengthening Agricultural Research in East and Central Africa
<b>BARNESA</b>	Banana Research Network
<b>C&amp;D</b>	Characterization and Diagnosis
<b>CGIAR</b>	Consultative Group on International Agricultural Research
<b>CIAT</b>	Centro Internacional de Agricultura Tropical
<b>CIMMYT</b>	Centro Internacional de Mejoramiento de Maiz y Trigo
<b>CIP</b>	Centro Internacional de la Papa
<b>CPW</b>	country planning workshops
<b>DAO</b>	district agricultural officer
<b>ECA</b>	East and Central Africa
<b>FOFIFA</b>	National Agricultural Research Organization (Madagascar)
<b>GIS</b>	geographical information system
<b>GMI</b>	Global Mountain Initiative
<b>I&amp;D</b>	Information and Documentation
<b>IAR</b>	Institute of Agricultural Research (Ethiopia)
<b>IARC</b>	International Agricultural Research Centres
<b>ICIPE</b>	International Centre of Insect Physiology and Ecology
<b>ICRAF</b>	International Centre for Research in Agroforestry
<b>IDRC</b>	International Development Research Centre
<b>IGADD</b>	Intergovernmental Agency for Drought and Desertification
<b>IITA</b>	International Institute of Tropical Agriculture
<b>ILRI</b>	International Livestock Research Institute
<b>IPM</b>	Integrated Pest Management
<b>ISNAR</b>	Service International de la Recherche Agricole Nationale
<b>KARI</b>	Kenya Agricultural Research Institute
<b>KEFRI</b>	Kenya Forestry Research Institute
<b>KWAP</b>	Kenya Woodfuel and Agroforestry Project
<b>MAAIF</b>	Ministry of Agriculture, Animal Industry and Forestry
<b>MISP</b>	Maintenance and Improvement of Soil Fertility
<b>NARO</b>	National Agricultural Research Organization (Uganda)
<b>NARS</b>	National agricultural research systems
<b>NGO</b>	Non-governmental organization
<b>NRM</b>	Natural resources management
<b>OMMN</b>	Organic Matter Management Network
<b>PADIS</b>	Pan-African Development Information System (a project of Economic Commission of Africa)
<b>PRAPACE</b>	Regional Potato Research Programme
<b>RI</b>	Resources Inventory
<b>RRF</b>	Regional research fellow
<b>SDC</b>	Swiss Development Cooperation
<b>SDI</b>	Selective Dissemination of Information
<b>SLI</b>	Systemwide Livestock Initiative
<b>SPAAR</b>	Special Programme for African Agricultural Research
<b>SWNMP</b>	Soil, Water and Nutrient Management Programme
<b>TAP</b>	Technical Advisory Panel
<b>TSBF</b>	Tropical Soil Biology and Fertility Programme
<b>UNEP</b>	United Nations Environment Programme
<b>USAID</b>	United States Agency for International Development



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## ACKNOWLEDGEMENTS

The review team wishes to thank everyone involved in the review for their cooperation, frankness and openness. The comments made in this evaluation report are not meant to be critical but they are intended to assist the AHI Task Force in making improvements to the existing phase and as suggestions for the development of the Phase 2. **Many of the current short comings mentioned in this report are related to the complexity and evolving nature of AHI and the fact that it is only one year into implementation. In most cases these issues are apparent to the Task Force and TAPs and have been mentioned at these meetings and some solutions sought.**

Special thanks go to the ICRAF staff, particularly Ms Claire Momoh, for providing logistic support.

## EXECUTIVE SUMMARY

### Introduction

The highlands of eastern and central Africa constitute 23% of the land area and are home to over 50% of the population and are the principal source of staple foods, export crops, forest products and employment. The sustainability of this natural resource base is critical to the future of this region. There is concern that agricultural research in these high-potential and densely populated highlands has not achieved commensurate results in terms of improved and sustainable land productivity as land productivity has declined markedly.

It was within this context that the African Highlands Initiative (AHI) was developed, involving close consultation with and participation of a number of IARC's and NARS.

While AHI was being developed, a parallel activity was assisting the NARS in the region in exploring greater regional cooperation. In 1994, this led to the formation of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) with the secretariat now located in Entebbe, Uganda. AHI has become the first project coordinated by ASARECA.

The long term objectives of AHI are:

1. To develop a collaborative regional research programme on the management of natural resources, particularly soil, that will contribute to the enhancement and sustainability of agricultural and livestock production through improved technologies based on better understanding of the natural and socioeconomic environment, and in collaboration with the local communities;
2. To strengthen the professional capacity in NARS to deal with the management of natural resources and to establish links between different institutions and professionals at the national level dealing with sustainable land management;
3. To encourage cooperation between NARS, IARC's and other research and extension programmes dealing with natural resources research and to evolve mechanisms for participatory research approaches with individual farming communities.

Phase 1, which officially started on 1 January 1995, is the establishment phase and is focusing on initiation of collaborative research activities that will convince the participating partners of the benefits of the integrated approach to research in the highlands and to establish the process of internalizing the basic principles and methodologies. ICRAF, the lead institution, commissioned a review mission to assess the progress made by AHI in its 16 months of existence and identify future direction that will ensure the attainment of the programme goals.

A mid-term review was carried out by a two person team of team leader Dr Kenneth T. MacKay, a Canadian environmental, natural resources management and planning consultant, and Dr Francis Gichuki, a Kenyan soil and water management specialist from the University of Nairobi. The review took place from 22 April to 11 May 1996. The review team carried out formal and informal discussions with over 70 people concerned with AHI and also examined many of the papers, reports, correspondence and minutes of the Task Force and TAP meetings. The team visited benchmark sites at Ghinchi, Ethiopia; Maseno/Kakamega, Kenya; and Mbarara and Kabale/Kalengyere, Uganda. They also met with researchers from the Embu, Kenya, site in Nairobi. Time was not sufficient to visit Madagascar, and the plan to bring in someone from Madagascar NARS to be interviewed by the review team in Nairobi failed. Prior to the drafting of the final report a presentation on the key issues was made to some Task Force and TAP members at ICRAF.

This review first examines governance issues, then evaluates the research and capacity-building themes, then explores some cross-cutting issues and finally makes a number of recommendations to improve the short term and long term implementation and planning of AHI.

It is apparent that such a multi-institutional, multi-country and multi-theme project as AHI is very complex and requires a high level of coordination and a large input of time from all participating institutions. Additionally, integration does not come naturally, it requires a considerable effort in training and in joint planning of research proposals. As AHI is only in its early implementation, it is too early to determine if these high transaction costs are warranted and if they will result in more relevant and better coordinated research. It will, however, be important to follow the process and evolution of AHI to examine whether this more coordinated approach to a regional natural resource management problem is appropriate. AHI is also one of the first CGIAR ecoregional initiatives and as such offers examples and lessons to other ecoregional and centrewide activities now under development.

## Governance Issues

**Ownership:** In a project as complex as AHI it is important that people and institutions at all levels have a sense of *ownership*. The review team detected issues at the regional level related to membership on the Task Force (TF) and Technical Advisory Panels (TAPs), and issues of participation, whereas at the country and site levels the issues are related to communication and coordination. There was a feeling from many people from national programmes that ICRAF and other IARCs played too strong a role while some representatives from other IARCs were concerned with what they felt was a dominance by ICRAF. The review team proposes that the membership of the Task Force and TAPs be re-examined with the view to reducing IARC and ICRAF membership, increasing NARS representatives and introducing representation of NGOs and natural resource management expertise. At the TAP level, the Review Team proposes that IARC/NARS co-leadership be encouraged, links between research themes be enhanced and training and information TAPs be merged into a single capacity building TAP. The Review Team also notes that the lead institution has a higher commitment and provides a higher input than the other collaborating institutions. This is sometimes interpreted as over-dominance by the lead centre. Hence the issue is not how we can reduce ICRAF participation, but rather how we can increase the participation and financial contribution of other institutions towards the attainment of AHI goals.

**Coordination:** The time and energy needed to *coordinate* a project of this complexity have been underestimated. The demands on the coordinator's time are greater than he can supply from a part-time position, which creates considerable pressure and tension on the coordinator, and some activities cannot be accomplished. This is compounded by the large number of institutions and individuals involved in AHI and communication difficulties. The demand on the coordinator's time has meant that he has concentrated on immediate issues so that long term issues related to a shared vision and increased coordination with the themes have not been done. The Review Team proposes that time and personnel for coordination should be increased. In the short term an assistant coordinator should be employed, and in the long term either a full-time coordinator should be made available or increased coordination responsibilities be devolved to TAP leaders. A flexible in-country organization team should be established consisting of at least a site coordinator with a site working group and a national coordinator/contact person and a national working group to relieve the AHI coordinator of in-country coordination responsibilities.

**Common Vision and Understanding:** The three years of participatory planning leading up to AHI developed a vision of an integrated natural resource management (NRM) project. There is a clear need for this, but there is still no clear paradigm for NRM. AHI has chosen to focus on the issue of the management of soils as their central NRM issue, but as the work is just starting, there is as yet no common understanding. This has led to confusion and different interpretation of NRM goals. AHI

has the opportunity to challenge and lead CG centres in NRM and ecoregional approaches and also the challenge to facilitate NARS thinking and involvement in NRM. The Review Team notes that the development of the common vision is a collective responsibility of the task force, the coordinator, TAP co-chairs, NARS representatives and individual researchers and proposes that the coordinator should continue his current efforts to elicit a broader vision and also establish a forum for the coordinator and TAP leaders to discuss integrative issues. In addition, the Task Force should explore ways to develop the broader NRM approach and vision.

*Financial management:* The complex nature of AHI makes for very complex *administration and flows of money*. There are often multiple channels from AHI to the same institutions in one benchmark site. These complex flows also make it difficult to determine how much AHI is contributing to each NARS institution. The many different organizations, including IARCs, NARS and NGOs, each with their own financial regulations, has introduced some friction between researchers working at the same site. The Review Team recommends that the task force should look at the current finance allocation mechanisms and attempt to develop a simpler system. In addition, the issue of standardizing the varying financial systems at each benchmark site should be addressed, but will need discussion at the Task Force, country and site levels. In order to improve and simplify financial management, the task force is encouraged to examine alternative allocation systems and determine the systems that best encourage the implementation of the project goals while at the same time simplifying financial transactions.

#### **Research support programmes**

The three research themes of IPM, soils and characterization and diagnosis were selected through a lengthy consultation process involving both senior scientists and research managers within NARS and IARCs. These themes have chosen three different models, which will allow comparison of the relative effectiveness of the different approaches.

*Integrated Pest Management:* The Integrated Pest Management theme is exploring the relationships between the problems of pests and diseases and intensification of agricultural production in the highlands and plans to design appropriate control strategies based on integrated soil and crop management. Four crops and associated pest complexes sub-themes were selected: soil fertility management to control bean stem maggots and root rots; IPM of potato bacterial wilt; banana weevils and nematodes; and integrated crop and soil management for the control of striga. The selection of sub-themes was based on current knowledge of socioeconomic and regional importance, apparent linkages to intensification of production and decline in soil fertility, potential for solution, and existence of a good level of ongoing research.

The Integrated Pest Management theme is implementing research using regional research fellows (RRFs) who are linked to regional networks managed by four lead international centres, with each network implementing a regional small grants programme.

This has been the most active research theme, with activities starting well before the others. This however, has required a very large input of time from the TAP members and the networks in the start-up phase.

The review team identified issues related to 'TAP down' priority setting approach, inadequate coordination and communication, over ambitious research plans and inadequate interaction with national researchers.

The major lesson appears to be that the RRF concept is working well and a regional research agenda has been implemented within the context of national programmes. It has allowed a quick start for the IPM theme, the research reviews are of high quality and the small grant research projects has started with some backstopping from the RRFs. This has led other themes to request for RRFs. However,

their success is also related to the fact that there existed IARC-led regional networks that assisted in priority setting and planning, and these networks have proved critical in making the logistical arrangements for the placement and support of the RRFs. There has also been very large time demands to get this mechanism in place, most of which was supplied by IARC scientists.

*Characterization and Diagnosis* theme's goals are to assist in collecting diagnostic information for setting priorities and determining strategic entry points within integrated NRM research and to evolve a collaborative and participatory research and development agenda that involves all interested and able parties. The mechanism for accomplishing this was to establish, at the national level, teams of scientists and development specialists who are conversant with participatory diagnostic techniques and are motivated to enhance inter-institutional and interdisciplinary collaboration and farmer participation. The task force decided that the strategy for implementation would be to hire a senior scientist who took up his post at ICRAF in September 1995.

Resource Inventory was originally a separate theme, but was integrated with the C&D theme in September 1995. The mandate of the Resource Inventory theme was to compile and make available a range of geo-referenced biophysical and socioeconomic databases from resource inventory data set and farming household surveys that integrate into a GIS for natural resources management.

C&D surveys identified three priority activities for 1996 that would assist research partners and the AHI Task Force to set priorities for Phase 2 research activities. They are:

1. understanding the perceptions of researchers, farmers, extension officers, development works, policy-makers and donors on causes and effects of natural resource degradation. A multi-stage participatory process is underway to undertake this study.
2. development of systems scenarios (possible and probable economic, social, political and environmental circumstances) within which research planning decisions will be judged.
3. development, in consultation with the Information theme, of a user-friendly information system that avails the data sets collected as part of C&D to AHI collaborators and international cooperators.

A number of issues related to this theme were identified, including the high expectations for the C&D work, confusion on the function of the C&D programme, perception that there is a lack of strong social science input to the theme and questions on the how the GIS activities fit within C&D.

The Review Team recommends that the Task Force and the C&D TAP resolve the issues related to the C&D theme very soon. These issues include the increased supervision of the proposed diagnostic work at benchmark sites, the role of GIS, the finalization of work plans for the regional and benchmark sites, the interaction of C&D with other research themes, and the initiation of C&D activities at the benchmark sites. If these issues are not resolved quickly there is a danger that there will not be sufficient information to allow the establishment of priorities and entry points for Phase 2 activities.

*MISP*: The goal of MISP is to contribute to reversing the current regional trends of declining soil productivity while protecting the environment, through a regional programme of integrated research and development. The main issues to be addressed include long-term fertility studies, understanding soil processes on a catchment basis and rock phosphate application and longer term residual effects.

The main objectives of the Phase I were identified as to:

1. synthesize existing regional information on MISP so as to identify information and technology gaps, and to summarize impact and reasons for non-adoption of research recommendations
2. develop an inventory of research institutions and activities relevant to MISP
3. develop collaborative research activities addressing priority problems relevant to the theme

The issues identified included filling the existing research gaps, complementing ongoing research, developing strategies for alleviating soil fertility constraints, small grant versus sub-theme approach to funding research, inadequate coordination and technical follow-up.

MISP preferred to utilize small grants to foster institutional collaboration, help identify research priorities through a 'bottom-up' process and to facilitate team work on priority topics. This approach has worked well and produced subtle though important changes from a soil fertility focus to a natural resource focus. MISP plans to take lead in systems thinking. This will be accomplished by shifting from small grants to sub-themes (small integrated projects), bringing in more socioeconomic input into MISP activities and awareness training in systems analysis for natural resource management.

**The Review Team commends the Task Force and MISP TAP for initiating collaborative activities with the proposed systemwide initiatives in livestock and soil and water management. The approaches used might provide funds necessary to recruit regional research fellows and/or full-time international staff.**

### Capacity building programmes

AHI has developed two capacity-building programmes to support the research programmes—Training and Information

***Training:*** In the initial planning of AHI, the need for developing a cadre of national scientists and technicians who will embrace and sustain the new approaches to integrated natural resource management was realized. Training was, therefore, considered to be a central theme. Target groups for training include research scientists, technicians, extension and development workers, library and information personnel, farming communities and other land users and policy-makers. Emphasis was to be placed on developing skills in solving problems, communication, building links within research and development, involving farmers in research and managing research information.

The Review Team notes that integration of natural resources management into the production system is a new area and methodologies on how to capitalize on opportunities presented by collaborative research have not been fully developed and most researchers are not skilled in using available methodologies. Training activities for Phase I had a strong TAP orientation and lacked a focus on integrating natural resources management. **AHI should address this problem by training researchers on topics such as plot, farm and watershed scale integration; systems thinking in NRM, team building and team work for research partnerships, research planning and impact assessment, use of GIS in natural resource management, proposal preparation, researching with farmers, data analysis, and dissemination of research findings. Future training activities should focus more on integration issues. The Training TAP, in collaboration with other TAPs, has started addressing some of these issues. They should be supported to enhance there activities, which could include national and benchmark training workshops.**

***Information and documentation:*** With the changing paradigm from commodity-oriented research to ecoregional approach in natural resources management, there is need to organize and repackage information generated by NARS and IARCs to meet specific user needs. This challenge (to collect, analyze and disseminate information) is being taken by the Information and Documentation theme. The goal of this theme is to provide comprehensive and integrated information to different groups of users for decision making and priority-setting purposes on natural resources. The lead institutions for Information and Documentation theme are ICRAF and ILRI.

The issues identified by the Review Team on information and documentation are communication difficulties, growing demand for information and need for feedback from researchers.

The Review Team proposes that the Information TAP will need to address the issue of packaging the research findings to meet the needs of farmers, extension officers and other development workers and policy-makers.

The Review Team recommends that AHI and the relevant TAPs must ensure that capacity building focuses on natural resources management, and that they should ensure there is significant feedback from direct users and NARS in the assessment of the Training and Information themes.

### Cross-cutting issues

*Research implementation approaches:* It is too early to evaluate the relative merits of the approaches used by the three themes, but early indications are that the IPM model has been able to start quickly and have a number of research activities underway. The MISP programme started more slowly but has now funded most of the small grant activities that are now being implemented. Whereas some resource inventory activities have started, the major C&D activities have yet to start, because of delays in hiring staff, the need for learning by the senior scientist, and the choice to use a participatory team building approach, initially concentrating on process rather than content. The Review Team proposes that the three approaches used by the research themes be tracked in order to allow a future comparison of the relative merits of the different approaches. It might be useful to use a process documentation approach to this.

*Integration of theme research activities:* The Review Team notes that there is inadequate interaction between researchers in different themes. The Review Team recommends that

1. In order to promote research integration, the task force and the TAPs should explore two possible approaches: a) closer integration of the TAPs so that inter-theme integration is solicited and funded and b) a separate direct flow of funds to the site for coordinated site level research; this might also require some funding from AHI for the site coordinator; or a combination of the two approaches.
2. In order to encourage farmer participation, the C&D TAP and all site research teams should encourage the participation of farm households, the link between research, extension and farmers, and document the process.
3. In order to promote a wider awareness and focus on NRM in AHI, the Task Force, the TAPs and the national and site teams should all be encouraged to ensure that NRM is the focus of AHI activities. C&D and Training should assist this process at the site level.

*Natural resources management and scale:* The Review Team was concerned that in the initial implementation phase AHI, has concentrated on a more conventional agricultural production focus of IPM and soil fertility, for example all of the IPM and MISP research was focused at the plot scale. In addition, training to date has been more focused on supporting this activity than assisting in capacity building in the broader NRM. The team is aware that in order to initiate activities quickly it was necessary to utilize existing expertise and approaches, in addition the research planning did focus on the soils question. The need in the next phase is to start addressing a broader range of management questions related to improving productivity in a sustainable manner. As previously indicated the C&D programme will be essential in developing a broader focus.

AHI has started addressing the scale issues. These efforts could form the basis for extending AHI projects from plot to watershed scales in the future. Such sites should therefore be used as learning sites and new sites established after the teething problems have been solved and methodology perfected. The Embu site could also be used to undertake process research that can be used for extrapolation of the research results to similar areas in the region. **This is a commendable effort and AHI should continue dialogue with potential collaborators in addressing watershed scale issues. A committee could be set up to determine the way forward.**

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*Taking a broader look at the farming systems:* It is hypothesized that continued emphasis on food production and on management and maintenance of soil fertility without use of chemical fertilizer will not result in sustainable farming systems. AHI should consider taking a broader look at the farming system and identify the role high-value cash crops, chemical fertilizer and government policies (land tenure, prices, land subdivision, etc.) could play in improving production in a sustainable manner. Some of these ideas are incorporated in ongoing and future projects. AHI Task Force and TAP members should determine how these issues could be adequately addressed.

*National vs. regional research priorities:* The Review Team detected some conflict between national and regional research priorities being implemented by AHI. AHI needs to identify the regional priority to address and then identify suitable sites in which to undertake the research. The selection process should be done in consultation with the potential collaborators. AHI and IAR have initiated dialogue to sought out their differences.

*AHI interface with NARS:* AHI efforts to promote a more effective research partnership with NARS is constrained by many factors. The Review Team proposes that ASARECA and the Task Force should decide how most of these constraints could be alleviated. Efforts should be made to ensure that there is no distinction between AHI and NARS centres research activities so that NARS scientists can devote more time on such projects (and incorporate them in their annual work plans) and appropriate national budget allocated to such collaborative research projects.

*NGOs, extension and farmer participation:* The Review Team was also pleased to see farmers and extension officers at the Maseno/Kakamega site in Kenya and Kabale in Uganda undertaking farmer-managed trials. In both areas, there were a range of on-farm experiments ranging from researcher-managed to fully farmer-designed and farmer-managed trials. In Ethiopia it was not as clear how farmers will be involved in the research. It will be important to continue to encourage the research-extension-farmer feedback process, and to document the process. The C&D programme may be able to play a role in this. The C&D TAP and the all site research teams should encourage the participation of farm households—the link factor in research-extension-farmers relationship—and document the process.

### *Enhancing Institutional Collaboration*

The rationale behind institutional collaboration is to enhance the effectiveness of research by capitalizing on opportunities of institutional complementarity and task specialization and to avoid duplication of efforts. Kenya and Uganda have fully embraced this concept, but Ethiopia seems to be reluctant as evidenced in the participation during the country planning workshop and in follow-up research proposal preparation activities. AHI should continue facilitating development of a common vision for Ethiopian collaborators and in clarifying their duties and roles, particularly in governance, allocation of funds, research agenda setting, research planning and implementation, monitoring and evaluation. There has to be a clear division of responsibilities amongst the IARCs, NARS, NGOs, private sector and farmers organization in order to harness institutional and individual complementarities.

### **Future Expansion**

The core membership of ASARECA is made up of Burundi, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, Uganda and Zaire. Phase 1 of AHI confined its activities to Ethiopia, Kenya, Uganda and Madagascar. The highlands of these countries are diverse but experience similar natural resources management problems and hence the need for an ecoregional research programme to focus on increasing agricultural production in a sustainable manner by integrating natural resources management in commodity research.

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The review team was not able to explore the expansion issues in detail but has the following comments:

1. Consolidate and integrate activities at each existing benchmark site.
2. Expansion to new commodities, pests/diseases or subject areas should be done cautiously and based on the problems, priorities and entry points identified by C&D.
3. There may be the need for a new site in Uganda that is more representative of Ugandan conditions but the Kabale site should be maintained because of its representativeness of Rwanda and Burundi.
4. A mechanism will have to be found to improve communication and interaction with Madagascar.
5. Country expansion should be gradual; a) Eritrea appears to be outside the rainfall/altitude parameters selected for AHl, b) Rwanda, Burundi and possibly Zaire could be linked with Kabale and satellite experiments planned, but it would be difficult (securitywise and administratively to establish full benchmark sites, c) Tanzania appears the only possible country for expansion, and this could link with the Systemwide Livestock Initiative.

### Overall impression

As noted in the project formulation document, AHl is a complex programme. It brings together many IARCs and NARS institutions, researchers, NGOs, land users, extension officers and policy-makers with different priorities and perceptions. AHl has taken the challenge and within a short time developed a working programme that has started bearing fruit in many ways. AHl has gained considerable experience on how:

1. partners (NARS including universities, IARCs, NGOs, donors) can develop a common vision of what they want to achieve;
2. participation of all stakeholders, including farmers in the planning and implementation process of the ecoregional collaborative research activities can be enhanced;
3. to develop bottom-up process of identification and implementation of research programmes.

The programme framework was well formulated and has been revised continuously to take care of emerging issues. **The Task Force and TAPs should be commended for making timely and wise decisions on how to move forward. The support provided by NARS and IARCs and individual collaborators is a testimony of their determination to ensure the success of the initiative.** Minor disagreements have occurred and in some cases they have delayed the implementation of the some projects. The participatory approach to planning and dialogue between the coordinator and the collaborators has resulted in resolution of some of the disagreements. This is an indication that the governance, operational structure and implementation strategies are sound and any weaknesses identified are promptly addressed. **The Review Team is convinced that the programme has taken off well and should be fully supported by donors and collaborators.**

A lot of effort has gone into building research partnership. This, together with delays in the recruitment of key programme personnel and collaborators, has constrained the achievements of the programme, particularly the characterization and diagnosis activities, which should form the basis for Phase 2 programme of activities. **In view of these delays the Task Force and donors may consider extending the duration of the current establishment phase of the programme by one more year.** This will give AHl a chance to incorporate some of the ideas suggested in this review and adequate time for proper consultations with current and future stakeholders on the details of Phase 2.

# 1. INTRODUCTION

## 1.1 AHI PROGRAMME OVERVIEW

### 1.1.1 THE SETTING

The highlands of eastern and central Africa constitute 23% of the land mass and contain over 50% of the population of this region. This area with high rainfall and relatively good soils has been the principal source of staple foods, export crops, forest products and employment. Increasing population pressure, natural resources degradation and relatively low levels of economic growth have resulted in low standards of living and food insecurity for a large percentage of the rural households in these areas. Decades of agricultural research in this high-potential and densely populated highlands have not achieved commensurate results in terms of improved and sustainable land productivity. As the available land continues to be subdivided to accommodate the growing population, land productivity has declined markedly. The sustainability of this natural resource base and increases in agricultural production per unit area are critical to the welfare and development potential of this region.

### 1.1.2 PLANNING AND FORMULATION OF AHI PROJECTS

In the late 1980's heads of national agricultural research systems (NARS) and international agricultural research centres (IARCs) started expressing concerns that

1. not enough attention was being given to natural resource management leading to resource degradation and yield declines;
2. genetic potentials was not being attained, partly due to soil resource degradation and associated pest and diseases complexes;
3. there was overlap and duplication of IARCs activities particularly in training, information and documentation and in network steering committees; and
4. opportunities offered by collaborative and systems research were not being exploited.

This led to the search for new approaches to agricultural research that would lead to improve resource use efficiency, increase agricultural production per unit area and reverse the trends in natural resources degradation. There was also a consensus on the need for increased collaboration and partnerships that would facilitate the move beyond a focus on agricultural production to include natural resources management. Within the Consultative Group on International Agricultural Research (CGIAR) this concept was called the 'Ecoregional Approach'<sup>1</sup>.

In October 1991, the International Centre for Research in Agroforestry (ICRAF) was requested by a sub-committee on Sub-Saharan Africa of the directors general of the IARCs to coordinate the development of an integrated natural resource management research programme for the highlands of east and central Africa that would become a vehicle to:

1. achieve sustainable improvements in agricultural production by integrating commodity improvements research with natural resource management; and
2. to enhance collaboration and research partnerships among IARCs, NARS and NGOs research and development organizations and between researchers and farmers.

ICRAF prepared a concept paper and organized a meeting of directors of NARS from Burundi, Ethiopia, Kenya, Rwanda, Tanzania, Uganda and Zaire. The meeting was held on 16 June 1992 in Nairobi and agreed to form a task force with ICRAF as the chair to:

1. develop a regional research programme on the management of natural resources; and

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<sup>1</sup> The original concept of the ecoregional approach came from the TAC and was approved by the CGIAR in 1991.

2. ensure cooperation among the NARS, IARCs and regional programmes and integration of their natural resources management research activities.

This development was to be guided by the following principles:

- Problem driven;
- Multidisciplinary and inter-institutional;
- Regional in scope;
- Planned in a participatory way;
- Able to make use of existing facilities; and
- Creative, flexible, responsive to the needs of the countries involved and cost effective.

The task force followed up with four meetings and hired two consultants who consulted closely with the regional NARS and the task force in the development of a proposal for the collaborative regional programme. This led to a meeting in January 1993 in Entebbe, Uganda (ICRAF, 1993). This was followed up by a series of regional meetings and workshops that set the priorities and the research themes and problems and resulted in the development of "*A Conceptual Framework*" (Wangati, 1994) which formed the basis of the proposal submitted to the donors in 1994. The official starting date of AHI is considered to be 1 January 1995.

At the same time that AHI was being developed, a parallel activity supported by USAID and the World Bank was assisting the NARS in the region in exploring greater regional cooperation. In 1994 this led to the formation of the Association for Strengthening Agricultural Research in East and Central Africa (ASARECA) with the secretariat now located in Entebbe, Uganda. This organization then endorsed AHI which became the first project that they are coordinating.

### 1.1.3 AHI PROGRAMME OBJECTIVES

Further consultation with the stakeholders, mainly donors, IARCs and NARS, led to the formulation of African Highlands Initiative (AHI) programme goal. It was stated as:

*"to sustainably improve and enhance land productivity within the intensive land- use systems of the highlands of eastern and central Africa by working with farmers to evolve policies and technologies that increase agricultural production while maintaining the quality of the natural resource base at the same time"* (Wangati, 1994, p. 1)

The main challenge of the African Highlands Initiative was identified as:

*how to achieve better integration in research and development and how to work together more efficiently and effectively in the management of natural resources* (ICRAF, 1993, p. 24).

The long-term objectives of AHI, which have been developed by the consultative process outlined above, are:

1. To develop a collaborative regional research programme on the management of natural resources, particularly soil, that will contribute to the enhancement and sustainability of agricultural and livestock production through improved technologies based on better understanding of the natural and socioeconomic environment, and in collaboration with the local communities;
2. To strengthen the professional capacity in NARS to deal with the management of natural resources and to establish links between different institutions and professionals at the national level dealing with sustainable land management; and
3. To encourage cooperation between NARS, IARCs and other research and extension programmes dealing with natural resources research and to evolve mechanisms for participatory research approaches with individual farming communities.

Phase I is the establishment phase and is focusing on initiation of collaborative research activities that will convince the participating partners of the benefits of the integrated approach to research in the highlands and to establish the process of internalizing the basic principles and methodologies.

The specific objectives for Phase I (Wangati, 1994):

1. To synthesize results of past research on soil and water management in the highlands with a view to identifying knowledge gaps that limit the productivity and sustainability of the highlands and to initiate research projects to fill such gaps;
2. To utilize existing regional research networks to initiate research activities that address technological gaps in management strategies for plant protection in intensive systems already identified or that will emerge from zonal diagnostic studies;
3. To develop and refine appropriate methodologies for participatory diagnostic surveys on natural resources management in existing land-use systems in densely populated highland zones and to use methods in refining priorities for research in problems of land productivity;
4. To improve the understanding of the highlands ecosystems and their potential by initiating a synthesis of natural resources inventories and/or strengthening information sharing through established regional databases, workshops, publications, etc.; and
5. To develop mechanisms for utilizing facilities available in the region in strengthening NARS research capacity through regional training courses and providing information and documentation services.

#### 1.1.4 DONOR AND COLLABORATING INSTITUTIONS' SUPPORT

Donors have played a very supportive role in the realization of the programme objectives. The main donors and their financial contributions are presented in Table 1.

**Table 1 Donors and financial contribution to AHI**

Donor	Financial Contribution in USD
Government of Netherlands	600,000
Swiss Development Cooperation (SDC)	700,000
International Development Research Centre (IDRC) Canada	500,000
Rockefeller Foundation	33,000
USAID (through ASARECA)	160,000
United National Environment Programme (UNEP)	20,000
Madagascar (World Bank)	100,000
<b>Total</b>	<b>2,113,000</b>

The contribution of participating IARCs and NARS was envisaged during the formulation of the conceptual framework<sup>2</sup>. **Participating IARCs and NARS have also made unquantifiable but significant contribution in terms of staff salaries of collaborating scientists, administrative and logistic support and use of field and laboratory facilities.** The farming communities contribution in the planning and implementation of the project is substantial and fully appreciated by all AHI collaborators.

<sup>2</sup> "The bulk of the funds for the activities at the national level will come from existing budgets but additional funds from donor sources will be needed to facilitate coordination and regional collaboration, to strengthen specific national research facilities: essential for the execution of the programme and to ensure that the activities agreed upon are implemented according to the time schedules." (Wangati, 1994, pg. 3)

## **1.2 DESCRIPTION OF REVIEW MISSION**

### **1.2.1 PURPOSE OF THE REVIEW**

This review mission was commissioned by ICRAF, the lead institution, to analyze problems, constraints, perceptions and opportunities identified by collaborating institutions and individuals; to synthesize experiences and lessons learnt and use them as a basis for identifying future directions. The objectives of the review were to assess:

1. the governance, operational structure and implementation strategies;
2. research programme development and implementation; and
3. capacity building and communication development

The Review Team was to examine the objectives by addressing the following questions:

1. How well was the activity planned/designed?
2. How well was the activity implemented?
3. What lessons have been learned?
4. Recommendations for future action?

### **1.2.2 REVIEW TEAM AND METHODOLOGY**

The team comprised Dr Kenneth T. MacKay, as team leader, and Dr Francis Gichuki. Dr MacKay is a Canadian environmental, natural resources management and planning consultant. He has considerable experience in natural resources management, is a former DG of the CG's aquatic resources centre, ICLARM, has worked closely with NARS and NGOs in Asia, and has experience in characterization and diagnosis. He also is closely associated with IDRC, one of the donors of the AHI. Dr Gichuki, a Kenyan soil and water management specialist, has considerable experience in regional programmes involving NARS and international organizations. He is the regional coordinator of a postgraduate training and research programme (Soil and Water Management Programme) hosted by the Department of Agricultural Engineering, University of Nairobi. He has also been involved in the regional and national planning meetings for the AHI. The team worked collaboratively, with Dr MacKay taking the lead on governance issues related to IARCs and focusing on the IPM and C&D research themes. Dr Gichuki took the lead on governance issues related to NARS and focusing on MISP and capacity-building themes.

The review took place from 22 April to 11 May 1996. The Review Team carried out formal and informal discussions with over 70 people concerned with AHI. They included, the executive secretary of ASARECA; AHI coordinator; Task Force members; representatives of participating IARCs and of host NARS, and other national research partners in Ethiopia, Kenya and Uganda; leaders, co-leaders and members of the Technical Advisory Panels (TAPs); benchmark site researchers and farmers; regional research fellows; NGO representatives; and participants in the C&D training workshop. The Review Team also examined many of the papers, reports, correspondence, and minutes of the Task Force and TAP meetings. There was insufficient time for the Review Team to visit Madagascar and the scheduled trip by a Madagascar collaborator to meet the team in Nairobi did not materialize. The team visited the Holleta/Ghinchu site in Ethiopia, Maseno/Kakamega site in Kenya and Mbarara/Kabale site in Uganda and met (in Nairobi) with researchers from the Embu, Kenya, site for a briefing on the current and planned activities there. Prior to the final drafting of the report a presentation on the key issues was made to some Task Force and TAP members at ICRAF to obtain feedback.

### **1.2.3 ORGANIZATION OF THE REPORT**

This report first focuses on the issues of governance (chapter 2) then examines the research (chapter 3) and capacity-building (chapter 4) themes. Chapter 5 presents cross-cutting issues while chapter 6 presents the main conclusions and recommendations.

## 2. GOVERNANCE

### 2.1 INTRODUCTION

In this section, we explore ownership, planning and decision-making process, coordination and financing issues related to the governance of the programme. This is done within the context of the roles of ecoregional approach which were stated as (CGIAR, 1995):

1. to provide a process that identifies the right research content due to its holistic and forward-looking perspective that contrasts with traditional disciplinary and commodity approaches to research;
2. to provide a mechanism for partnership among relevant actors with complimentary functions, that contributes to achieving their common and individual institutional goals through applied and strategic research on the foundations of sustainable production systems; and
3. to provide a mechanism that develops, tests and supports effective research paradigms for the sustainable improvement of productivity.

ABI has tried to avoid creating bureaucratic structures but instead is attempting to strengthen existing structures. It works closely with NARS in order to build their professional and managerial capacity for long-term implementation of the integrated approach to natural resources management research. ABI is operating at three levels.

1. The *first level* comprises the national teams, normally based at zonal stations and working on one or more of the priority themes within national programmes. These teams operate at benchmark sites where there may also be some IARC staff.
2. The *second level* is focused on the research and capacity-building themes and involves a number of coordinating lead institutions with the guidance of a small technical advisory panel (TAP). This level will also work closely with ongoing regional networks and collaborative programmes.
3. The *third level* is the governing body for the initiative. ABI is under the umbrella of ASARECA, which has entrusted the management functions to a task force. ICRAF, as the implementing agency for Phase i, manages the funds, houses the coordinating secretariat and chairs the task force.

### 2.2 OWNERSHIP

In a programme as complex as ABI, it is important that people and institutions at all levels have a sense of ownership, that they feel it is their project, that they are involved and their voices are heard. A lot of effort has gone towards the attainment of an acceptable level of ownership for most collaborating institutions and individuals. This is attributed partly to the lengthy and effective consultative process during the programme formulation stage and joint planning for programme implementation.

#### 2.2.1 REGIONAL OWNERSHIP

ABI was conceived as a regional programme. Its development was instigated by a CGIAR ecoregional concept. ICRAF's commitment to transforming the dream into reality provided additional impetus. ABI was developed simultaneously with Association for Strengthening Agricultural Research in Eastern and Central Africa<sup>3</sup> (ASARECA), with the understanding that ASARECA would

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<sup>3</sup> ASARECA is an incorporated organization with an executive secretariat based in Entebbe, Uganda. It is governed by a committee of directors composed of one delegate per country representing the association's national member institution. Member institutions are leading NARS of Burundi, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, Uganda and Zaire. The main goal of ASARECA is to improve the quality, relevance and cost-effectiveness of agricultural research through collaboration and strengthening of the NARS. To achieve these goals, ASARECA has established working groups and initiated activities in regional agricultural research priority setting, human resources development, scientific information and documentation,

play a key role in promoting NARS–IARCs collaboration, particularly in integrated natural resources management research. AHI's governing or legal body is ASARECA. AHI is therefore an ASARECA programme executed by ICRAF. The programme was to be implemented by ICRAF because ASARECA was not fully operational and also there was the need to minimize bureaucracy and utilize existing institutional structures. The governing body, which includes the directors committee, has the overall responsibility for AHI. The Committee of Directors reviews and approves the work plans and monitors annual progress.

The following issues were identified:

1. **Relationship between AHI and ASARECA:** the Review Team felt that the relationship between AHI and ASARECA was not clear. In addition, some of the earlier documents suggest that ASARECA would play a greater role in future phases. The present and future relationships should be clarified. As an institution charged with the responsibility of strengthening agricultural research in eastern and central Africa, it could play a more active role in monitoring and evaluating the effectiveness of AHI programmes, setting regional research agenda, archiving regional data sets and facilitating the sharing of data.
2. **Relationship between AHI and CGIAR:** AHI is perceived to be more of a CGIAR programme than an ASARECA one because the ecoregional approach to research was prompted by CGIAR, and AHI is executed by ICRAF. The fact that CGIAR and ASARECA have different expectations of AHI compounds the issue. ASARECA would like AHI to play a more active role in strengthening agricultural research in the region, while the CGIAR would like the ecoregional initiative to play the role of linking global research to regional research.

## 2.2.2 PARTNER INSTITUTIONS

Participation is an important component of ownership. AHI has identified a wide range of participating institutions in order to increase research impact, avoid duplication of efforts, capitalize on opportunities offered by institutional complementarity and task specialization and promote the sense of ownership. The partial list of participating institutions is presented in Table 2.

Table 2. Partial list of participating institutions

Category	Participating institutions
IARCs and other international organizations	CIAT, CIMMYT, CIP, ICIPE, ICRAF, IITA, ILRI, TSBF
Host NARS	FOFIFA, IAR, KARI, NARO
NGOs	CARE International (Kenya and Uganda), KWAP, OMMN, Uganda National Farmers' Association
Farming communities	Kakamega and Embu in Kenya, Kabale and Mbarara in Uganda, Ghinchi/Makale in Ethiopia

The Review Team identified the following issues affecting participation:

**Perception on initial and current planning:** In spite of the participatory and consultative process that took place over 3 years leading to the development of the proposal and the attempts to involve all partners in the development of AHI, there is still the perception that this was a top-down process of planning. This is primarily the view of the NARS partly because the initial discussions were held with top level NARS officials who subsequently were replaced on the Task Force by their deputies who were brought to the planning process late and had not been adequately briefed. There is also limited communication within the countries on the NARS involvement in planning. In Ethiopia, for example only the host NARS, IAR, has been playing a key role.

agricultural policy analysis, technology generation and delivery systems and research management information systems.

Potential collaborating university departments feel that they have been left out. NARS representatives also feel that they are not involved in most major decisions, such as those concerning allocation of resources.

1. **Perception on the source and level of funding:** AHI was perceived by some collaborators as a vehicle for acquiring additional research funding to continue research in the traditional way. The fact that the funding for AHI Phase I was limited and a large percentage of the funds is spent facilitating coordination and regional collaboration while most research activities are funded from existing budgets, has disillusioned collaborators who perceive AHI as a major source of supplemental research funding. (See also section 2.5).
2. **Lack of a common understanding on natural resource management:** A common understanding on the increasingly complex challenge of integrating natural resource management (NRM) and promoting research partnerships that enhance institutional effectiveness in achieving sustainable agricultural development has remained elusive. The three years of participatory planning leading up to AHI has developed a vision of an integrated NRM project but the details of that vision are not clear. There is, also, no clear paradigm within the IARCs and NARS for NRM. **This has led to confusion and lack of a common understanding on what is NRM and how to approach it.** There is a clear need for this, as was indicated to the Review Team by many of those interviewed. AHI has the opportunity to challenge and lead IARCs in NRM and ecoregional approaches and also challenge and facilitate NARS thinking and involvement in NRM. AHI has chosen to focus on the issue of the management of soils as their central NRM issue, but as the work is just starting, there is as yet no common understanding. There will be need to discuss and synthesize the approaches to NRM in order to assist in the development of the new paradigm. AHI has developed a vision that most of the collaborators share. Lack of a common understanding or vision should, however, not be seen as a bad thing in an evolving institution such as AHI because it allows the collaborators to test different hypothesis in the search for the ideal way forward. The development of a common vision, understanding and framework for achieving the programme goals is a collective responsibility of the task force chair, the task force, the coordinator, TAP co-chairs, NARS representatives and individual researchers. The coordinator has initiated a dialogue "towards refining the vision and strategy for AHI" but time pressure has not allowed him to start to synthesize the input. This is a learning period, and AHI should be encouraged and facilitated to continue refining the vision and strategy and developing a common understanding.
3. **NGOs and farming communities:** NGO representatives and farmers interviewed by the Review Team are appreciative of the efforts being made to improve the efficiency of technology adoption and transfer process. They are being listened to<sup>4</sup> and are participating in problem identification and the search for solutions, particularly at the Kenya and Uganda benchmark sites.
4. **Evolution of research partnership:** The Review Team notes that the evolution in developing research partnerships is slow and complex due to conflicts of interest and lack of a common understanding. In some cases, there is a high turnover of collaborators and suspicion brought about by their expectations. AHI is addressing such emerging issues and is moving towards a situation where participation of collaborating institutions and individuals is formalized, defining their roles in such contentious responsibilities as convening, governance, funding, research coordination, accounting and reporting.

### 2.2.3 OWNERSHIP BY THE CONVENING CENTRE

There is a feeling among some NARS directors and collaborators that ICRAF plays a very dominating role. Some even argue that there is no difference between AHI and ICRAF. This perception is brought about by:

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<sup>4</sup> "AHI researchers are going to have to listen carefully to women when they plan their research and information activities in natural resource management" (Comment by Evelyn Kasaza, Chair of the Kabale branch of National Association of Women's Organization in Uganda, contained in *AHI Updates* vol. 1, No 2). The Review Team interview farmers participating in IPM of bacterial wilt of potato and noted the effective dialogue between AHI researchers and collaborating farmer researchers.



1. Many projects undertaken through AHI are too closely related to ICRAF's research programmes. This is partly due to the fact that Maseno, Embu and Kabale benchmark sites are also areas with ICRAF/AFRENA project activities. Even though AHI is mainly funding activities facilitating collaboration and integration of ongoing research of both ICRAF and NARS, it becomes difficult to separate AHI and ICRAF projects.
2. As a convening centre, ICRAF has committed a lot of its resources to support AHI activities (salary of the coordinator, secretarial and administrative support, task force and TAP members, etc.). Such a strong input invariably translates into a high profile for ICRAF.
3. ICRAF took the responsibility of developing the initiative, it therefore has the staff that fully understands ecoregional research concept and its research mandate addresses natural resources management issues. Success for AHI translates into success for ICRAF and hence the strong commitment on the part of ICRAF to ensure that AHI succeeds.

The Review Team sees the high profile of ICRAF as a contributor to the current level of success. An ecoregional programme can only succeed if it is fully embraced by an institution with such an automatic and direct link with the programme. The Review Team commends ICRAF for the input it has provided during the planning stages of AHI and its continued support in the establishment period. This support (moral, technical or financial) can only be phased out gradually after AHI has become fully operational. ICRAF should therefore continue playing the key role it has played but address the negative publicity issues by keeping the other collaborators informed of the contributions from different stakeholders and soliciting for a growing contribution from all stakeholders so as to attain equality in contribution and decision making.

## **2.3 AHI COORDINATION**

### **2.3.1 PROGRAMME LEVEL**

ICRAF as the AHI lead institution houses the secretariat and supplies the coordinator. The coordinator was formally appointed by the Task Force at the 8 September 1995 meeting. The responsibilities of the coordinator have been changing but appear to include:

1. act as secretary of the Task Force and follow up on the implementation of its decisions;
2. participate in fund-raising activities for the project with the assistance of the Task Force (this is now primarily a function of the Task Force chair);
3. be responsible for the day-to-day management of the collaborative research activities; and
4. supervise implementation of training and other activities placed under the coordinating unit.

The coordination office is responsible for arranging publication of the initiative's documents and for organizing monitoring and evaluation activities. Coordinating activities mainly include:

1. Task force meetings;
2. Establishing TAPs;
3. Support to TAPs;
4. Establishment of site teams;
5. Support of initiation of research activities;
6. Support for project implementation;
7. External evaluation; and
8. Communications.

The current situation is that ICRAF is contributing a part-time coordinator supported by a secretary. Coordination of such a complex programme has proven to be a major challenge due to:

1. the large number of institutions and individuals involved in AHI;
  2. communication difficulties to some countries and most sites;
  3. working with part-time collaborators who are in some cases over-committed elsewhere;
  4. constraints related to integrated, interdisciplinary research; and
  5. inadequate institutional support of some collaborators.
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6. high expectations on the part of collaborators and donors;
7. delays in recruitment of some full-time staff and collaborators;
8. diversity of problems; and
9. language, cultural and political differences that require country- or site-specific solutions.

The time and energy needed to coordinate a project of this complexity have been underestimated. The demand on the coordinator's time has meant that he has had to concentrate on immediate issues, and long-term issues related to creating a shared understanding and increased coordination with the TAPs have not yet been addressed. It is the view of the Review Team that coordination of such a complex and dynamic programme requires a full-time coordinator who can promptly respond to the demands of the collaborators and help in refining the vision and implementation strategies.

### **2.3.2 NATIONAL COORDINATING STRUCTURE**

In each of the four countries identified for Phase I activities a lead NARS was confirmed as the host institution for AHI. These institutions, listed below, accepted this responsibility through their directors.

- Kenya Agricultural Research Institute (KARI)
- National Agricultural Research Organization (NARO), Uganda
- Institute of Agricultural Research (IAR), Ethiopia
- Institute of Agricultural Research (FOFIFA), Madagascar

Coordination of research activities is seen as an avenue for improving efficiency of scarce financial resources. The national coordinating structure of AHI is less well defined but consists of host NARS each with one or more benchmark sites where the research themes are focusing. A detailed in-country structure has been suggested by AHI and is shown in Figure 1 and details of the suggested functions are in the AHI Annual Report. This structure has been partly implemented in Uganda and Ethiopia. Views expressed include:

1. identified potential conflict of such a structure with existing lead NARS structure;
2. need for flexibility to accommodate country needs;
3. need to clearly define the role and composition of an in-country coordinating structure;
4. such a structure would promote inter-institutional collaboration and provide a forum for consultation on national strategies for enhancing ecoregional research initiatives;
5. there is inadequate in-country communication; and
6. there is need for a budget for the coordination activities.

The Review Team established that a country coordinator can improve the implementation of AHI projects by performing the following vital tasks.

1. serve as the national contact person on issues related to project implementation (policy and institutional support issues would be addressed at Task Force or TAP level);
2. promote inter-institutional collaboration at national level;
3. monitor the implementation of AHI projects and compile country progress reports; and
4. assist benchmark sites researchers in solving in-country logistic constraints.

The country coordinator should be one of the active AHI collaborators rather than a senior officer in the host NARS institution.

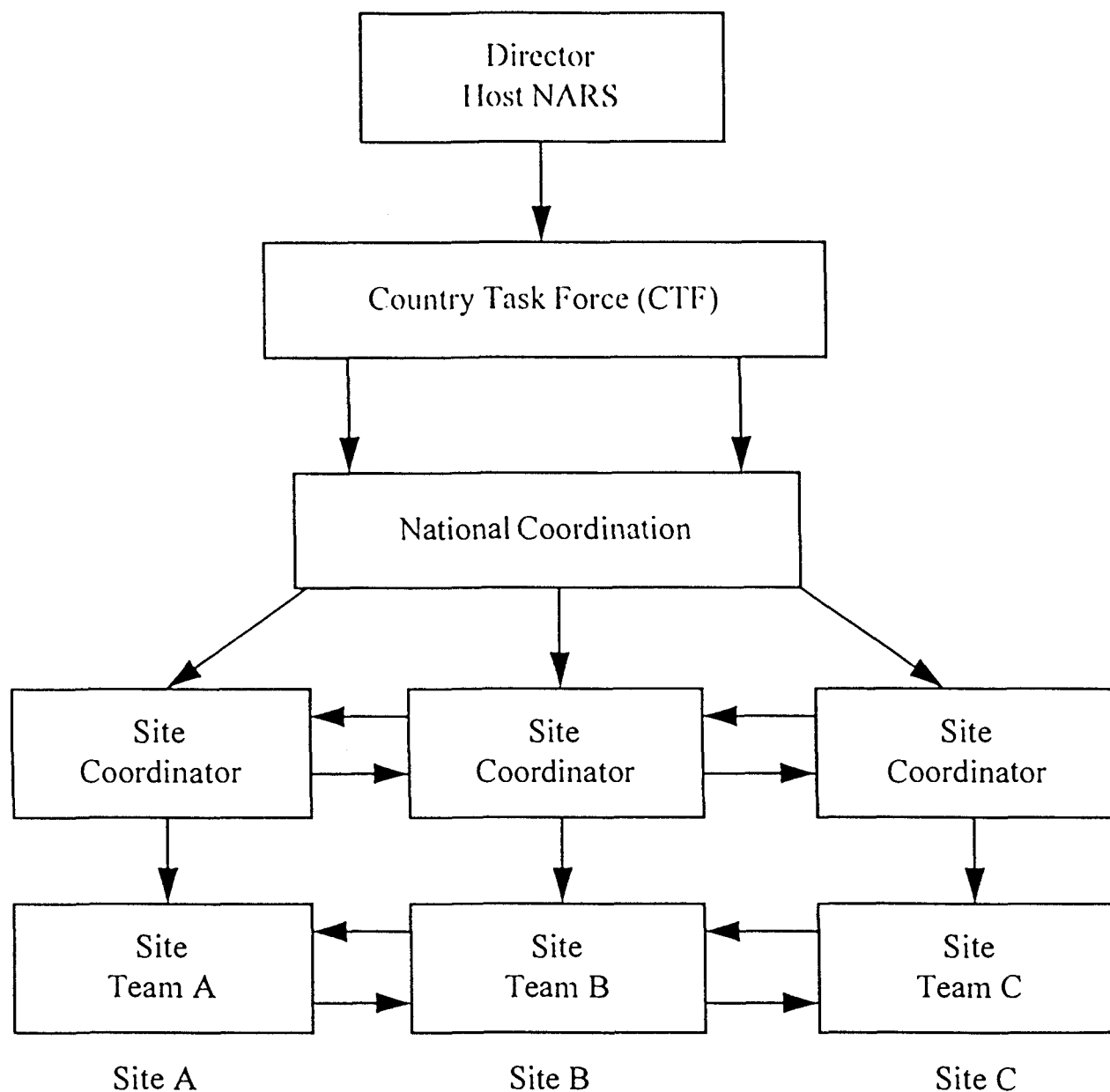


Figure 1. Proposed in-country structure

### 2.3.3 COORDINATION AT BENCHMARK-SITE LEVEL

Benchmark sites were conceived as areas of concentration of research activities in an attempt to understand the interactions between people and the natural resource base and to search and implement feasible solutions to the resulting problems. This calls for an efficient coordination mechanism to ensure that human and financial resources are utilized to produce the maximum impact by avoiding duplication, facilitating research partnerships and acting as a clearing house for information to and from the site partners.

The IPM TAP expressed the following concern regarding site coordination.

*"At some sites there appeared to be no overall coordination or central knowledge of ABI activities; besides making interaction among themes more difficult, this omission risks reliance by NARS upon the RRFs for site coordination, which would defeat one objective of the initiative. Besides nomination of a site coordinator, expenses related to general communication by NARS/ABI site coordinators are needed, either by the NARS or through ABI. In addition, annual site coordination meetings were recommended."* (IPM-TAP meeting held on 19/20 October, 1995).

The Review Team identified the following constraints concerning the sites:

1. inadequate interaction among site researchers leading to individualistic approach to planning and implementation of research activities;
2. contact person for ABI related activities not identified;
3. many channels for the flow of funds and information;
4. inadequate communication infrastructure (email and telephone not operational most of the time);
5. no budget for coordination activities;
6. lack of national guidance as most of the site interaction is with either the collaborating networks or ICRAF coordinating office; and
7. inadequate research synergy.

It was clear that there is a need for a site coordinator responsible for coordinating research at the benchmark site. However, under the current funding structure there is limited scope for the coordinator to play a role in research integration.

## **2.4 PLANNING AND DECISION-MAKING PROCESS**

### **2.4.1 PROGRAMME-LEVEL PLANNING**

#### **2.4.1.1 ASARECA's Committee of Directors**

The ASARECA Committee of Directors is a policy-making organ of ABI. It participates in setting the long-term goals of ABI, approves work plans and monitors annual progress of ABI. The management decisions are entrusted to the Task Force, which reports regularly to the Committee of Directors.

The Review Team established that there is regular consultation between the Task Force and Committee of Directors. The following issues were raised.

1. **Flow of information to directors:** Some directors have expressed concerns that they are not fully informed of what is going on in ABI. It was not clear to the Review Team where the break in communication would be considering that directors have two channels of communication: through the country Task Force member, who represents the director, and through progress reports sent to directors in their capacity as directors of the ASARECA committee. There is need to identify a suitable mechanism to improve the flow of information to and from the directors.
2. **Role of directors in promoting research partnerships:** Implementation of research partnership projects poses new challenges to collaborating institutions and individuals. NARS directors can contribute in nurturing this new approach by committing financial and human resources towards the implementation of ABI projects.

#### **2.4.1.2 Task Force**

The Task Force is the main body governing the management of ABI and its responsibilities are to advise on:

1. the overall policies and directions of the initiative;
2. the overall programme of the initiative;

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3. projects and their budgets;
4. sources of funding for the projects;
5. selection and appointment of the coordinator;
6. selection and appointment of project leaders; and
7. appointment of the Technical Advisory Panel (TAP) members.

The Review Team noted that the Task Force has met regularly and served AHI well. Task Force meetings present a summary of their deliberation and serve as a testimony of the valuable input provided by the Task Force members. Membership of the Task Force comprises one person designated by the participating NARS, a representative of each lead institution and donor representatives (see Table 3).

**Table 3. Membership of AHI Task Force and TAPs**

Committee	IARCs & other International Organizations	NARS	Donors	Meetings (No.)	Comments/ Issues
Task Force	16 (7)	4	2	5	1. Over representation IARCs 2. Over representation ICRAF 3. Under representation NARS 4. No representation of NRM and NGOs
C&D TAP (Combined with RI TA Aug. 95)	3 (1)	6	1	1 (1)	1. Under representation of IARCs 2. Confusion over membership 3. Insufficient meetings 4. Cross-linking Training and Information, IPM & MISP TAPs being developed
MISP TAP	6 (1)	5		2	1. Only one member on IPM TAP 2. IARC co-chairs
IPM TAP	7 (0)	5		3	1. Only one member on MISP TAP 2. IARC co-chair
Information TAP	2 (1)	4		1	
Training TAP	3 (1)	2		2	1. ISNAR member represents inter-centre training initiative

Notes: <sup>1</sup>Number of ICRAF representatives in parentheses; <sup>2</sup>Resource Inventory ICRAF staff has left

The following issues were raised in terms of the Task Force membership and its potential influence on perceptions on ownership.

1. **Over-representation of IARCs and ICRAF:** A closer look at the attendance of Task Force meetings reveals that over-representation of IARCs is not as high as perceived. This is because some members representing institutions that were active during the AHI planning stages but not in the implementation stage do not attend the Task Force meetings. IARC representation on the Task Force should be reduced to include only representatives of IARCs participating in the programme implementation and those that have committed their resources towards the attainment of the programme goals. Over-representation of ICRAF results from the key role played by the convening centre (which provides a chair and a secretary of the Task Force and TAP leaders). As noted earlier, the convening institution has a lot at stake and its representation, particularly in the establishment of the programme, has played a key role in the success achieved so far.
2. **Under representation of NARS** was raised as an issue by some collaborators. It is, however, not clear how this may have influenced their perception on ownership. The merits of NARS representatives, who are senior officers with experience in natural resource management or research integration, should be assessed.
3. **NGO and NRM specialist:** The Task Force has no NGO representative or a natural resource management specialist. Addition of such representatives would contribute in bringing in NGO

perspectives into the high-level decision-making process and hopefully bring more NGOs closer to NARS and IARCs.

4. **Chairing of the Task Force:** Chairing of the force was originally to rotate annually among the NARS representatives but ICRAF has been asked by the Task Force to continue to act as chair. This situation should be reviewed after the programme is fully established, as having the chair and the secretary coming from ICRAF may reinforce the perception that AHI is an ICRAF project.

#### 2.4.1.3 *Technical Advisory Panel*

The research and capacity-building themes are governed by a TAP. Each theme is headed by a project leader who is from the lead institution (see Table 4) and is also leader of the TAP.

Table 4. Lead institutions

Component	Lead institution(s)
Diagnostic	ICRAF
Resource Inventory	ICRAF
Maintenance of Soil Productivity	CIMMYT/ICRAF
Integrated Pest Management	CIAT/IITA/CIP/CIMMYT
Training	CIMMYT/ICRAF
Information	ICRAF/ILRI

TAPs were set up to provide overall technical direction for implementation of various theme activities. The specific responsibilities of the TAPs include:

1. review project proposals and make recommendations for funding;
2. review training requirements and advise on curriculum contents;
3. formulate annual work plans;
4. allocate funds for subprojects;
5. monitor and evaluate subprojects within the committee's jurisdiction;
6. organize technical meetings and workshops; and
7. formulate priorities and strategies for project implementation.

TAP members are drawn from the participating institutions on the basis of their professional expertise to form a team of experts. They have provided their respective themes with valuable guidance. Issues arising from the TAP analysis include:

1. **NARS representation:** The TAPs have done a better job of obtaining a representative mix of NARS and IARC representatives. However, all the chairs and co-chairs are from IARCs and all the lead centres are IARCs. In the case of C&D there is the reverse problem where experienced social scientists from IARCs appear to be under-represented.
2. **Research integration by TAP:** TAPs have made an effort to integrate research as evidenced by minutes of TAP meetings, attendance of Research Theme TAP meetings by Information and Training TAP members and by cross-membership. Despite these efforts acceptable level of research integration has not been accomplished.
3. **Over-dominance of IARCs:** In general, there was a feeling from NARS collaborators that ICRAF and other IARCs play too strong a role, while some representatives from other IARCs were concerned with what they felt was a dominance of ICRAF. Strong involvement of IARCs is partly due to the strong links of AHI projects with IARC commodity networks and the fact that there is little to build on in the NARS. This situation is expected to change as more NARS researchers take an active role in AHI projects.

## 2.4.2 DEVELOPMENT OF COUNTRY PROGRAMMES

### 2.4.2.1 *Country Planning Workshops*

AHI has incorporated country planning workshops (CPW) as the vehicle to:

1. Increase awareness of AHI
2. Develop a framework for AHI research in each country
3. Identify opportunities and constraints of collaborative initiatives with individuals and national institutions; and
4. Nurture the development of research partnership in integrated natural resource management issues.

AHI has successfully organized national workshops in Uganda (September 1995), Ethiopia (January 1996), Kenya (March 1996) and Madagascar (May 1996). The workshops are attended by the AHI coordinator, some Task Force members, TAP members, representatives of collaborating institutions, farmers and potential collaborators.

Collaborators interviewed by the Review Team reported that they found the CPW a very valuable exercise as it enlightened them on the added value of collaborative research. Those who were not previously aware of AHI were able to identify potential collaborative projects for enhanced synergism.

Some of the issues related to CPWs are:

1. **Participation:** The country level planning meetings have been participatory and have adopted a bottom-up approach in developing country-level programmes. However, many of the guidelines, priorities and some of the projects were already determined by earlier regional-level planning and TAP meetings. In addition, there are limited opportunities for incorporating new research and capacity-building activities identified by workshop participants into the AHI agenda. The Ethiopian planning meeting had very limited participation of non-IAR institutions (of the 36 participants from Ethiopia, 27 were from IAR) and they have not been involved in follow-up proposal development. Ethiopia should be coaxed into broadening the non-IAR participation so as to take advantage of institutional complementarities.
2. **Translating workshop conclusions and recommendations into an action plan:** The workshop proceedings reviewed indicate that there is a potential for collaboration that has yet to be tapped and the need to follow up some of the issues raised. It was not clear how the ideas suggested in Uganda and Ethiopia planning workshops would be integrated in developing a country or benchmark site plan of operation. MISP working groups have synthesized some of the ideas presented in the CPW for Kenya and developed a revised strategy and plan of action. TAPs should be encouraged to do the same for other CPWs.

### 2.4.2.2 *Benchmark Sites*

A benchmark site concept was developed to facilitate research integration at a few representative sites where the methodologies for integrated natural resource management research could be tested and results demonstrated to farmers and policy-makers. The criteria for the selection of these locations were identified as:

1. 'generally representative' of a significant portion of the highlands of the country.
2. the locations should fall within the high-potential agricultural areas with high human population and intensive land-use systems.
3. the location should be served by a major research institution—not necessarily a station of the host NARS—with good access to farms and catchments and adequate laboratory, office and communication facilities, to enable high-quality research.

The identified locations for each country were Maseno/Kakamega (Western Kenya), Embu (Central Kenya); Kabale/Kalengyere (Western Uganda); Holetta/Ghinchu and Nazret/Melkassa in Ethiopia; and Antsirabe and Avaratrambolo in Madagascar.

An ideal benchmark site that meets all the above criteria and is acceptable to all collaborators could not be identified. The collaborators had to make some compromises. In some cases, disagreement on site selection still lingers on as in the case of Uganda where soil scientists based around Kampala argue that Kabale was not a suitable site due to its long distance from Kampala (approximately 400 km) or the perception by some Kenyans that Maseno and Embu were chosen due to the heavy presence of ICRAF. Kabale benchmark site was selected because of natural resources degradation, the decline in soil productivity, existing baseline studies, and research infrastructure and because it represents biophysical and socioeconomic conditions similar to those in Rwanda, Burundi and eastern Zaire. Despite all this, the Review Team is satisfied with the choice of benchmark sites in which research activities would quickly take off and serve as demonstration sites.

The benchmark sites were not ideal for studying all the natural resources management problems identified by the themes. As a result, satellite sites were selected for complementary research (Kakamega for bean root rot and stem maggot; Mbarara for banana nematodes and weevil). In the case the Mbarara site, this has resulted in the isolation of IPM research activities and the aggravating of associated difficulties of integrating MISP activities.

### **2.4.2.3 Research Programme Development**

Priority research setting for AHI research projects was based on results of initial consultations and a series of meetings and workshops leading to the establishment of AHI. Concerns on the appropriateness of current research focus is voiced by some collaborators who were not involved in the initial discussions and priority setting. There is, however, a general consensus that the research topics they are working on are of high priority.

## **2.5 FINANCIAL ADMINISTRATION**

The nature of a multi-institutional, multicountry and multi-theme project makes for very complex administration and flow of money. This is illustrated in Figures 2 and 3, which follow the flow of funds for one theme and for one country. There are often multiple channels from AHI to the same institutions in one benchmark site. These complex flows also make it difficult to determine how much AHI is contributing to each NARS, which leads to such comments as "AHI is a very small project (\$20-30,000) in each country" or ICRAF takes all the money and these ecoregional initiatives are just ways for centres to get more money". Based on the impartial information in Figure 3, the two-year AHI contribution to Ethiopia is over \$220,000 almost 10 times what is perceived in the country.

Because of the multiple channels of fund flow to the benchmark sites, there is confusion and concerns over per diem and travel allowances, salary scales etc. A comment from CARE International in Kenya sums this up "improvement on channeling of funds could make collaboration more efficient. A meeting comprising all collaborators should be convened to discuss the issue as different organizations have varying financial systems." Similar issues are present in Uganda. The Task Force could provide guidance on these issues by setting budget guidelines.



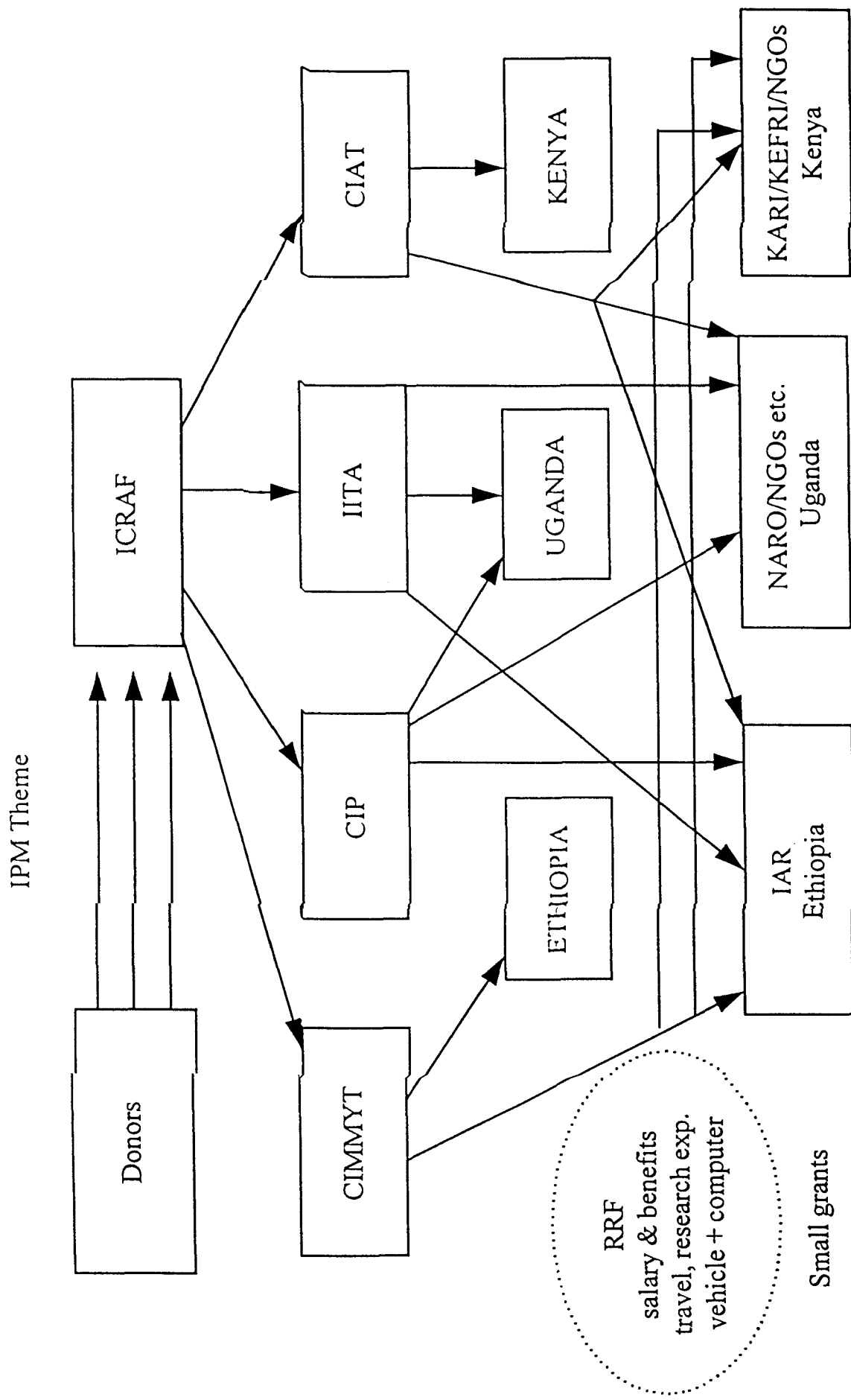


Figure 2. Flow of funds for one theme

Figure 2. Flow of funds for one theme

Ethiopian AHI activities: 1995-97

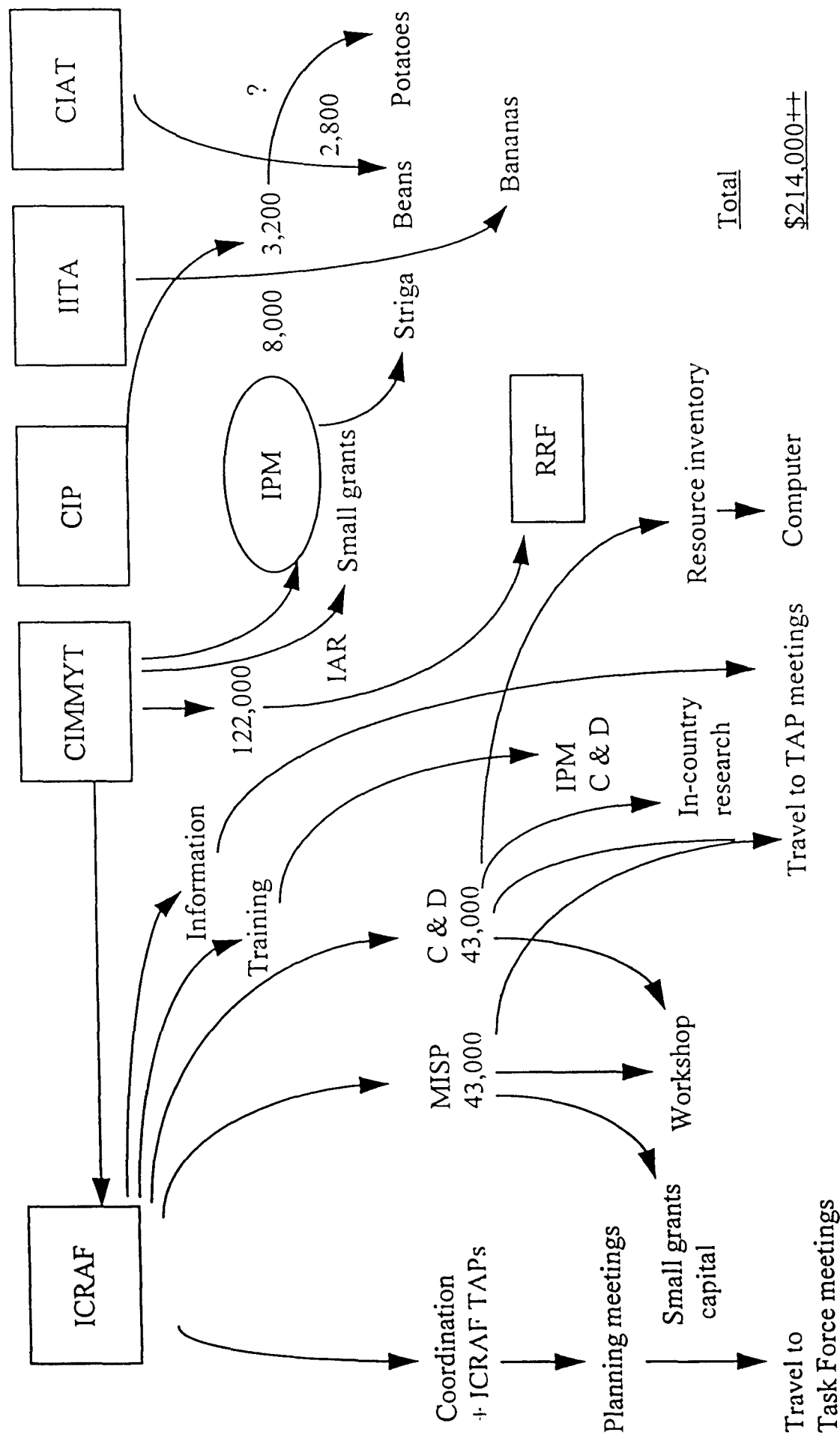


Figure 3. Flow of funds for Ethiopia

### 3. RESEARCH SUPPORT PROGRAMMES

#### 3.1 INTRODUCTION

The three research support themes of Characterization and Diagnosis<sup>5</sup> (C&D), Integrated Pest Management (IPM), and Maintenance and Improvement of Soil Productivity (MISP) were selected through a lengthy consultation process involving both senior scientists and research managers within NARS and IARCs. The review did not attempt to assess the process leading up to the preparation of the proposal (Wangati, 1994) although issues related to the earlier process are referred to when relevant.

#### 3.2 CHARACTERIZATION AND DIAGNOSIS

##### 3.2.1 BACKGROUND

ICRAF is the lead centre for the C&D theme, which was originally intended as a supporting theme (Wangati, 1994) to:

1. assist in collecting diagnostic information for setting priorities and determining strategic entry points within integrated NRM research; and
2. evolve a collaborative and participatory research and development agenda that involves all interested and able parties.

The mechanism for accomplishing this was to establish at the national level teams of scientists and development specialists who are conversant with participatory diagnostic techniques and motivated to enhance inter-institutional and interdisciplinary collaboration and farmer participation.

Though not explicitly stated in the Task Force minutes, there appears to have been a realization that this theme is not just a supporting but must be a leading research theme. The Task Force decided that the strategy for implementation should be to hire a senior scientist, with the intention that the person could be based outside ICRAF. The senior scientist, an American systems ecologist, took up his post at ICRAF in September 1995.

the Resource Inventory theme, also led by ICRAF, was originally a separate theme but was integrated with the C&D theme in September 1995. The mandate of the Resource Inventory theme was to compile and make available a range of geo-referenced biophysical and socioeconomic databases from resource inventory data set and farming household surveys that integrate into a GIS for natural resources management.

##### 3.2.2 PLANNING

The specific objectives of the Diagnostic and Socioeconomic theme were outlined in the proposal to IDRC for diagnostic and information support as:

1. to conduct participatory diagnostic studies that supplement existing information on the management of the natural resource base in representative highland environments;
2. to use the resulting diagnostic information in setting priorities and to determine strategic entry points for other activities within AHI;

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<sup>5</sup> The Characterization and Diagnosis theme was formed to merge diagnostic and socioeconomic studies and resource inventory themes in an attempt to integrate the socioeconomic aspects with the technical aspects of the Resource Inventory Theme.

3. to establish the main factors contributing to the decline in land productivity and farmers' perception of the relevance and priority of each factor;
4. to develop appropriate indicators of deficiencies in NRM, incorporating farmers experiences;
5. to integrate diagnostic data into the regional resource inventory GIS database and then promote documentation, publication and wider dissemination of diagnostic information for use in similar environments; and
6. to establish at the national level teams of research scientists and development specialists (extensionists, NGOs and farmer groups) who are conversant with participatory diagnostic techniques and motivated to enhance the culture of inter-institutional and interdisciplinary collaboration and farmer participation in all stages of research and development activities.

Some activities related to C&D planning and information gathering started prior to the arrival of the senior scientist. These included a 'think tank' discussion and recommendations, synthesis studies in Ethiopia, Kenya and Uganda, and a study by a Rockefeller Foundation postdoctoral fellow on "Changing land use and soil productivity". As the senior scientists did not arrive in good time, much of the planning for the original work plan has been delayed. A provisional TAP was established prior to the arrival of the senior scientist but it did not meet. A new TAP was formed but did not meet until 2-3 May 1996. A planning/training workshop was held 15-26 April 1996, involving teams from the four countries. Preliminary reports from this workshop indicate that there was a high level of participation and the outline of a work plan was jointly developed. In-country meetings were held during May and the regional and country work plans and C&D proposals were presented to the Task Force for the June 19 meeting.

The *resource inventory* TAP was formed and met once in early 1995 and assisted in preparing a detailed work plan including detailed work to be carried out at two benchmark sites—Kabale, Uganda and Embu, Kenya. Although AHI had originally divided the Inventory and Diagnostic themes, it soon became apparent that inventory, characterization and diagnostic studies are all components of a single process<sup>6</sup>. This led to the merger of Resource Inventory and Diagnostic and Socioeconomic themes into the Characterization and Diagnostic (C&D) theme in October 1995.

C&D identified three priority activities for 1996 that would assist research partners and the AHI Task Force set priorities for Phase 2 research activities:

1. understanding the perceptions of researchers, farmers, extension officers, development workers, policy-makers and donors on causes and effects of natural resource degradation. A multi-stage participatory process is underway to undertake this study.
2. development of systems scenarios (possible and probable economic, social, political and environmental circumstances) within which research planning decisions will be judged.
3. development, in consultation with the Information theme, of a user-friendly information system that avails the data sets collected as part of C&D to AHI collaborators and international cooperators.

### 3.2.3 IMPLEMENTATION

Apart from the planning and preliminary information gathering, there have not yet been any direct C&D activities implemented, and activities are not due to start until August 1996. Table 5 summarizes the work plan and activities of the *resource inventory* theme.

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<sup>6</sup> Characterization is the process of identifying the distinguishing attributes, components and processes of the system under investigation. It describes land-use patterns and then formulates hypothesis about relevant underlying processes. Diagnosis is the interpretation of information, such as that obtained through characterization, with the intent of assessing the importance of the problem (J. Wyant, email dated 3/6 96).

**Table 5. Resource inventory activities and accomplishments**

Work plan Activity	Status
Recruit RRF to work on collection and integration of data from AHI countries into GIS	Due to financial constraints a GIS technician partially filled role
Compilation and distribution of a data dictionary that describes quantitatively and qualitatively aspects of the database	Not yet done
Publish a list of the data available in the region	Data collected, list not done, in press
Strategic data (administrative units, climate, soils, land use) made available to all collaborators	Developed for MISP synthesis study (on ArchView but not available for PC), no data entry for Madagascar
Preparation of CD-ROM for permanent mass storage of AHI data	storage currently in computer files will be part of ongoing information CD-ROM
Policy on formal distribution of AHI data prepared and approved.	Draft report prepared and submitted to ASARECA
NARS collaborators supported	No feedback yet to NARS; C&D team building in progress.
Computers purchased and distributed to benchmark sites	Problems in sending to Madagascar and Uganda. One installed at Embu
Differential GPS purchased and used to collect geo-referenced data	GPS purchased and some data collection in progress
Seminar on the utility of GIS and resource inventory database for AHI task force and ASARECA directors	done
On the job training of NARS staff	To be undertaken on a case-by-case basis will start mid-May for one person
Two- week GIS training course for partners institutions	Not yet planned
Preparation of papers and reports	-AHI position paper <i>Agriculture and environmental trends to the year 2020</i> presented at IFPRI -Agriculture environments in East Africa
Field research: integration and scale issues through analysis of changing soil productivity	Part of study on Changing land use and soil productivity in the East African highlands, field work done and problems of data scale and interpretation starting to be addressed

### 3.2.4 LESSONS LEARNT AND ISSUES

The Review Team highlights the following issues related to the planning and implementation of thematic activities.

1. **Delay in C&D activities:** The C&D senior scientist arrived only in September 1995, and as he is new to the CG system and the region, has had an extended learning period which has delayed planning and implementation considerably. He has chosen to concentrate first on a regional approach and emphasize participation, team building and system thinking. This is starting to be achieved and is being translated into action at the benchmark sites in Uganda, Madagascar and Ethiopia. Kenya is expected to be 'on-line' in June 1996.
2. **High expectation of C&D work:** There are very high expectations for the C&D work. It is assumed by many that the C&D activities will help force the site integration, achieve NRM focus and promote a systems vision that is currently lacking at the benchmark site level. These expectations may be too high.

3. **Challenges for the C&D theme:** There is confusion on the function of the C&D. There is a view from the Task Force and other research TAPs and shared by the Review Team that the important immediate function is to obtain the diagnostic information necessary for setting priorities and determining strategic entry points, critical for the preparation of the Phase 2 proposal. On the other hand the site researchers and regional research fellows, who have already started research at the sites, see C&D as a service to their research in order to help with methodologies, improve questionnaires, or assist in carrying out diagnostic surveys. Finally, in keeping with the regional nature of AHI, there is a need for cross-site comparison and hypothesis testing. This requires a high-level of cross-site standardization in data collection. This is an area where the senior scientist has concentrated in trying to conceptualize some of the issues, and he has obtained input from the national teams on these issues. It is also not possible to carry out C&D activities without a team of site researchers with the appropriate methodological skills and a common vision. C&D will have to meet all of these demands, but the balance and the priorities need to be clearly established and communicated to all. The leader has identified three priorities: (1) rapid diagnosis of opportunities for research; (2) characterization and database development; and (3) development of hypothesis-driven research.
  4. **Need for stronger social science input:** There is a perception that there is lack of strong social-science input to both the TAP and to the theme. It is not clear how this perception has developed since, according to the TAP leader, three social scientists from ICRAF are involved in C&D plus social scientist from CIAT and ILRI, and more than 75% of C&D TAP members are social scientists. The TAP leader has chosen to use the TAP as a means for team building and involved more national than international scientists. The IARC technical expertise in social science is to be involved in other ways, most notably in peer review of work plans and concept papers. While the Review Team commends this approach, it is not clear how the considerable expertise of the IARCs in social science is to be utilized to assist this theme. The issue of TAP membership is also complicated as the Task Force originally constituted a provisional TAP, which never met, but some of its members still think they are on the new TAP.
  5. **Participatory and team-building approach:** C&D have chosen to use a participatory and team-building approach with an initial concentration on process rather than content. In addition they have chosen to have a full-time senior scientist team leader. It will be important to document the process and progress to allow an assessment of this approach.
  6. **Which way forward for RI activities?** The leader of the *Resource Inventory* activities has initiated impressive GIS work, which was part of his PhD studies. Most of the work is, however, in a form that cannot be readily used for integrating natural resource management. Uganda submitted its GIS data and has not received any feedback. To overcome this problem, there should be a timely delivery of components rather than waiting until everything is in place. A GIS database could be developed using a modular approach starting of with baseline data and adding additional layers as they become available. The Review Team learnt that the leader is soon leaving ICRAF, and it is unclear of the future leadership and input of GIS to AHI. With the loss of the ICRAF GIS scientist and the reformation of the TAPs, it is not clear how GIS activities fit within the C&D activities. This is further complicated by the current lack of a GIS person on the TAP although the TAP is currently trying to add a person with GIS skills. The situation is, however, not helpless as the C&D leader has experience in the use of GIS as a tool to support regional characterization, systems modelling and decision-support systems. The study on Changing Land Use and Soil Productivity in the East African Highlands is a commendable first step in integrating biophysical and socioeconomic data at the Kabale and Embu sites, but it is not clear how the work will input into the future C&D activities.
  7. **Building national capacity in GIS and RI:** A number of issues were raised specifically relating to GIS and resource inventory work. Some collaborators argue that there is need to build national capacity in GIS work so that some of the time-consuming activities can be undertaken in the countries. RI and GIS work is time consuming and could be shared by collaborating institutions. To achieve this, GIS work could be broken into separate units—data collection and assembly, digitizing, storage and management and data analysis and use. National GIS centres could be charged with the responsibility of data collection and assembly and data analysis and use.
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### 3.3 MAINTENANCE AND IMPROVEMENT OF SOIL FERTILITY

#### 3.3.1 BACKGROUND

In the formulation of AHI's initial proposals, MISP's challenge was identified as taking an integrated perspective involving:

1. improvement of nutrient availability (cutting nutrient losses, improving recycling and synchronizing availability to needs); and
2. making greater productive use of available nutrients (through higher value crops, more efficient rotations or new crop-livestock-tree combinations).

In the initial planning stages, it was realized that a wealth of relevant information has accumulated from both research and development projects and that the information is scattered in many places and may easily be overlooked. It was therefore necessary to *synthesize information from past research and evaluate its applicability to requirements of various farming systems, to identify some of the important gaps and to encourage the relevant institutions to initiate or strengthen research activities to fill such gaps...* (Wangati, 1994 p. 12)

#### 3.3.2 PLANNING

The goal of MISP was identified as reversing the current regional trends of declining soil productivity while protecting the environment through a regional programme of integrated research and development. The main issues to be addressed include long-term fertility studies, understanding soil processes on a catchment basis and rock phosphate application, and longer term residual effects. The main objectives of the Phase I were to:

1. Synthesize existing regional information on MISP so as to identify information and technology gaps, and to summarize impact and reasons for non-adoption of research recommendations;
2. Develop an inventory of research institutions and activities relevant to MISP; and
3. Develop collaborative research activities addressing priority problems relevant to the theme.

Planning of MISP activities benefited from (1) the conceptual framework document, (2) consultations with national and regional researchers, (3) identified national and regional research activities and priorities, (4) national planning workshops (two in Kenya and 1 in Ethiopia and 1 in Uganda) and (5) a regional planning workshop on SWNM programme held at Egerton University, Kenya.

#### 3.3.3 IMPLEMENTATION

The lead institutions of MISP activities are CIMMYT and ICRAF. The MISP TAP, consisting of 11 representatives of collaborating institutions, has provided technical guidance for the theme activities and regularly updated strategies and plans of action. The achievements are summarized in Table 6.

Table 6. MISP activities and accomplishments

Activities	Achievements/comments
Synthesis of regional information on MISP	Draft report submitted. Final report expected in August
Identification of information and technology gaps, impact and reasons for non-adoption of research recommendation	
Database for inventory of research institutions and persons	Questionnaires prepared and sent out
Collaborative research on priority problems	<ol style="list-style-type: none"> <li>1. Guidelines on integration activities and research project at benchmark sites prepared.</li> <li>2. Research proposal preparation, approval and funding delays</li> <li>3. Integration with IPM not adequately addressed, except in Maseno/Kakamega</li> </ol>

**Synthesis of Literature on soils:** Local and international consultants were hired to collect and analyze past and ongoing soil research to help identify major gaps that need to be filled. The synthesis study was commissioned in June 1995. It was a collaborative effort with technical experts from national institutions in Kenya, Uganda, Ethiopia and Madagascar; DLO Winand Staring centre of Wageningen; MISP -TAP; and Resource inventory and Information themes of AHI. A draft report *"Maintenance and improvement of soil productivity in the highlands of Ethiopia, Kenya, Madagascar and Uganda: an Inventory of spatial and non-spatial survey and research data on natural resource and land productivity"* has been submitted. This is a commendable effort, which will go a long way in assisting MISP focus on the priority problems and make better use of existing knowledge base.

**Inventory of institutions:** An inventory of institutions and individuals addressing research issues closely related to MISP activities was prepared by MISP theme in collaboration with Information and Documentation theme.

**Collaborative research activities:** A small grants scheme was set up to foster institutional collaborations, help identify research priorities through a bottom-up process and to facilitate team work on priority topics. The grants were for supporting:

1. Integration activities that lead to better integration of existing research on natural resources management such as priority setting/planning/synthesis workshops, regional reviews, better use/dissemination of existing research results.
2. Research projects at benchmark sites for integration and/or re-orientation of existing research towards research on natural resources management.

The following guidelines were adopted:

1. Emphasis on natural resources management using a problem-driven, system approach.
2. Research on prioritized problems of regional importance.
3. Research must be located at a benchmark site.
4. Research project must involve a spectrum of institutions.
5. Research must be jointly prioritized and planned by the participating institutions.
6. Proposal outline includes the goal, scope, objectives, major activities and expected outputs

Planning meetings were held to develop teams and prepare proposal for small grants. Research proposals distribution by topic and site are presented in Table 7 (Complete titles are presented in Section 6.4.1)

**Table 7. MISP research projects**

Topic	Benchmark site			
	Maseno	Embu	Kabale	Ethiopia
Legumes	4	2	2	1
Improved fallow	2		2	
Organic and inorganic nutrients	2		1	1
Livestock	2	1		2
Soil/water conservation		2		1
Farm systems analysis	(1)			1
Dissemination	1		1	
<b>Number of institutions involved</b>	<b>19</b>	<b>7</b>	<b>7</b>	<b>9</b>

### **3.3.4 LESSONS LEARNT AND ISSUES**

1. **Filling the existing knowledge gaps:** MISP's approach of analyzing past and ongoing research to identify major gaps and 'who is who' in soil management research has yielded a lot of valuable information. This information has assisted MISP to focus on priority problems and also make better use of existing knowledge bases in identifying entry points in research partnerships.



2. **Complementing ongoing research:** Assessment of ongoing research activities on topics closely related to MISP indicated that there are many research projects in the region addressing the same issues. MISP made a wise decision of providing supplementary grants that would add value to ongoing research and facilitate re-orientation of some of the projects to adopt a systems thinking.
3. **Strategies for alleviating fertility constraints:** MISP has taken a holistic approach to alleviating fertility constraints (see range of experiments planned, Section 7.4.1). Some collaborators argue that management and maintenance of soil fertility cannot be undertaken without increased use of fertilizers and that the small-scale farmer will not be able to buy fertilizer if they continue to grow only food crops for subsistence. They propose a broader look at the farming system and inclusion of policy issues. MISP is collaborating with ILRI to expand the scope of their study by including livestock related issues in integrated nutrient management. This is part of the Systemwide Livestock Initiative's, component 4 entitled "*identify management practices to enhance nutrient flows for the maintenance and improvement of soil productivity in smallholder dairy farms*". Additional input is expected as part of the SWNM programme. A planning workshop was held at Egerton University, Kenya, to design a project to complement MISP activities, whose primary goal is "promoting farmers welfare, attaining food security and protecting highland environments through enrichment of soil fertility in smallholder cropping systems". This is a five year project with the following topics identified as high priority by participants from Ethiopia, Uganda, Tanzania, Kenya and Madagascar. (a) Guidelines on the selection, acquisition and management of organic and inorganic nutrient resources; (b) Guidelines on technology and policy options for nutrient replenishment by farmers (c) Guidelines on land-use strategies that integrate agricultural and environmental concerns (d) Rapid and appropriate dissemination of land management technologies and policies. The project will be coordinated by TSBF on behalf of SWNMP, managed by the MISP TAP and implemented through AHI benchmark sites. These are commendable efforts with a high potential of complementing ongoing work on the role of agroforestry in improving soil fertility.
4. **Soil analysis:** Soil analysis issues include the high cost of laboratory analysis, techniques used in soil analysis and their standardization, quality control, high variability of soil chemical properties within farmers plot due to their nutrient replenishment strategies, and time taken to analyze the samples. ICRAF is setting up laboratories that can undertake routine and specialized analysis. There are plans to be sending soil samples to ICRAF for analysis. ASARECA and ICRAF are addressing issues related to importation of soil material. Ugandan scientists are putting a case for financial assistance to develop routine laboratory facilities so that some of the analysis can be done in Uganda. The Task Force should set up a policy on such issues.
5. **From small grants to sub-theme activities:** Because of the limited budget, the MISP TAP used the small grants approach in fostering research partnerships and plugging knowledge gaps. This approach had limitations in terms of spreading resources too thinly and lack of integrated watershed scale research. The MISP TAP has identified the need to change the approach to encourage stronger regional coordination through major thrusts on four sub-themes—characterization and diagnosis; nutrient management; agriculture-environment interaction; and dissemination and policy. The Review Team concurs with the TAP because such an approach would lead to the preparation of better quality proposals, reduced supervision time and strengthened systems and process research approaches and enable the researchers to address a broader set of natural resources management issues. Some money should be reserved for small grants for sites with limited human resources and for complementary grants to gradually expand the scope or in-depth analysis of some specific issues within the sub-theme topics. Small grants should be phased out gradually so as to ensure that the work initiated is finalized and findings disseminated. The MISP TAP should ensure that they do not get carried away by characterization and diagnosis or dissemination and policy issues at the expense of nutrient management, but rather work closely with the C&D theme to address some aspects of the new sub-themes.
6. **Strengthening technical input and coordination:** Working with a large number of researchers, particularly through the small grants projects and on many sites have imposed a high demand for technical input and coordination. In some cases, follow-up has been slow or lacking. MISP has recognized this and hopes to partially address the problem by recruiting a part-time scientist as part of the SWNM programme and by shifting from the small grants to the sub-theme approach.

7. **Working with local and national capacity:** MISP has avoided the temptation of using international or regional researchers to obtain quick results and has adopted the approach of assisting local researchers get the job done. MISP therefore plays a catalytic role. This approach is satisfactory where there is ongoing soil fertility improvement research and a committed group of local scientists.

### 3.4 INTEGRATED PEST MANAGEMENT

#### 3.4.1 BACKGROUND

This theme is intended to explore the relationships between the problems of pests and diseases and intensification of agricultural production in the highlands, and to design appropriate control strategies based on integrated soil and crop management. Based on priority setting by national and international scientists based in the region, four crops and associated pest complexes were selected. The selection of these sub-themes, which occurred prior to AHI's initiation, was based on current knowledge of their socioeconomic and regional importance, apparent linkages to intensification of production and decline in soil fertility, potential for solution, and existence of a good level of ongoing research, particularly the presence of a network to backstop the activities.

The IPM research theme chose to implement the research using regional research fellows (RRFs) who were linked to regional networks managed by international centres. The titles of the research, the lead centres, and the RRFs and their location are summarized in Table 8. Each sub-theme also implements a regional small grants programme with involvement of the RRFs in the selection and revision of proposals and backstopping of the research.

Table 8. IPM research titles and their locations

Project title	Lead centre & network	Regional research fellow & discipline	Research station
Soil fertility management to control bean stem maggots and root rots	CIAT Bean Networks- EABRN & RESAPAC	Dr John Nderitu Entomologist	KARI, Kakamega, Kenya
IPM of potato bacterial wilt	CIP potato and sweet potato network, PRAPACE	Dr Berga Lemarga Agronomist	NARO, Kalengyere, Kabale, Uganda
Banana weevils and nematodes	IITA developing banana network, BANESA	Dr Suleiman Okech Entomologist	Mbarara, Uganda
Integrated crop and soil management for the control of striga	CIMMYT Regional striga working group	Dr Anthony Esilaba Soil scientist	IAR, Nazret, Ethiopia

#### 3.4.2 PLANNING

This theme, like the others, is governed by a TAP. The TAP members include representatives from the participating IARCs, ICIPE, the participating networks and NARS. The functions of the TAP are to deliberate on the work plan, implement the programme, select regional research fellows, review small grants, review RRFs's activities and give overall guidance on the IPM issues. The TAP was formulated in early 95 and has actively participated in planning. In addition, the RRFs and other TAP members have actively participated in the three regional meetings and will participate in the upcoming meeting in Madagascar.

### 3.4.3 IMPLEMENTATION

Implementation of the work plan and accomplishments of MISP are summarized in Table 9. RRFs have played a key role in the implementation of these activities. This has been the most active research theme, with activities starting well before the others. This, however, has required a very large input of time in the start-up phase. It is hoped that these high transaction costs will lessen in the future.

Table 9. IPM activities and accomplishments

Work plan activities	Achievements/ comments
TAP to be established and made functional	Accomplished: three meetings held. TAP playing active role in planning and implementation
Development of conceptual framework and strategy for IPM work	Much of this done prior to implementation of project but involvement in national meetings to assist in developing country strategies
Recruitment of 4 regional research fellows	RRF positions advertised, short-listed, interviewed and selected (May 2), RRFs posted in August 95, vehicles, computers and operational support have taken longer.
Review of knowledge on four priority crop/pest complexes (RRFs)	Draft reviews submitted and final revisions being done for preparation of working papers. Reviews of good quality.
Development of research agenda for each of four crop/pest/disease complexes to spearhead IPM research (RRFs)	Research agenda developed in consultations between RRFs and TAP
Development of guidelines for proposal preparation and research development	Done ( guidelines listed in annual report)
Small grants research scheme to be launched to support AHI-IPM research by NARS	Selection committees organized, proposals received, researchers asked to make modifications, 13 grants approved—beans (4), potato (4), banana (3), striga (3) — funds have now been transferred to recipient institutions, research will be backstopped by RRFs. Ethiopia and Kenya involved in all sub-themes, Uganda in all but striga, Madagascar not yet involved.

### 3.4.4 LESSONS LEARNT AND ISSUES

1. **'TAP down' priority setting:** The priorities for crops and disease/pest complexes were set on the basis of regional consultation prior to the start of the project. The TAP then set the criteria for applying for the small grant projects. These priorities and guidelines were then passed down via the TAP to the regional workshops (Ethiopia and Uganda) or via the regional networks to interested scientists. The researchers then prepared their proposals on the basis of the TAP guidelines and priorities. The Review Team has no difficulty with this approach and in fact applauds the IPM theme for clearly setting IPM priorities based on a link to declining soil fertility. The issue is how the research agenda will be expanded to include new pest-disease complexes and new crops that are determined to have high priority for the benchmark sites or for national programmes. This is a common issue with the other themes as to how to incorporate feedback from the sites into the TAP's priority-setting activities.
2. **Coordination:** There are a number of emerging issues related to coordination. The four RRFs are located at different locations and are working on different crop-pest complexes and with different networks and different IARCs. The question of how they should interact and whether they should also help backstop IPM's small grant projects on another crop within their benchmark site should be addressed. There are also issues related to coordination with the other research themes, MISP and C&D. This is related to the fact that the priorities and flow of work from all TAPs go 'TAP

and C&D. This is related to the fact that the priorities and flow of work from all TAPs go 'TAP down'. There is currently limited interaction and information flow between the TAPs, making it difficult to develop integrated research proposals at the TAP level. Because of the design of the IPM projects, they require close interaction with soil researchers; in some sites this has been difficult. This issue is also addressed in the section on MISP. In the case of C&D, which has been slow in starting, the IPM fellows have had to proceed and organize their own focused C&D work. In some cases they have worked with national scientists who are now part of the C&D country teams (e.g. Ethiopia). It is hoped that that collaboration will continue. In other sites the RRFs have organized their own separate teams. The issue now is how the C&D teams interact with IPM, particularly as the IPM RRFs are looking at C&D as a service. The above issues are compounded by the lack of an adequate mechanism or a budget for site-level coordination. Thus there is no way to put together an integrated site level research programme.

3. **Communication:** This problem is common across all the themes and also effects the broader project coordination. In most case RRFs do not have working email connections. This is mainly due to infrastructural (phone lines, etc.) problems as all the RRFs have laptops and installed have e-mail modems. While the RRFs are better off than most site researchers as they often have some connection to the CG lead centre, there are still problems, for example the potato RRF was not notified in time to attend the Ethiopian country planning meeting.
4. **Over ambitious research plan:** The RRFs, because they can devote full time to their research planning, may have been over ambitious in their plans. This appears to be the case in Ethiopia and Mbarara, Uganda. It is further complicated by the difficulty of collaborating with national researchers at these sites (see below). It also appears that the RRFs need research assistants. These can be hired out of their research operating funds, but in some cases they have not budgeted for them and in others there are difficulties in deciding the payment scale (national vs. IARC).
5. **Interaction with national researchers:** This is not yet an issue but an area that should be monitored. As the RRFs have their own operating budgets and are devoting all their time to their task, the temptation may be to develop their own research programme rather than working collaboratively with national scientists. In at least two of the sites, there are already difficulties of hindering close collaboration with national researchers. In Ethiopian, the experimental sites are a long distance away from the IAR site in Nazret and there is some difficulty involving the Ethiopian counterpart, while in Mbarara no national scientist is present in the site but there are attempts to interact with soil scientists based elsewhere.
6. **RRF concept:** The major lesson appears to be that the RRF concept is working well and a regional research agenda has been implemented within the context of national programmes. It has allowed a quick start for the IPM theme, the research reviews are of high quality and the small grants research projects have started with some backstopping from the RRFs. In fact, other themes have suggested the need for RRFs. There should, however, be some caution on the widespread use of RRFs. Their success is also related to the fact that there were existing regional networks that could assist in priority setting and planning and that these IARC lead networks have proved critical in making the logistical arrangements for the placement and support of the RRFs. There has also been very large time demands to get this mechanism in place. Most of this was supplied by IARC scientists.
7. **Soil fertility input:** Literature reviews undertaken suggest that there is a strong link between soil fertility and incidence of pest and diseases and highlight the contribution that improvement of soil fertility could have on the control of pests and diseases (Nderitu et al., 1995, Lemaga, 1995, Okech et al., 1995). There is, however, inadequate consultation with MISP. Research on effect of different levels of nutrients on pest and disease incidences should be undertaken jointly with MISP.

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## 4. CAPACITY BUILDING

### 4.1 TRAINING

#### 4.1.1 BACKGROUND

In the initial planning of AHI, the need for developing a cadre of national scientists and technicians who would embrace and sustain the new approaches to integrated natural resource management was realized. Wangati, 1994 stated that *"long-term efforts were needed to develop an effective partnership with farmers and appropriate interventions and methods of popularizing these interventions with farmers, other land users and policy makers."* (Wangati, 1994 p. 15). Training was, therefore, considered to be a central theme. Target groups for training include research scientists, technicians, extension and development workers, library and information personnel, farming communities and other land users and policy-makers. Emphasis was to be placed on developing skills in solving problems, communication, building links within research and development, involving farmers in research and managing research information.

#### 4.1.2 PLANNING

The lead centres for the Training theme were CIMMYT and ICRAF. The Training TAP has 5 members representing ISNAR, CIMMYT, ICRAF, Ethiopia (deputy general manager of IAR), and Uganda (principal, Nyabyeya Forestry College).

The Training TAP members identified the need to attend MISP, C&D and IPM and Information TAPs meetings to obtain a better understanding of NRM training priorities. Training coordinators attended national planning meetings in order to better identify the needs of national scientists. Activities of the Training theme were developed in consultation with the research TAPs.

#### 4.1.3 IMPLEMENTATION

Table 10 shows the training plans and achievements. Training needs assessment was done using ISNAR methodologies modified to meet the needs of natural resources management.

Table 10: Training activities and accomplishments

Activity and schedule	Responsible	Remarks
Characterization and diagnosis Nov 95	ICRAF, CIAT, CIP, CIMMYT, ILRI	Postponed to April 96
Information management Aug 95	ICRAF	
Needs assessment Oct 95	ICRAF, CIP, CIAT, CIMMYT, IPGRI, ILRI, WARDA, ISNAR	<ol style="list-style-type: none"><li>1. Done thorough country planning workshops</li><li>2. A training strategy developed</li><li>3. Participatory approach to identify training needs (trainer/research)</li><li>4. Linking training priorities to research priorities and human resource needs.</li><li>5. This information was used to design training courses for the themes.</li></ol>
Training materials development (characterization manual and survey of existing IPM)	ICRAF, ICIPE	Postponed due to late development of a C&D strategy and methodology document. Now ongoing.



## 4.2 INFORMATION AND DOCUMENTATION

### 4.2.1 BACKGROUND

With the changing paradigm from commodity-oriented research to an ecoregional approach in natural resources management, there is need to organize and repackage information generated by NARS and IARCs to meet specific user needs. This challenge (to collect, analyze and disseminate information) is being taken up by the Information theme. The goal of this theme is to provide comprehensive and integrated information to different groups of users for decision-making and priority-setting purposes on natural resources management. The lead institutions for the Information theme are ICRAF and ILRI.

### 4.2.2 PLANNING

Planning for the Information theme started in June 1993 when representatives of NARS and IARCs met and identified specific areas of activities and priorities. Ideas gathered during this meeting form the basis of the project proposal. The main activities of the Information theme were identified as:

1. Providing ready access to published and unpublished information on past and ongoing research from within and outside the region.
2. Providing mechanisms for more effective communication among partners of the initiative
3. Exploring application of various techniques and tools, such as multimedia, for information delivery to different groups.

The Information TAP, consisting of representatives from the Institute of Agricultural Research—Ethiopia, Agricultural Information Centre—Kenya, Kenya Agricultural Research Institute, National Agricultural Research Organization—Uganda, ILRI and ICRAF, held its first meeting in February 1995. The participants identified the contributions they and their institutions were going to make, developed work plans and identified methodologies to be used.

### 4.2.3 IMPLEMENTATION

Table 11 shows the activities and achievements made.

**Table 11: Information activities and accomplishment**

Activity	Achievements/comments
1. Set up a regional bibliographic database	Database set up and updated regularly. Currently it has 16,000 entries
2. Install database at various sites (computers and database package)	A computer was bought for each participating country. One installed at Maseno benchmark site, one at IAR headquarters in Addis Ababa and 2 are awaiting delivery to Uganda and Madagascar. Database copies sent to KARI, NARO and IAR for distribution to national institutions. Database made accessible in 11 sites Database installed at benchmark sites and RRFs trained on how to use. Plan to make a CD-ROM and to distribute it widely.
3. Initiate information delivery service (newsletter, databases, selective dissemination of information)	<i>AHI Update</i> published quarterly. 3 issues have been distributed to over 350 recipients SDI services provided to 15 AHI collaborators and about 100 other s in the 4 countries. Some people interviewed indicated that they had not made any requests or did not know that the services exist or did not need the service.

## AHI MID-TERM REVIEW

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4. Develop a database on individuals and institutions	Ongoing activity. Questionnaires were distributed through mail and at AHI national workshops.
5. Initiate email services	Email connectivity made by providing modems and paying connection charges. Facilities not fully operational to facilitate discussions on key topics within AHI. Additional financial support is provided by AFRICALINK/PADIS <sup>7</sup> project to improve connectivity and provide access to more institutions and individuals.
6. Undertake state-of-the-art reviews	Ongoing collaborative exercise between MISP and Information
7. Develop posters and radio programmes in local languages	Kenya—2 short radio programmes to be prepared in Swahili and other local languages proposed but no follow-up Uganda— education drama under preparation Ethiopia—possibilities identified. Chair of Task Force interview on AHI's approach to tackling natural resources issues was aired on World Radio for Environment and Natural Resources.
8. Multimedia package (CD-ROM)	Under preparation

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### 4.2.4 LESSONS LEARNT AND ISSUES

- Participatory planning:** The members of the Information TAP interviewed reported that there was participatory planning by the members of TAP, with the some input from researchers.
- Communication difficulties:** Electronic mail connectivity can facilitate cost-effective communication and provide a forum to discuss specific issues of common interest among partners. Although email has been installed at some benchmark sites its use is constrained by poor telephone connections and restricted access when the facilities are set up in an individual's office.
- Growing demand for information:** The number of AHI collaborators is growing rapidly. Currently there are over 350 people receiving *AHI Update*, and the requests for it are increasing. Researchers who have used the database have realized the usefulness of the service, and the number of requests for SDI is increasing. IPM researchers are acquire most of their literature through existing networks. Most researchers have access to information in their professional discipline but very little on systems analysis and participatory research.
- AHI reports:** There is a growing body of knowledge produced by AHI researchers. The reports prepared are in the form of progress reports, literature review documents or working documents. AHI should explore the possibilities of publishing a series of working papers for distribution to AHI collaborators.

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<sup>7</sup> Pan African Development Information System of Economic Commission of Africa (PADIS/ECA) aims at developing email capabilities for the member countries of Intergovernmental Authority on Drought and Development (IGADD), Djibouti, Eritrea, Ethiopia, Kenya, Sudan and Uganda.



## 5. CROSS-CUTTING ISSUES

### 5.1 MANAGEMENT ISSUES

#### 5.1.1 ALLOCATION OF FUNDS

In addition to the issues of funding already addressed, the allocation of funds is also an issue. The current mechanism is to allocate funds to themes, which in turn allocate funds to regional or country activities (e.g. synthesizing studies) or research projects (often inter-institutional) at the benchmark sites. In order to improve and simplify financial management, the Task Force is encouraged to examine alternative allocation systems and determine the systems that best encourage the implementation of the project goals while at the same time simplifying financial procedures. The following suggestions can serve as guidelines:

1. Allocation by country which would then allocate by themes and sites, or by site, or combine the current system with additional allocation to the site for coordination and integrated research.
2. The budget should reflect the IARCs, country NARS, and site that end up utilizing the funds rather than just indicating that the money is earmarked for lead institutions. For example when a training budget is given to ICRAF, a casual analyst gets the impression that the money goes towards funding ICRAF activities, while in reality it is used by scientists from the participating NARS.
3. Contributions (human and financial resources) of all collaborating institutions towards AHI activities should be clearly identified. We get the impression that ICRAF and NARS are putting more into AHI than they get credit for.

The issue of attempting to standardize the varying financial systems at each benchmark site should be addressed but will need discussion at the Task Force, country and site levels. **The Review Team does not recommend any particular approach but encourages the Task Force to examine alternative allocation systems and determine the systems that best encourages the implementation of the project goals while at the same time simplifying financial procedures.**

#### 5.1.2 AHI ASSETS

The equipment purchased by AHI belongs to AHI for the duration of the project, and priority of use should be for AHI collaborative projects. **Rules and regulations governing the placement and use of AHI assets, particularly vehicles and computers, should be developed. The arrangements in Uganda are satisfactory for both AHI and NARO. This could be used as a model.**

#### 5.1.3 WORKING WITH PART-TIME RESEARCHERS

The Review Team noted the difficulties of working with part-time researchers and coordinators. This has led to delays in implementing project activities. Team building and implementation of team activities become a problem when different team members have different mandates, priorities, work plans, institutional loyalties and reporting requirements, and difficulties associated with demarcating roles are experienced. However, recruitment of full-time researchers for AHI lead initiatives may isolate NARS collaborators and AHI may lose its facilitatory role. The Review Team learnt that there is a high turnover of collaborators, irregular attendance of meetings and inadequate participation by national scientists. Madagascar has an added complication due to its long distance from the coordinating office, limitation of bilateral funding and poor communication. Some mechanism should be sought in to attract and retain researchers.

## 5.2 RESEARCH INTEGRATION

### 5.2.1 IMPROVING IPM AND MISP COLLABORATION

MISP and IPM TAPs were expected to develop joint work plans, particularly for activities aimed at integrating MISP and IPM. Minutes from both TAPs indicate that efforts were made to facilitate cross-links between the two themes. However, at site level, there was inadequate consultation between IPM and MISP researchers in diagnosis, proposal preparation and implementation of activities. This is attributed to (a) IPM activities started before MISP small grant projects; (b) IPM and MISP were not working at the same benchmark site (c) MISP and IPM researchers planned their work separately since MISP was mainly supporting ongoing and new complementary research, which did not have the pest complexes that IPM was addressing, (d) MISP was viewed as a service to IPM and hence the question of who was to pay arose for the soil fertility input into IPM.

As has been indicated previously, the current 'TAP down' priority setting approach and flow of funds make it very difficult to encourage close integration across themes. While this is made more difficult by the lack of site-level coordination, it is not clear if a site-level coordinator could make much difference without direct access to funds. **The Review Team suggests 2 possible approaches, which are not mutually exclusive: (1) closer integration of the TAPs so that inter-theme integration is solicited and funded, and (2) a separate direct flow of funds to the site for coordinated site-level research; this might also require some funding from AHI for the site coordinator.**

### 5.2.2 NATURAL RESOURCES MANAGEMENT AND SCALE

As indicated previously, there is a limited view of NRM within AHI. The Review Team was asked a number of times to explain what is meant by NRM. The elements that make up a view of NRM are that it involves a system view that tries to integrate how the various components interact, it requires the examination of various scales, there are both on-site and off-site issues, and, in the cases of forests, pastures and fishes, the resource is often a common not a private resource where access may be determined by laws or regulations, traditional use rights or proximity, and finally the management is not directed at the resource but at the people who use the resource so that community governance and institutions are often important components of the management structures.

The Review Team was concerned that in the initial implementation phase AHI has concentrated on a more conventional agricultural production focus of IPM and soil fertility. For example, all of the IPM and MISP research was focused at the plot scale. In addition, the training to date has been more focused on supporting this activity than assisting in capacity building in the broader NRM. The Review Team is aware that in order to initiate activities quickly it was necessary to utilize existing expertise and approaches, in addition, the research planning did focus on the soils question. **The need in the next phase is to start addressing a broader range of management questions related to improving productivity in a sustainable manner. As previously indicated the C&D programme will be essential in developing a broader focus. In order to promote a wider awareness and focus on NRM in AHI, the Task Force, TAPs and national and site teams should all be encouraged to ensure that NRM is the focus of the AHI activities. C&D and Training themes should assist this process at the site level.**

AHI has started addressing the scale issues as evidenced by the proposed watershed study in Embu, possible inclusion of Ginchi watershed studies, in Ethiopia, and the Ewaso Ngiro river basin studies of the Laikipia Research Programme, in Kenya. These efforts could form the basis for extending AHI projects from plot to watershed scales in the future. Such sites should, therefore, be used as learning sites, and new sites established after the teething problems have been solved and methodology perfected. The Embu site could also be used to undertake process research that can be used for

extrapolation of the research results to similar areas in the region<sup>8</sup>. This is a commendable effort and AHI should continue dialogue with potential collaborators in addressing watershed-scale issues. A committee could be set up to determine the way forward.

### 5.2.3 TAKING A BROADER LOOK AT THE FARMING SYSTEMS

It is hypothesized that continued emphasis on food production and on management and maintenance of soil fertility without use of chemical fertilizer will not result in sustainable farming systems. AHI should consider taking a broader look at the farming system and identify the role of high-value cash crops, chemical fertilizer and government policies (land tenure, prices, land subdivision, etc.) could play in improving production in a sustainable manner. Some of these ideas are incorporated in ongoing and future projects. The AHI Task Force and TAP members should determine how these issues could be adequately addressed.

### 5.2.4 NATIONAL VS. REGIONAL RESEARCH PRIORITIES

The Review Team detected some conflict between national and regional research priorities being implemented by AHI. The conflict seems to be highest in Ethiopia which ranks crop and livestock as of high priority and natural resources research as of medium priority. Within the natural resources area, soil science, irrigation, soil and water conservation research are ranked as of high priority and agroforestry as of medium priority (ASARECA, 1995). There are minor disagreements on priorities and benchmark sites partly due to the perception of AHI as a sub-component of the national programme. AHI's position is that local priority crops should be used in NRM research and IPM crops should be used only for pest studies where there is a particular need to study pest as part of a NRM site project. AHI is a regional programme and has to maintain the regional perspective and its components should be embedded into the national programme and not the other way round. AHI needs to identify the regional priority to address and then identify suitable sites in which to undertake the research. The selection process should be done in consultation with the potential collaborator. AHI and IAR have initiated dialogue to sought out their differences.

## 5.3 RESEARCH PARTNERSHIPS

### 5.3.1 AHI INTERFACE WITH NARS

AHI efforts to promote a more effective research partnership with NARS is constrained by:

1. Overall weakness of communication facilities. In some countries, even the telephone system is largely inefficient and the establishment of a regional communication network will not necessarily ensure communication when needed. This is particularly so in Madagascar.
2. Lack of proper allocation of research responsibilities among NARS and IARCs scientists participating in ecoregional research programmes. This is complicated by the fact that most AHI scientists are part-time contributors to AHI goals. IARC scientists are in most cases already committed to their institutional core programmes and NARS scientists may give more attention to their national programmes;
3. Poor working conditions (low salaries, lack of adequate research infrastructure, bureaucratic delays) for most NARS scientists;
4. AHI project work plans not being fully incorporated into NARS work plans, and NARS costs not being appropriately budgeted for. The Review Team noted that it takes 3-6 months from the draft proposal stage to commencement of work. This has led to delays in implementation of activities and in some cases activities are postponed to the following season. This is mainly attributed to

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<sup>8</sup> A eastern and Central Africa highlands GIS database query indicated that zones with growing conditions similar (within 10% temperature and 20% moisture) to Kianjiki catchment in Embu cover 108,000 km<sup>2</sup> and support 10.3 million people.

lack of detailed work plans that take into consideration the cropping calendar at each benchmark site and inadequate in-country coordination;

5. AHI research priorities may in some cases conflict with national priorities;
6. Perceptions of AHI as a donor or as an ICRAF or IARC programme; and
7. Different expectations by different actors.

Efforts should be made to ensure that there is no distinction between AHI and NARS centres research activities so that NARS scientists can devote more time to AHI projects (and incorporate them in their annual work plans), and appropriate national budgets are allocated to such collaborative research projects.

### **5.3.2 ICRAF'S RESEARCH PROGRAMME OR AHI PROJECTS**

AHI has 3 project categories (1) self-supporting projects (SSP)—research by other partners with no AHI funding (this would ensure that AHI research is building on ongoing research and avoid duplication of efforts and enhance technical exchange and scientific interaction), (2) partially funded support projects (PFSPs)—ongoing NARS and IARC projects with supplemental funding from AHI (3) fully funded support projects (FFSPs)—new projects with 100% AHI funding and developed through the AHI project development mechanism. In reporting on AHI projects it is important to indicate the project type. This will avoid creating the impression that ongoing ICRAF projects, such as AFRENA projects, are benefiting from AHI funds.

Some of the people interviewed expressed concern that many projects undertaken through AHI are too closely related to ICRAF's research to an extent that it creates an impression that AHI is just another avenue of raising funds for ICRAF's core programmes. The factors that contribute to this false impression are:

1. ASARECA requested ICRAF to implement the programme on their behalf and hence most decisions are made at ICRAF.
2. The Task Force and TAPs have a high representation of ICRAF scientists.
3. ICRAF is a lead institution in three components—diagnostic, resource inventory and training (after CIMMYT closed its training project at Egerton University)— and is a co-lead institution for Information and MISP themes. Thus, ICRAF plays a key role in the implementation of the five components and disburses funds to CIAT, IITA, CIP and CIMMYT for IPM activities.
4. The programme was conceived as one that would build on the ongoing activities and ICRAF had the best set-up upon which to start integrating natural resources management research. To take advantage of the existing research infrastructure, research partnership and baseline information, three sites where ICRAF was working were identified as AHI benchmark sites.
5. By selecting soils research as the priority issue, ICRAF had a comparative advantage, having worked for over 15 years on issues related to soil productivity improvement.

These issues can be addressed by some of the suggestions made earlier on ownership and accounting.

### **5.3.3 SYSTEMWIDE AND OTHER ECOREGIONAL PROGRAMMES**

AHI offers a structure and ecoregional base for other research themes of relevance to AHI's goals. In order to expand its geographic and research scope, AHI is initiating linkage with SWMN, SLI and NRM policy research. While SWMN links up well with MISP and Capacity Building themes, it is not clear how SLI and NRM policy research will link. This, together with the ongoing collaboration with CG commodity networks, will make AHI look like a coordinating mechanism for CG research in this region. Potential areas of conflict include:

1. Development of a common vision;
2. Additional demands on coordination;
3. Role of ASARECA in systemwide initiatives;

4. Global and regional research agenda-setting approach;
5. Balance between global, regional and national research priorities; and
6. Standardization of research methodology and data quality.

Suitable entry points of such projects should be sought to reduce the risk of promoting ICRAF–ILRI and ICRAF–IFPRI collaboration at the expense of collaboration with NARS. This could be done by ensuring that the AHI Task Force, TAPs and NARS collaborators participate in the development of future SLI and NRM policy research proposals.

#### **5.3.4 NGO, EXTENSION AND FARMER PARTICIPATION**

In addition to the participatory planning approach discussed earlier under governance, the initiative is also to encourage involvement of farmers in research activities. MISP is promoting farmer-managed trials in collaboration with CARE International, OMMN and the farmers in Maseno/Kakamega benchmark site. This is providing farmers with an opportunity to select the most appropriate intervention and will also lead to a more area-specific nutrient management strategy. The Review Team got the impression that some of farm-level research designs were too complex and the farmers may be unable to explain the differences observed in such complex experiments. It is the view of the Review Team that farmer research should be simplified so that it can be easily adopted by a wide range of farmers with minimal risk of misinterpretation of research findings. The Review Team was also pleased to see farmers and extension officers at the Kabale site in Uganda undertaking farmer-management trials. In both areas there were a range of on-farm experiments ranging from researcher-managed to full farmer-designed and farmer-managed trials. In Ethiopia it was not as clear how farmers will be involved in research. **It will be important to continue to encourage the research-extension-farmer feedback system and to document the process. The C&D theme may be able to play a role in this. The C&D TAP and the all site research teams should encourage the participation of farm households and the research-extension-farmer link, and should document the process.**

#### **5.3.5 ENHANCING INSTITUTIONAL COLLABORATION**

The rationale behind institutional collaboration is to enhance the effectiveness of research by capitalizing on opportunities of institutional complementarity and task specialization and to avoid duplication of efforts. Kenya and Uganda have fully embraced this concept, but Ethiopia seems to be reluctant to do so as evidenced in the participation during the country planning workshop and in follow-up research proposal preparation activities. The Review Team was informed that IAR is willing to involve other institutions to fill the gaps perceived by IAR. This approach is not satisfactory particularly where the comparative advantage of other institutions ~~may not be so evident~~ to IAR and where there may be some tension between the institutions. **AHI should continue facilitating the development of a common vision for Ethiopian collaborators and the clarification of duties and roles, particularly in governance, allocation of funds, research agenda setting and research planning, implementation, monitoring and evaluation. There has to be a clear division of responsibilities amongst the IARCs, NARS, NGOs, the private sector and farmers' organizations in order to harness institutional and individual complementarities.**

## 6. CONCLUSIONS AND RECOMMENDATIONS

### 6.1 OVERALL IMPRESSIONS

As noted in the project formulation document, AHI is a complex programme. It brings together many IARCs and NARS, researchers, NGOs, land users, extension officers and policy-makers with different priorities and perceptions. AHI has taken the challenge and within a short time has developed a working programme that has started bearing fruits in many ways. AHI has gained considerable experience on how:

1. partners (NARS, including universities; IARCs, NGOs, donors) can develop a common vision of what they want to achieve;
2. participation of all stakeholders including farmers in the planning and implementation process of the ecoregional collaborative research activities can be enhanced;
3. to develop a bottom-up process of identifying and implementing research programmes.

The programme framework was well formulated and has been revised regularly to take care of emerging issues. The Task Force and TAPs should be commended for making timely and wise decisions on how to move forward. The support provided by NARS and IARCs and individual collaborators is a testimony of their determination to ensure the success of the initiative. Minor disagreements have occurred and, in some cases, they have delayed the implementation of projects. The participatory approach to planning and dialogue between the coordinator and the collaborators has resulted in resolution of some of the disagreements. This is an indication that the governance, operational structure and implementation strategies are sound and any weaknesses identified are promptly addressed. The Review Team is convinced that the programme has taken off well and should be fully supported by donors and collaborators.

A lot of effort has gone into building the research partnership. This, together with delays in the recruitment of key programme personnel and collaborators, has constrained the achievements of the programme, particularly the Characterization and Diagnosis activities, which should form the basis for Phase 2 programme activities. In view of these delays, the Task Force and donors may consider extending the duration of the current establishment phase of the programme by one year. This will give AHI a chance to incorporate some of the ideas suggested in this review and also give them adequate time for proper consultations with current and future stakeholders on the details of Phase 2.

### 6.2 GOVERNANCE ISSUES

#### 6.2.1 OWNERSHIP

Some of the collaborators continue to perceive AHI as an ICRAF project. The Review Team proposes the following approaches to changing the perception on ownership, which would hopefully improve the participation in the planning and implementation of AHI projects:

Change the composition of the Task Force:

1. Drop representatives of IARCs that are not actively participating in the implementation;
2. Increase NARS representation possibly by having representation of deans of faculties of agriculture and of forest research organizations;
3. Decrease IARC and ICRAF representation;
4. Add natural resources management expertise; and
5. Add an NGO representative.

Changes in the membership of the TAPs

1. Encourage IARC/ NARS co-chairs;

2. Strengthen the regional C&D technical expertise on the C&D TAP;
3. Increase links between research theme TAPs;
4. Combine Information and Training TAPs into a single Capacity Building TAP; and
5. Increase NRM expertise on the Capacity Building TAP.

A flexible in-country organizational structure should be established consisting of at least a site coordinator with a site working group and a national coordinator/contact person and a national working group.

In order to address some of the issues on the relationships among the systemwide initiatives, ASARECA and AHI, the Task Force should initiate discussions with ASARECA and the CGIAR on the role of these initiatives.

ASARECA should play a more active role in promoting IARCs and NARS collaboration and in resolving some of the disputes that may arise from different perceptions of collaborators from participating institutions.

### 6.2.2 VISION AND STRATEGY

Although a common vision of AHI exists, there is no common understanding on how to integrate natural resources management issues. The coordinator should continue his current efforts to elicit a broader vision and also establish a forum for the coordinator and TAP leaders to discuss integration issues. In addition, the Task Force should explore ways to develop the broader NRM approach and vision.

### 6.2.3 COORDINATION

1. **Programme coordination:** The time and personnel available for coordination should be increased. In the short term, an assistant coordination should be employed; in the long term either a full-time coordinator should be made available or increased coordination responsibilities should be borne by TAP leaders.
2. **Country-level coordination:** Country-level coordination offers two main advantages. It can reduce the demands on AHI coordinator's time thereby giving him an opportunity to concentrate on more important issues such as refining the vision and strategies and fund raising. It can also be seen as an avenue for institutionalizing integrated natural resources management research into the NARS programmes and promoting institutional collaboration. AHI should undertake an assessment of the role of a national coordinating unit for each country and identify a suitable organizational structure and operating budget for it.
3. **Site-level coordination:** There is need to set up a strong site team that can solve most of their technical and logistic problems. Site coordination should also be allocated adequate funds for communication, travel and other allowances.

### 6.2.4 PLANNING RESEARCH AND CAPACITY-BUILDING PROGRAMMES

The initial planning and subsequent country planning workshops led to the evolution of an accepted research programme. There were, however, areas of disagreement that should be ironed out during the formulation of Phase 2 research programmes. The review team proposes that country planning workshops should be undertaken to solicit for ideas on activities for Phase 2. The workshop deliberations should benefit from priority setting made on the basis on C&D activities and ongoing research projects. C&D work should, therefore, be completed as quickly as possible.

Task Force and TAPs have played a key role in providing technical guidance to the programme. Their roles and composition should be reviewed at the beginning of the second phase.

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Benchmark sites are the field laboratory where AHI will have to prove its contribution to improving agricultural production and promoting sustainable natural resources management. Benchmark site activities should be properly planned, supported and evaluated regularly to ensure that they contribute to the overall goals of AHI in a cost-effective manner.

### **6.2.5 FINANCIAL MANAGEMENT**

The complex nature of AHI makes for very complex administration and flow of money. There are often multiple channels from AHI to the same institutions in one benchmark site. These complex flows also make it difficult to determine how much AHI is contributing to each NARS. The many different organizations including IARCs, NARS and NGOs each with their own financial regulations has introduced some friction between researchers working at the same site. The Task Force should put in place a simpler financial management system that takes into consideration the contribution and expenditure of collaborating institutions.

## **6.3 RESEARCH AND CAPACITY-BUILDING ISSUES**

### **6.3.1 FUTURE DIRECTIONS FOR C&D**

The C&D theme has formed site teams to collect and analyse site data for the purpose of identifying key constraints and opportunities. Technical support to the site teams needs to be intensified in order to ensure timely and quality data collection and analysis and appropriate priority setting for the next phase. The methodology used should be standardized so that there can be cross-site comparison. The issue of how the C&D teams will assist the RRFs and the small grant researchers should also be addressed at the TAP, country and site levels.

If GIS activities are carried out in the future, they should be adequately funded. Future GIS work should be demand driven, developed using a modular approach, and centred in leading institutions in each country. There are many institutions with some expertise in GIS but in general there is no institution with adequate capacity. Furthermore, natural resources productivity and degradation are influenced by climatic conditions, edaphic environment and human disturbances. GIS databases developed should, therefore, be able to integrate data from household to the region and assist in identifying the nature and extent of heterogeneity at various scales. The GIS data should also be used to assist in determining the representativeness of the existing benchmark sites and help identify the requirements for and location of new benchmark sites. The results of C&D work should form the basis for identifying Phase 2 programme activities. The C&D team should, therefore, be facilitated to ensure that this work is completed in time.

### **6.3.2 FUTURE DIRECTIONS FOR MISP**

The MISP TAP has a clearly identified set of goals that they are striving to attain. At their meetings they have identified the strategies to follow. The Review Team concurs with their approach and recommends that they continue working in the following directions that they have identified:

1. Small grants have played an important role in promoting inter-institutional and interdisciplinary analysis. They should, however, be phased out to give way to large grant proposals in the form of sub-theme activities. Part of the budget could be reserved for small grants projects aimed at promoting research integration and for broadening the scope of some specific issues so that they can be addressed more comprehensively.
2. Continue to play a catalytic role and building local and national capacity.
3. Continue expansion of MISP's scope by tapping additional resources from systemwide initiatives.
4. Improve on the coordination, monitoring and evaluation of site activities and synthesis and dissemination of research findings.
5. Address technical and policy issues related to in-country and ICRAF soil analysis.
6. Promote collaboration with other themes.



### **6.3.3 FUTURE DIRECTIONS FOR IPM**

The IPM theme is implementing research using regional research fellows (RRFs) who are linked to regional networks managed by four lead international centres, with each network implementing a regional small grants programme. This has been the most active research theme with activities starting well before the others. This however, has required a very large input of time from the TAP members and the networks in the start-up phase. TAP should ensure that RRFs work closely with MISP researchers by specifically allocating funds for joint research activities.

### **6.3.4 FUTURE DIRECTIONS FOR TRAINING**

Integration of natural resources management into the production system is a new area, and methodologies on how to capitalize on opportunities presented by collaborative research have not been fully developed and most researchers are not skilled in using available methodologies. Future AHI training activities should give special attention to:

1. Natural resources management (one course);
2. Understanding the systems, identifying the constraints and opportunities;
3. Methodologies of team building and participatory research;
4. Planning and implementation of on-farm farmer-managed and researcher-managed trials;
5. Integrating biophysical and socioeconomic data for problem analysis and searching for solutions;
6. Using GIS in natural resources management;
7. Influence of policy on natural resources management and agricultural production;
8. Proposal preparation, research methodologies, data analysis, interpretation and dissemination of research findings;
9. On-the-job training and study tours

There is need to conduct national and site-level training so that participants can have a hands-on experience, and to reduce travel and accommodation costs for participants and farmer researchers.

Local institutions (NARS, universities, colleges and farmer training centres) should be involved in the training exercises.

### **6.3.5 FUTURE DIRECTIONS OF THE INFORMATION THEME**

The main challenge of the Information theme is on how to make better use of the data being collected as part of the research projects. Synthesis of research findings has started with the soil work. Additional synthesis is required in order to produce information that can be used by farmers, extension officers and policy-makers. Should the Information theme gear itself for such a challenge? The Information TAP should address this issue.

## **6.4 FUTURE DIRECTIONS**

### **6.4.1 CAPACITY-BUILDING FOR NARS**

The AHI Conceptual Framework document identified possibilities for providing funds *to strengthen specific national research facilities essential for the execution of the programme and to ensure that the activities agreed upon are implemented according to the time schedules.*" (Wangati, 1994, p. 3). Research infrastructure (mainly soil analysis equipment and chemicals) is inadequate to support AHI research in some benchmark sites. What kind of assistance should such centres get? The Task Force should address this issue together with the proposal to transfer soil and plant for analysis to ICRAF laboratories.

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## 6.4.2 FUTURE EXPANSION

The core membership of ASARECA is made up of Burundi, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania, Uganda and Zaire. Phase I of AHI confined its activities to Ethiopia, Kenya, Uganda and Madagascar. The highlands of these countries are diverse but experience similar natural resources management problems and hence the need for an ecoregional research programme to focus on increasing agricultural production in a sustainable manner by integrating natural resources management in commodity research.

The Review Team was not able to explore the expansion issues in detail but has the following comments:

1. Consolidate and integrate at each existing benchmark site;
2. Expansion to new commodities, pests/diseases or subject areas should be done cautiously and based on the problems, priorities and entry points identified by C&D;
3. There may be the need for a new site in Uganda that is more representative of Uganda highlands conditions, but the Kabale site should be maintained because of its representativeness of Rwanda and Burundi conditions;
4. A mechanism will have to be found to improve communication and interaction with Madagascar
5. Country expansion—
  - Eritrea appears to be outside the rainfall/altitude parameters selected for AHI;
  - Rwanda, Burundi and possibly Zaire could be linked with Kabale and satellite experiments planned, but it would be difficult (securitywise and administratively) to establish full benchmark sites in these countries;
  - Tanzania appears the only possible site for expansion, and this could link with the Systemwide Livestock Initiative.

The expansion strategy should take into consideration that the Madagascar activities have not as yet taken off and that the AHI coordinator needs to spend a lot of time sorting out outstanding issues. The Review Team hopes that the country planning workshop will identify ways and means of overcoming the constraints in order to facilitate implementation of project activities. AHI and Madagascar collaborators should act quickly to translate the workshop conclusions and recommendations into a feasible work plan.

## 7. ANNEXES

### 7.1 REFERENCES

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## 7.2 REVIEW TEAM WORK SCHEDULE

Date	Time	Activity
21/4	15:00-16:30	Introductory meeting at Hilton Hotel
22/4	9:00-10:00	Introductory meeting (Director General and Deputy Director General, ICRAF)
	10:00-12:00	Introductory meeting (Task Force Member)
	12:00-13:00	Ransom, co-chair, MISP TAP and Ewell, co-chair, IPM TAP
	13:00-14:00	Lunch with Dr Louis Navarro, IDRC
	14:00-15:30	Mr. Hailu, coordinator, Information Programme
	15:30-17:00	Discussions with Dr Fitzhugh, DG-ILRI and J. Ndikumana at ILRI, Nairobi
23/4	09:00-10:30	Dr R. Kiome, AD, KARI and Task Force Member
	11:00-12:30	Dr D. Nyamai, Acting Director and Head of Agroforestry Research, KEFRI
	14:00-15:30	TSBF
	15:30-5:20	Embu, ICRAF/KARI team
24/4	09:00-11:00	Meeting at KEFRI/ICRAF/KARI Maseno Station
	11:00-4:30	Field Visits to Kakamega, OMMN site, AHI/KEFRI Legume screening site and ICRAF Improved fallow experiments
25/4	14:00-15:30	Meeting at ILRI, Addis Ababa
	16:00-17:00	Meeting at IAR, Addis Ababa
26/4	09:00-10:30	Discussions at IAR, Holetta Research Centre
	11:00-12:30	Visit to Ginchi watershed study site
	16:00-17:30	Discussions with Deputy General Manager, IAR
27/4	08:00-09:30	Meeting with Dr Esilaba, RRF Striga
		Travel to Uganda
	17:30-18:30	Meeting with Dr M. Kalunda, Deputy Director General, NARO
28/4		Synthesis of country experiences
29/4	09:00-10:30	Meeting with Executive Secretary, ASARECA
	11:00-13:00	Meeting with Deputy Director, NARO, Head of Monitoring and Evaluation and Head of Research Extension Linkage Unit
	14:00-17:00	Meeting with TAP members
30/4	08:00-12:00	Travel to Mbarara
	14:00-16:00	IPM Banana Weevils research
	16:00-18:30	Travel to Kabale
1/5	08:00-11:30	Discussions with RRF and Kabale Team
	11:45-13:45	Discussions with Kicumbi farmers
	14:15-19:30	Travel to Kampala
2/5	08:00-09:00	Discussions with Don Peden and team
	09:15-10:15	Travel to Entebbe
	10:20-13:15	Discussions with AHI group in Uganda
3/5	14:30-15:00	Discussion with Joy Tukahirwa
	14:30-15:00	Discussion with Bruno - Information
	15:10-16:20	Discussions with J. Corbett
3-11/5		Report writing

### 7.3 PEOPLE MET

No	Title	Name	Position	Organization	Country
1	Dr	Pedro Sanchez	Director General	ICRAF	Kenya
2	Mr.	Bruce Scott	Deputy Director General	ICRAF	Kenya
3	Dr	Roger Leakey	Director of Research	ICRAF	Kenya
4	Dr	Kwesi Atta-Krah	Coordinator, AHI	ICRAF	Kenya
5	Dr	John Lynam	Member, Task Force	Rockefeller Foundation	Kenya
6	Dr	Louis Navarro	Member, Task Force	IDRC	Kenya
7	Dr	Ransom	Co-Chair, MISP TAP	CIMMYT	Kenya
8	Dr	Peter Ewell	Co-Chair, IPM TAP	CIAT	Kenya
9	Dr	Hank Fitzhugh	Director General	ILRI	Kenya
10	Dr	Romano Kiome	Assistant Director, KARI and Task Force Member	KARI	Kenya
11	Dr	Daniel Nyamai	Senior Scientist, (Acting Director, KEFRI)	KEFRI	Kenya
12	Prof.	Mike Swift	Director	TSBF	Kenya
13	Dr	Cheryl Palm		TSBF	Kenya
14	Mr.	Michael Hailu	Coordinator, Information Programme	ICRAF	Kenya
15	Mr.	George Karanja	Agroforestry Project Manager?, Embu	KARI, Embu	Kenya
16	Dr	Macharia Gethi	Deputy Centre Director,	KARI, Embu	Kenya
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19	Mr.	John Osiem	Research Officer	KARI, Kakamega	Kenya
20	Mr.	R. M. Otsijula	Research Officer	KARI, Kakamega	Kenya
21	Mr.	Martins Odendo	Research Officer	KARI, Kakamega	Kenya
22	Mr.	James K. Ndufa	Research Officer	KEFRI-NARC, Maseno	Kenya
23	Ms	Agnes C. Yobterik	Director, KEFRI Maseno Research Station	KEFRI	Kenya
24	Mr.	S. Ajanga	Research Officer	KARI, Kakamega	Kenya
25	Dr	K. Otieno	Senior Research Officer	KARI, Kakamega	Kenya
26	Mr.	S. Gathumbi	Research Officer	KEFRI-NARC, Maseno	Kenya
27	Mr.	Patrick Nekesa	Field Liaison Officer	OMMN	Kenya
28	Dr	Amaduo Niang	Senior Scientist, ICRAF, Maseno	ICRAF	Kenya
29	Mr.	Joseph Agunda	Senior Technical Officer, Agroforestry extension	CARE -Kenya	
30	Mr.	M. Tall	Resident Director	ILRI	Ethiopia
31	Mr.	Ralph von Kaufmann	Director, External Relations	ILRI	Ethiopia
32	Dr	Michael Smalley	Programme Leader.	ILRI	Ethiopia

# **AHI MID-TERM REVIEW**

33 Dr	Simcon	Ehui	Strengthening NARS Programme Leader, Livestock Policy Analysis Programme	ILRI	Ethiopia
34 Dr	Jean	Ndikumana	AFRNET Coordinator and AHI Task Force Member	ILRI	Kenya
35 Dr	Mohammad	Jabbar	Agric. Economist	ILRI	Ethiopia
36 Mr.	Ato Abate	Tedla	Agronomist	ILRI	Ethiopia
37 Mr.	Ato Abiye	Astatke	Agricultural Engineer	ILRI	Ethiopia
38 Dr	Mohamed	Saleem	Team Leader, Highlands Research	ILRI	Ethiopia
39 Mr.	Rezene	Fessehaie	Centre Manager	IAR, Holleta Research Centre	Ethiopia
40 Dr	Asgelel	Dibabe	Head, IAR Vertisol Project	IAR, Holetta Research Centre	Ethiopia
41 Dr	Bereke Tsihai	Tuku	leader, Potato programme	IAR, Holetta Research Centre	Ethiopia
42 Dr	Zinash	Sileshi	Animal Nutritionist	IAR, Holetta Research Centre	Ethiopia
43 Mr.	Elias	Zerfu	Head, Research and Extension Division	IAR, Holetta Research Centre	Ethiopia
44 Dr	Getinet	Gebeyehu	Deputy General Manager	IAR	Ethiopia
45 Dr	Paulos	Dubale	MISP TAP member	IAR	Ethiopia
46 Dr	Asnakew	Wolde Ab	MISP Member	IAR	Ethiopia
47 Dr	Habtu	Assefa	Pathologist and IPM TAP member	IAR, Nazret Research Centre	Ethiopia
48 Dr	Roger	Kirkby	Coordinator, Pan-Africa	CIAT	Tanzania
49 Dr	M.	Kalunda	Deputy Director General	NARO	Uganda
50 Prof.	M. C.	Mrema	Executive Secretary	ASARECA	Uganda
51 Dr	Dan	Kisuzi	Head, Monitoring and Evaluation	NARO	Uganda
52 Ms	Ester	Lwanga	Head, NADIC and Member of Information TAP	NARO	Uganda
53 Mr.	F. A.	Ojacor	Head, Research and Extension Link Unit	NARO	Uganda
54 Dr	R. A.	Buruchara	Pathologist and IPM TAP member	CIAT	Uganda
55 Ms	Soniia	David	Sociologist and C&D TAP member	CIAT	Uganda
56 Dr	Cliff	Gold	Entomologist and IPM TAP member	IITA	Uganda
57 Dr	Dick	Vuylsteke	Team leader, IITA-ESARC and Task Force Member	IITA	Uganda
58 Dr	Henry	Ssali	Soil Scientist, Member MISP TAP	NARO	Uganda
59 Dr	P.	Tukamuhabwa	Plant Breeder	NARO	Uganda
60 Dr	E. B.	Karamura	Banana Programme	NARO	Uganda
61 Dr	Suleman	Okech	IPM-Regional Research Fellow	AHI	Uganda
62 Dr	Berga	Lemaga	IPM-Regional Research Fellow/Potato	AHI/CIP	Uganda

# AHI MID-TERM REVIEW

63 Mr.	Mwebesa	Beda	Farmer Research Officer	CARE Int. Kabale	Uganda
64 Mr.	Francis O.	Alacho	Research Officer	NARO	Uganda
65 Mr.	Wilson	Bamwerinde	Research Assistant	NARO	Uganda
66 Mr.	Rogers	Kakuhenzire	Research Assistant	NARO	Uganda
67 Mr.	Sunday	Mutabazi	DAO	MAAIF	Uganda
68 Ms	Vannessa	Bainbridge	CARE-DIC	CARE Int. Kabale	Uganda
69 Mr.	Rogers C.	Kanzikwera	Research Officer/Potatoes	NARO	Uganda
70 Dr	John	Aluma	Director, Forest Research Institute	NARO	Uganda
71 Dr	Keith	Shepherd	Co-Chair MISP TAP	ICRAF	Kenya
72 Ir.	Bruno	Cammaert	Member, Information TAP	ICRAF	Kenya
73 Mr.	Stephen	Nandwa	Coordinator, NUTMON project	KARI	Kenya
74 Dr	Don	Peden	Senior Scientist - Kabale AF Project	ICRAF	Kenya
75 Ms	Dorthie	Larsen	Research Associate	ICRAF/FORI	Uganda
76 Dr	Uttah?		GIS-Kampala - Formerly with Makerere University		



## 7.4 COLLABORATIVE RESEARCH PROJECTS

### 7.4.1 SMALL GRANTS COLLABORATIVE RESEARCH PROJECTS—MISP THEME

Table 1. Collaborative research projects approved under the MISP theme, Maseno

Research Theme	Collaborators
Literature review of legumes use for soil productivity improvement.	KARI, University of Nairobi
1. Inventory of legume germplasm	IPGRI
2. Screening legumes for low P and root rot tolerance	KARI, ICRAF, KEFRI
3. Effect of legume intercropping on soil productivity	University of Nairobi
4. Screening of species for short-duration improved fallow	ICRAF, KEFRI, KARI, OMMN, KWAP
5. Screening of species for fodder/improved fallow	KEFRI, KARI, ICRAF
6. On-farm testing of organic P interactions	OMMN, KARI, ICRAF, KWAP, TSBF
7. Organic resource inventory and characterization	TSBF, CARE, OMMN, KWAP, KARI, ICRAF, ICIPE
8. Effect of feeding regimes on milk and manure production and quality	KARI, ICRAF, ILRI, OMMN, OFPEP, MALDM
9. Dissemination approaches workshop	KWAP, other NGOs and research institutions

Table 2. Collaborative research projects approved under the MISP theme, Embu

Research Theme	Collaborators
1. On-farm assessment of soil and water conservation interventions for the East Africa highlands	KARI, KEFRI, ICRAF, Soil and Water Conservation Branch, MoA
2. Simultaneous use of indigenous multipurpose trees and shrubs for soil and water conservation, fodder production and soil fertility enhancement	KARI, ICRAF, KEFRI, KENGO
3. The role of leguminous fodder trees in the improvement and maintenance of soil fertility and productivity in the humid Andisols of tea-dairy zone of central Kenya	ICRAF, KARI, KEFRI
4. Adaptation of climbing beans to high altitude, high rainfall highlands of eastern and central Kenya	UKARI, ICRAF, University of Nairobi
5. The use of nitrogen-fixing legumes in a maize-based cropping system for partial or full substitution of inorganic sources of nitrogen and phosphorus	KARI, CIMMYT

Table 3. Collaborative research projects approved under the MISP theme, Kabale

Research Theme	Collaborators
1. Major crop nutrient deficiency characterization in the Katuna watershed	FORI/NARO, Makerere University, ICRAF
2. Improved fallows of <i>Tephrosia vogelii</i> and <i>Sesbania sesban</i> as a means of improving soil fertility	CARE, ICRAF/FORI
3. Farmer-to-farmer transfer of climbing bean technology	NARO, UNFA, FORI, CIAT
4. Nutrient dynamics in climbing bean production and implications for long-term maintenance and improvement of soil productivity	CIAT, NARO
5. On-farm evaluation of effectiveness of managed tree fallows and hedgerows to improve soil productivity in sorghum-bean systems	FORI/ICRAF, UNFA, NARO, CIAT, Two-Wings AF Network
6. Agroforestry and climbing bean technology transfer using drama groups (Funding dependent on obtaining core funds from elsewhere)	ICRAF, CIAT, NARO

Table 4. Research themes identified for further development of proposals in Ethiopia and potential collaborators

Research theme	Collaborators
1. Exploiting synergisms from combination of inorganic and organic sources of nutrients to increase nutrient use efficiencies	IAR, AUA, MoA
2. Maximizing nitrogen inputs through the use of BNF-efficient legumes in crop/ livestock systems	IAR, ILRI, FRC, MoA-NSSP, AUA
3. Review of literature on soil erosion: causes, technologies for control, and constraints to adoption of these technologies	IAR, MoA/SCRIP, ILRI, FRC, AUA
4. Optimizing livestock production through improved feed and management strategies with special reference to the impact on soil productivity in the system	IAR, ILRI
5. Monitoring nutrient losses and inputs with models	IAR, MoA, Mekele University, ICRAF
6. Development of improved cropping systems through diversification of crops, trees and/or varieties adapted to Vertisol regions	IAR, AUA, ICRAF, FRC
7. Optimizing the economic use of manure and crop residues to maintain soil fertility	IAR, FRC, AUA

## 7.4.2 SMALL GRANTS COLLABORATIVE RESEARCH PROJECTS—IPM THEME

Research project	Collaborators	Amount (USD)
Bean varietal tolerance to beanfly as it relates to soil fertility	A. Kamau, F. Palmer and M. Gethi. (Kenya – CMRT and KARI, Embu station).	3,700
Integrated control of bean root rot and stem maggot in western Kenya	R. Otsyula et al. (Kenya – Kakamega station).	3,500
Investigation into soil fertility, bean stem maggot and root rot interactions in haricot bean	Tsedeke Abate, Habtu Assefa and Kelsa Kena. (Ethiopia – IAR, Nazret and Awassa stations).	2,800
Management of root rots and bean stem maggot using cultural practices and organic amendments in south- western Uganda	F. Opio, S. Kyamanywa and V. Ochwoh. (Uganda – NARO, Namulonge Station and Makerere University).	4,000
Development of effective methods for controlling bacterial wilt of potato	Bekele Kassa et al. (Ethiopia – IAR, Holetta Station).	3,200
Management of bacterial wilt ( <i>Pseudomonas solanacearum</i> ) in potato production in Kenya	D.N Njenga et al. (Kenya – KARI Tigoni Station and the National Agricultural Research Labs).	3,000
Interaction between nematodes and bacterial wilt ( <i>Pseudomonas solanacearum</i> ) on some potato cultivars in Uganda.	R.M. Kakuhenzire et. al. (Uganda – NARO Kalengyere Station and Makerere University)	3,800
The effect of genotypes, seed quality, and soil fertility on the incidence of bacterial wilt of potatoes.	F.O. Alacho et al. (Uganda – NARO Kalengyere Station).	\$4,000
Development of <i>Striga hermonthica</i> management technology through the use of trap crops in a cereal-based system.	E.S. Ariga, G.D. Odhiambo, G. Abayo, and D. Ndungu. (Kenya – KARI Kibos Station, University of Nairobi)	2,000
Effect of green manuring and tie-ridging on the growth of maize under <i>Striga</i> infestation."	Fassil Reda and Gebremedhin Woldewahid. (Ethiopia – IAR Nazret Station).	8,000
Organic inputs as alternatives to improved fallow management to control <i>Striga</i> and improve soil fertility	G.G. Odhiambo and G. Abayo. (Kenya – KARI Kibos Station).	\$2,000