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# **A Report on the Evaluation of Phase II of the African Highlands Initiative**

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## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY.....</b>	<b>1</b>
<b>1. INTRODUCTION.....</b>	<b>6</b>
1.1 BACKGROUND.....	6
1.2 THIS REVIEW IN THE HISTORY OF AHI.....	6
1.3 THE EVALUATION METHOD.....	6
<b>2. AHI PHASE II.....</b>	<b>7</b>
2.1 GOAL AND OBJECTIVES.....	7
2.2 CONFUSION ON GOALS.....	8
2.3 THE WORKPLAN AND FUNDING LIMITATIONS.....	9
2.4 INTEGRATED NATURAL RESOURCE MANAGEMENT (INRM).....	9
<b>3. ACHIEVEMENTS AND IMPACTS.....</b>	<b>11</b>
3.1 INTRODUCTION.....	11
3.2 ACHIEVEMENTS IN METHODOLOGY DEVELOPMENT AND CAPACITY BUILDING.....	11
3.3 IMPACTS AT DIFFERENT LEVELS.....	13
3.4 OVERALL ASSESSMENT OF ANTICIPATED OUTPUTS AND BENEFITS.....	14
<b>4. PROCESSES AND MECHANISMS.....</b>	<b>17</b>
4.1 INTRODUCTION.....	17
4.2 PLANNING PROCESS FOR PHASE II.....	18
4.3 RESEARCH APPROACH.....	18
4.4 CAPACITY BUILDING.....	21
4.5 NETWORKING & DISSEMINATION.....	23
4.6 COORDINATION; SITE, NATIONAL AND REGIONAL.....	24
4.7 GOVERNANCE MECHANISMS.....	25
4.8 FINANCIAL MANAGEMENT AND ADMINISTRATION.....	26
<b>5. OVERARCHING ISSUES.....</b>	<b>27</b>
5.1 SCALING UP - BOUNDARIES FOR AHI.....	27
5.2 BENCHMARK SITE COVERAGE OF ASARECA COUNTRIES.....	27
5.3 AHI AS A CGIAR ECOREGIONAL INITIATIVE AND AN ASARECA NRM NETWORK.....	28
5.4 COMMITMENT AMONG THE IARCS AND NARIS.....	29
<b>6. PROPOSALS.....</b>	<b>31</b>
6.1 THE NEED FOR INTEGRATION.....	31
6.2 PROMOTING CLARITY OF PURPOSE.....	32
6.3 PROMOTING FOCUS: SEQUENCING STAGES OF RESEARCH ON INTEGRATIVE PROCESSES.....	33
6.4 A REVISED MODUS OPERANDI FOR AHI.....	34
6.5 THE BALANCE BETWEEN RESEARCH AND NETWORKING.....	36
6.6 INCREASING TECHNICAL SUPPORT AT ROR SITES.....	37
6.7 SUGGESTIONS FOR THE RESEARCH APPROACH.....	38
6.8 A CAPACITY BUILDING STRATEGY.....	41
6.9 THE PROMOTION OF AHI AND THE DISSEMINATION OF INFORMATION.....	44
6.10 CHANGES IN GOVERNANCE AND COORDINATION.....	45
<b>7. OVERALL ASSESSMENT AND INTO THE FUTURE.....</b>	<b>46</b>
<b>ANNEXES 1-5.....</b>	<b>48</b>

# EXECUTIVE SUMMARY

## THE REVIEW TEAM EVALUATION OF PHASE II OF AHI

### 1. Overall Assessment

Integrated Natural Resource Management remains an elusive concept, its meaning is still evolving. Most importantly, the processes for carrying out INRM are largely at the exploratory stage, there are no well developed models to implement. Not surprisingly, AHI researchers are still grappling with exactly how they will test and develop methods that will help them realize INRM goals. This is AHI's primary purpose; through research, to identify, prove, document and disseminate processes and methods which contribute to integrated natural resource management. It's added value is the focus on identifying the processes needed to integrate disciplinary perspectives and technological components to enhance uptake, particularly of the more complex NRM technologies, by farmers at the field level, communities at the landscape level, and policy makers at local and national levels. Achieving this added value demands new mindsets and new skills, particularly in those scientists employed by institutions organised in the classic tradition of commodity and disciplinary based research. It is a formidable, time-consuming re-education.

The Review Team were impressed by the skills demonstrated by the on-site teams, a tribute to the capacity building efforts through AHI in Phase II. The Programme has made a good start in methodology testing through the application of the Participatory Agro-ecological Management Programme [PAM]. There is general awareness amongst site teams of concepts such as Integrated Natural Resource Management, agro-ecosystems and participation etc. Researchers continue to struggle with issues that are new to them, such as the trade off between scientific rigour and participation, the linking of research and development, and the definition of roles. These issues are not unique to AHI, indeed, they are the **reason for** the ecoregional partnerships established between IARCs, NARIs, and other institutions, in Africa, Asia and Latin America in the mid 1990s.

Developing a set of processes to achieve INRM, and building capacity to implement these, is a major undertaking. In their original eco-regional proposals in 1992 the CGIAR gave it a 15-20 year time horizon. With the first efforts on the ground in 1995 the Review Team believes a fifteen year period, to 2010, remains realistic. Stakeholders should be urged to take a similar long-term view of the programme. The vision at the end of AHI's rainbow needs to be clear to all stakeholders, yet the programme itself needs the flexibility to learn by doing. The experiences of both Phase I and Phase II have brought progress along this learning curve. Overall the Team feel there has been good progress, particularly since the inception of Phase II and the appointment of a full-time Coordinator, and this justifies a Phase III.

### 2. Concerns Identified

The Review Team identified three main concerns and the key recommendations in the report address these:

- The dilution of technical support and capacity building caused by the large number of sites retained in relation to the resources made available.
- Continuing differences of opinion on the primary purpose of AHI.
- The gap between the enthusiasm of researchers at the sites, and the wavering commitment of some senior managers in both NARIs and IARCs.

The funding realised for Phase II was less than half the level anticipated by the Work plan and Budget and, although priorities were reset by AHI's governing body, the same number of sites were retained. Eight sites could not be properly supported with the resources made available for Phase II. Beyond this the Review Team recognised a continuing confusion among senior managers of both NARIs and IARCs about the purpose of AHI. The Team conclude that this undercuts the commitment vital to a sustained and effective effort to identify an INRM research process. Without commitment and enthusiasm among top managers they will be unwilling to commit good staff and to embrace AHI activities in performance reviews. Good scientists will shy away if AHI does not offer the prospect of professional advancement within their parent institutions, be these NARIs or IARCs. Further, the perception that some IARCs are distancing themselves from AHI, reducing technical support, jeopardises the emphasis (recently reasserted) on inter-centre collaboration, an important dimension of the CGIAR's purpose in initiating ecoregional programmes.

Beyond these major concerns the Review Team identified two technical areas needing attention.

- First, the lack of a typology: Programme outputs need to be related to the 'market' they can satisfy to better judge the cost-effectiveness of the site research efforts, and to provide an ex ante measure of the potential of outputs when diffused across that market. This requires an output related typology. To date one is not available, despite AHI inputs into GIS work.
- Second, difficulties in reconciling precision and relevance: Much of the uncertainty facing AHI research teams in the development of integrated processes stems from the difficulties of integrating quantitative biophysical and qualitative socio-economic characteristics of an agro-ecosystem. Farmers' enthusiasms, perceptions and responses to introduced technology, properly recorded and presented, are as important to integration as statistically analyzed yield data.

## **THE REVIEW TEAM PROPOSALS TO IMPROVE AHI**

### **3. The Concentration of Technical Support; a Revised Modus Operandi.**

The Team recommend that three types of sites are recognised; First, National Pilot Sites [NPS], where countries, supported by AHI, build up capacity in the processes, methods and skills required for INRM. Second, 'Research on Research' Sites [RORS] where AHI tries out alternative processes and methods, and the most effective are networked for verification at NP Sites. Third, over time, within each partner country, validated processes and methods from NPS are disseminated to other National Sites [NS], in those agro-ecologies where natural resource degradation is designated a national priority problem.

To correct the current dilution in technical support and ensure quality in process and method identification, and in the capacities built, the Review Team recommends only three RORS across the ASARECA region. AHI will network best processes and methods identified at these three sites to NP Sites, and support training there.

### **4. The Clarification of Purpose and Scope.**

It is the hope of the Review Team that clarification of purpose will remove confusion and improve commitment among senior managers;

- The purpose of programme is to LEARN HOW TO achieve INRM, it is research on research processes and methods, on research partnerships, and on research to development, partnerships.
- The PRIMARY outputs, from 'ROR' Sites are processes, methods and new mindsets and skills in national scientists which contribute to INRM. These are true public goods, globally relevant and transferable from the site, not only across the highlands, but also across a wide range of agro-ecologies. Their effectiveness is validated at NP sites.
- There are two main SECONDARY outputs from 'ROR' sites, which are the PRIMARY outputs at National sites, once processes and methods are validated at the National Pilot sites;
  - NRM and productivity enhancing technologies appropriate for all communities operating the farming system in which the sites are located. Adoption of these technologies by these local farmers is also concrete evidence of the effectiveness of the processes, methods and skills used identifying them.
  - Technical practices (not yet technologies), relevant to the wider agro-ecology, but needing evaluation by farmers in partnership with researchers, in different social and economic circumstances from those operating the farming system at the pilot site.

The Review Team also acknowledge the huge challenge presented by the very broad scope of activities embraced by fully integrated NRM: From plot soil analyses and local variety selection to credit, marketing, and land use policy, perhaps even at the national level. This diversity includes activities well beyond the current capabilities of AHI, and repeatedly prompts calls for focus from senior managers. In a further effort to stimulate greater commitment, the Review Team has divided processes into 4 stages, each representing a set of new skills and a further step towards fully integrated NRM. The four stages offer a sequencing of the processes, methods and skills required, and therefore the sequencing of capacity building:

1. Processes and partnerships at the researcher/farmer interface to enable technology choice, adaptation, and farmer adoption. These include the blending of the skills and knowledge of a range of disciplines to provide an integrated solution to a common problem.
2. Processes and partnerships for the dissemination and diffusion of proven technologies from the pilot sites to the farming systems these represent, and of proven technical principles to the agroecology which the pilot sites represent.
3. Processes and partnerships at the researcher/community interface which facilitate community decisions and action at the watershed level. At this more aggregated watershed scale new disciplines and skills are required.
4. Processes for forming partnerships with local and national institutions which have a mandate for policy formulation, credit administration, input supply, market analysis and infrastructure development.

The Review Team sees stage 1 as a prerequisite to stages 2, 3 and 4, and concludes that AHI has, appropriately, worked hard to build capacity in stage 1 processes during Phase II.

## **5. The Balance between Research and Networking.**

The primary outputs of AHI, the processes methods and skills developed at the ROR Sites, are disseminated in a networking mode to NP Sites throughout the ASARECA region. The number of countries with NPS, and the number of NS within a country will be a reflection of the urgency each NARI places on putting an INRM process into action in agro-ecologies where natural resource management is a priority problem for them. The ROR and the NP Sites will receive AHI support in building the skills required to apply NRM processes. The team believes that this balance of a research led network is particularly suitable to ASARECA's mandate to improve the efficiency in the use of limited research resources across the region

## **6. Concentration of Technical Support and a Reorientation of the Role of RRFs.**

The Review Team has identified three sources of increased technical support to both ROR and NP sites. First, the addition of a Technical Adviser to the Coordination Team. Second, it is the hope of the Team that the focus on only three ROR sites, with relatively low logistical costs, will attract greater technical support from those IARCs with programmes relevant to the three chosen sites. Third, the Team recommend that the role of the RRFs be fully re-oriented to the implementation of the site based programmes.

With some exceptions the Review Team feel that while the concept of Regional Research Fellows has contributed to the progress made in AHI, the regional dimension of the original role conceived for them has had limited success. The revised modus operandi brings a change of role for RRFs focusing them on programme implementation to provide fuller documentation of processes and better dissemination to the NP sites. Four functions are identified for the RRFs:

- Provide technical support at ROR sites.
- Aid in the documentation and dissemination of outputs from the ROR sites.
- Aid capacity building at NP sites.
- Monitor relevant projects outside AHI.

The fourth function will include monitoring projects, both within the region and globally, engaged in developing processes relevant to the increasingly complex stages of the AHI mandate. It will also include monitoring the ASARECA commodity networks to draw new materials and techniques into the ROR and NP Sites.

## **7. Other Areas for Recommendations**

The Review Team is convinced that governance of AHI has improved substantially over Phase I. The TSG has been a particularly effective body. The effectiveness of the RSC, as an intermediary group between the TSG and the ASARECA CD is less clear. To remove a level of bureaucracy and to reduce overhead and transaction costs, it is recommended that the current Technical Support Group should take the place of the Regional Steering Committee and be renamed as that Committee. At the same time it is recommended that the post of national coordinator, and the national coordination committee, be abolished.

A number of suggestions for greater rigour in the research approach followed, including the need for a typology, and for better reconciliation of quantitative and qualitative information, are also included.

Finally, AHI must be able to effectively communicate its products to scientists in the field, to senior level decision makers in the NARIs and IARCs, and to donors. Each of these groups requires a somewhat different product to allow it to judge whether the project is useful and, if it is, to be able to communicate the significance of the product to wider audiences. Given the programme addresses the difficult concepts of INRM, their work needs to be not only clearly presented but also promoted in a variety of ways to interest and educate the range of stakeholders involved.

### **8. The Transition to Phase III**

Changing the modus operandi of AHI needs sensitivity. There needs to be a period of adjustment. The transition in the roles of sites in the ROR and NP categories should not interrupt the work planned for the coming season, there has been too much investment in capacity building to throw plans into confusion. Anyway the immediate priority for Phase III will be continued capacity building in stage 1 processes at both RORS and NPS, though the transition to new roles should be complete by the end of 2001.

Those RRFs pursuing valuable regional research programmes should complete their current assignments, those who fit the profiles required for the new RRF roles can be retained, others will move on. Those sites already showing farmer adoption are ready to move into stage 2 of process development, promoting and monitoring alternative ways for the diffusion of innovations. By the end of Phase III it is anticipated that all ROR and the best NP Sites will be widening out to Stage III, the broader challenge of community organisation and watershed management.

# **1. INTRODUCTION.**

## **1.1 Background.**

The African Highlands Initiative [AHI] was agreed upon by National Agricultural Research Institutions [NARIs] and International Agricultural Research Centres [IARCs], concerned that technologies developed to manage natural resources in highland areas were not finding a place in farmers' fields. AHI was conceived as a NARI/IARC collaborative programme on the sustainable improvement of productivity – a marriage of better livelihoods for farmers and the need to sustain, indeed improve, the resource base in the highland areas of East and Central Africa.

Discussions between NARIs and IARCs working in the region commenced in 1992, in parallel with the UN meeting on the environment in Rio. AHI came to implementation in 1995 under two umbrellas: The eco-regional initiative of the CGIAR – responding to the increased international awareness of environmental issues stemming from the Brundtland report [1987], and ASARECA, formed in 1994, as a regional coordinating mechanism for agricultural research in Eastern and Central Africa.

## **1.2 This Review In The History Of AHI**

Phase I of AHI was originally planned as a two-year start up phase for 1995 and 1996, a year was added and it covered the period 1995-97. Much of this time was used in forming and strengthening partnerships across a wide variety of stakeholders. Phase I employed a small grants approach for the pursuit of activities under two heads; Integrated Pest Management [IPM], on pests and diseases encouraged by soil nutrient depletion and by agricultural intensification, and the Maintenance and Improvement of Soil Productivity [MISP].

At the behest of the International Centre for Research in Agro-forestry [ICRAF] an evaluation was initiated, sixteen months after start up, in 1996 [MacKay and Gichuki, May 1996]. The changes in direction initiated by the 1996 Review, elaborated by an added effort on characterisation and diagnosis, and by the appointment, in 1998, of a full-time coordinator, were dramatic. Essentially AHI changed from a theme based to a site based programme in Phase II which began in 1998. It was a change that precipitated a second tranche of transaction costs<sup>1</sup> as partnerships re-negotiated a new modus operandi and their respective roles within it. Further transaction costs were incurred in Phase II in expanding country coverage to one site in Tanzania. This increase was paralleled by a reduction from three to two sites in Madagascar to give a total of eight operational sites in five countries for Phase II. The AHI Work-plan calls for the evaluation of Phase II in 2000, this Review Report presents that evaluation. It includes evaluation of the planning process for Phase II, beginning with the findings of the 1996 Review. It also includes recommendations for Phase III of the initiative. The Terms of Reference [TOR] for this Review are included as Annex 1.

## **1.3 The Evaluation Method.**

The TORs [Annex 1] include requirements for the conduct of the Review, these are: To interview as large a number of AHI stakeholders and researchers as possible. To visit at least 5

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<sup>1</sup> The Review Team would like to highlight the fact that transaction costs are not negative, they are essentially an investment. The question is always whether the returns to be gained justify the level of investment made. Given the complexity of the AHI purpose, the answer will only be seen in the long-term.

benchmark sites in different countries, 3 of which have been in both Phase I and Phase II, the visits and interviews to occupy a two week period; To submit a draft report at the end of the third week to ASARECA, ICRAF, and to donors.

The body of the report, after this introduction, is in the following sequence: Section 2 looks at the Workplan and Budget for Phase II, and sets out upfront, as context for reading the report, the Review Team's conclusion on the primary purpose of AHI, and its perception of Integrated Natural Resource Management [INRM]. Section 3 evaluates AHI performance against indicators provided by the Phase II Workplan and Budget, and section 4 examines the mechanisms underpinning the Phase II programme. Section 5 examines four overriding issues, two explicit in our Terms of Reference, two others emerging from our interviews with stakeholders. Section 6 sets out the Review Team's proposals for AHI in Phase III. The final section 7 offers an overall assessment of AHI as it concludes Phase II, and takes a brief look into the future of the programme.

## **2. AHI PHASE II**

### **2.1 Goal and Objectives.**

The goal, purpose and objectives of AHI Phase II are set out in the Work Plan written in 1997 and are quoted below:

#### **'Goal**

To improve both the nutritional security and income of agricultural communities, through the maintenance of a sustainable resource base in the intensively cultivated highlands in eastern Africa.

#### **Purpose**

Agricultural productivity will be improved in a sustainable manner through inter-institutional efforts in research and development by focusing on critical issues of natural resource management related to soil productivity and land-use efficiency in selected locations in the highlands of eastern Africa.

#### **Project objectives**

1. Undertake R&D activities to improve agro-ecosystem and natural resource management by addressing the multiple goals of farmers and communities.
2. Strengthen approaches and develop methodologies to improve the effectiveness of R&D at benchmark and regional levels.
3. Collect, organize and disseminate information, methodology and technology among partners.
4. Build the national institutional capacity to increase awareness and expertise to address NRM issues.
5. Mobilize and strengthen partnerships and links between institutions to more efficiently address agro-ecosystem and NRM issues.

Objective 1 is considered the **core** objective and objectives 2-5 the **supportive** objectives'.

[AHI, Phase II, Work Plan & Budget, 1998-2000. October 1997]

### **2.2 Confusion on the Purpose of AHI.**

While the Review Team acknowledges that the change from a theme based programme in Phase I, to a site based programme in Phase II, was a major and appropriate change of direction, the primacy of what we term AHI'S 'research on research' role is not captured in the statement of goal and objectives in the Phase II Work-plan quoted above. Indeed, the process and methods

element is relegated to a ‘supportive objective’. This may have contributed to some confusion among managers as to AHI’s purpose.

The minutes of the meetings of the ASARECA Committee of National Directors, and those of the Regional Steering Committee, as well as interviews of the Review Team members with senior managers, in both the NARI’s and in ICRAF, all reveal a continuing confusion on the purpose and objectives of AHI. These uncertainties as to purpose are greatly exacerbated by the wide scope of activities embraced by AHI, from soil analysis in farmers’ fields to crop marketing and national land use policy. The Review Team have felt it important to address this confusion early in the report because we believe it to be central in explaining criticisms of AHI found among some senior managers, of a continuing lack of focus in the programme. It is also important to address it early because our conclusions on purpose and objectives provide the perspective in which much of the report is written.

The concepts embraced by AHI had their origin in the eco-regional initiative developed through the Technical Advisory Committee of the CGIAR around 1991. This initiative responded to concerns, increasingly expressed at national and international levels, about resource degradation.

‘The global community does not yet have an effective paradigm for the sustainable improvement of productivity. Identifying such a paradigm and making it operational is an urgent goal of truly international relevance and significance’

[A Review of CGIAR Priorities and Strategies, April 1992. AGR/TAC:IAR/92/18.1 pp 175].

The clear emphasis, endorsed by the CGIAR, donor and national members alike, was the search for a paradigm – how to do integrated natural resource management. This year, in February, the ASARECA Committee of Directors as a group endorsed the role of AHI as research on the processes and methods of a paradigm to make INRM operational.

‘It is important, in the CD’s view, that AHI is seen more of a mechanism for developing a new model for integrated approaches in NRM research rather than yet another programme for the generation of technologies’

[Development of the Elements of a Strategy for Research on Natural Resource Management in Eastern and Central Africa under the Auspices of ASARECA. Summary of the deliberations of the 13<sup>th</sup> Meeting of the Committee of Directors of ASARECA. Nairobi, Kenya, February 2000]

The Review Team strongly reinforces this consistent view of the role of AHI. Its primary purpose is, through research, to identify, prove, document and disseminate processes that contribute to an understanding of ‘how to do’ integrated natural resource management. It is a role best described as ‘research on research’, and proven processes, its primary outputs, are best described as intermediate products, widely relevant and readily transferable public goods.

The effective application of these at local sites provides final products; wider farmer adoption of improved NRM practices. These final products are only relevant locally, to the farmers and communities operating the system which farmers in the site represent. The Report addresses these issues in more detail in sections 6.2 and 6.3 below.

Further, there has been constant discussion, in both TSG and RSC meetings, whether AHI is a programme or network. The Review Team concludes it to be a programme with a strong networking role. Because of the preoccupation with establishing the new research direction and site teams, identifying processes for test, and building site team capacity to use these processes in Phase II, there has been little to network to date. Phase III should see this role come into its own. The Team's conclusions on this are set out greater detail in section 6.5.

### 2.3 The Phase II Work-plan and Funding Limitations

The Work-plan set out in detail the strategies to achieve these objectives, and the modes of operation by which these strategies would be pursued; by partnerships across institutions working at the site and regional levels, and an ambitious list of projected outputs. The Work-plan called for a budget of US\$ 8.4 million over the three-year period of Phase II. This level of funds was not forthcoming. Donors made available some US\$ 3.9 million over the three years (including a carry over from Phase I) and the proposed activities were reduced to fit these resources. This was done by the Coordinator, after consultation with the Task Force as the AHI governing body, in April 1998. Masters and PhD training was eliminated, the number of Regional Research Fellows employed from AHI core funds was cut, only three were employed out of eleven planned, with 4 others supported on specific grants, funded during the second phase. Payback to the IARCs was reduced, and the funds to be made available to NARIs were reduced pro rata by sites. One of three sites in Madagascar was cut out, though the addition of the Tanzania site left the number of sites at eight in the region for the Phase II programme. Programme overheads and transaction costs remained relatively close to budget levels, and, as all sites were retained, this reduced the funds available per site.

The effort required on re-negotiation and restructuring delayed the start of activities under Phase II format, particularly in 1998, as Phase I small grants activities in some sites were being wound up at several sites (Embu, W Kenya, Uganda, Ginchi). The list in table 2.1 shows the first season for Phase II work in the sites. It demonstrates that, as of the date of this Review, five sites only have worked for just over a year [for three this means three seasons] under Phase II, others for just over two years. In all sites building capacity in participatory research remains the dominant and necessary preoccupation.

**Table 2.1 Phase II Start Up**

Country		First year with AHI	First season with Phase II Activities
Ethiopia	Areka	1997 –(C&D work)	1999
	Ginchi	1997 –(C&D work)	1999
Kenya	Both Sites	1995 – September season	1999 – March season
Madagascar	Both sites	1997 - late season	1998 – first season
Tanzania	Lushoto	1998 – March season	1998 – March season
Uganda	Kabale	1996 – Early season	1999 – Early season

### 2.4 Integrated Natural Resource Management (INRM)

Phase II of AHI was designed to develop and implement a research and development programme on INRM. A full, if laborious, definition of INRM comes out of a recent CGIAR meeting in Penang, Malaysia earlier this year:

“INRM is a way of doing development-oriented research to simultaneously tackle poverty, food security and environmental protection. These three elements of human well-being are addressed through the well being of the ecosystem in which the people live and work. INRM focuses on systems, rather than commodities, on processes (both biophysical and socio-economic), on managing interactions among things as well as things themselves” “Problems are identified in a participatory manner, involving farmers and policy makers from day one. Interdisciplinary research on alternative solutions then follow, using the entry points identified in the first step. Since agro-ecosystems are driven by the interactions of ecological, economic and social variables, INRM research has to work back and forth across all three dimensions. The outputs are separated into production and ecosystem functions and their effects in human well-being. Because win-win situations are rare, the next step consists of analyzing the trade-offs between competing interests, and identifying a range of flexible options. Finally the outcomes are made possible by extrapolation, dissemination, enabling policies and their impacts are assessed. Impact of the research is therefore assessed at three different levels; change in productivity, environmental health and adaptive research learning capacity. Feedback loops exist at all stages of the research process, indicating the iterative, adaptive learning character of INRM research.”<sup>2</sup>

The quote makes it apparent that INRM is a difficult concept to grasp, it’s meaning is still evolving. Most importantly, the methodology remains largely theoretical, there are no well developed models to implement. Not surprisingly, AHI researchers are still grappling with exactly how they will develop methodologies that will help them realize INRM goals. Thus we consider their work to be ‘research on research’.

On sloping lands with high population densities and farming systems dependant on annual crops, such as those at the AHI benchmark sites, management of the land requires great care in order to avoid degradation. At present, it rarely receives that care. The on-site effects of managing an individual plot are relatively easy to characterize. Monitoring and evaluation of both scientific results and farmer’s perceptions of them are important. The feed back provides researchers with the information needed to widen and improve the relevance of the basket of technologies on offer to the farmer.

The off-site effects or externalities that influence land, water, or some natural process far removed from the field, can be more difficult to recognize and, at the same time be unseen and inconsequential for the perpetrator in the short-term. Will phosphate fertilization of lands at the Kakamega benchmark site encourage algal blooms in Lake Victoria? At present, no one knows and very few people care. Because such resource degradation problems can be very complex, only an **integrated** approach to NRM research will ensure that the diverse, but relevant aspects of a particular problem are considered before an intervention is proposed. Such interventions may include providing new agronomic technologies, promoting community action, facilitating policy changes and developing better market access. While AHI researchers may not have the skills or mandate to deal with all of these issues at once, they will be identifying processes and methods by which such interventions might be realized, some through strategic partnerships with other institutions with complementary skills. The dimensions of an integrated approach to NRM are explored in more detail in section 6.1.

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<sup>2</sup> CGIAR, 2000. Integrated resource Management research in the CGIAR. A report on the INRM workshop, Penang, Malaysia.

It is by these standards that the team is evaluating the AHI's mandate to introduce INRM concepts to the region and to identify replicable processes towards making these concepts operational.

### **3. ACHIEVEMENTS AND IMPACTS**

#### **3.1 Introduction**

The stated objectives and the Work-plan of Phase II of AHI are ambitious. They cover a wide range of subject matter focusing on eight benchmark sites located in the five countries of Ethiopia, Uganda, Kenya, Tanzania and Madagascar. INRM practices and technologies were to be explored, focusing on integrated research and development methods, relying heavily on participatory learning to assist in identifying farmer and community based solutions, and exploring policies and socioeconomic impacts of potential management options.

As mentioned above, only one-half of the planned budget for Phase II was actually realized. Consequently, the original goals and the outputs envisaged in the Phase II Work plan were unrealistic within the financial constraints imposed. The Team has taken this into account in its assessment of achievements and impacts.

The search for processes and methods to operationalise INRM is recognized as important, given the accelerating deterioration of the resource base, particularly in the densely populated highlands. Donors have expressed a long-term interest in this project because of the urgency of this goal. The nature of this 'research on research', identifying the process and methods to achieve INRM, means that these intermediate products are the primary outputs, and the basis for the evaluation of project success. Impacts in farmers' fields are evidence of the effectiveness of the processes used.

#### **3.2 Achievements in Methodology Development and Capacity Building**

The shift within AHI from the commodity and disciplinary based, small grants mode of operation in geographically scattered sites in Phase I, to a site team based mode of operation with a farmer-driven agenda, brought greater attention to methodology development and capacity building. The approach followed was that of research teams, using an integrating systems perspective, exposing technology options to farmers for them to choose which to test and adapt in their own fields. These research modalities were deemed to be important elements in realizing INRM (PM&E Workshop Proceedings, 1999; 1<sup>st</sup> TSG meeting minutes, 1998).

The Participatory Agro-ecosystems Management process [PAM], outlined in Box 1 below, was the foundation for the participatory methods adopted in the implementation of AHI's site based research activities in which farmers were to be highly involved. Elements of farmer participatory experimentation and social analysis were incorporated to strengthen the research aspects of PAM. It was hoped that through PAM researchers would develop research programmes that are site specific but collectively characterized by:

- an agro-ecological approach
- participatory methods
- multi-disciplinary and multi-stakeholder teamwork
- Integrated research action plans.

Capacity building in AHI focused on training and supporting site teams to develop and implement interdisciplinary, integrated, systems oriented programme through the application farmer participatory methods and partnerships. The programme facilitated site staff to participate

in international courses and workshops, regional training courses, regional workshops, site training courses and site workshops. Four researchers were sponsored to attend a training workshop on NRM research methods including the “Landcare approach” in the Philippines.

As a first step all site teams received on-site training in participatory techniques for characterization and diagnosis (Stage 1, Box 1) in 1997 and participatory research elements and priority setting with farmers to arrive at a research agenda in late 1998 (Stage 2, Box 1). Backstopping support was provided to some sites after the training courses. It was then decided by the Technical Support Group (1998) to try to build a group of trained researchers who could act as a “resource group” for other team members. Five regional level capacity building events were organized in 1999/2000 to address the PAM stages one at a time. The first was to review all stages of the participatory research process, related concepts, team building and sharing experiences on participatory methods. This was followed up by a second regional level course in which principles of farmer-led experimentation were covered. The other regional events were; a team and partnership training workshop, a planning, monitoring and evaluation workshop and a social analysis/soil indicator training workshop.

### **Box 1. Participatory Agro-ecosystem Management - PAM**

Participatory Agro-ecosystem Management [PAM] is comprised of five distinct major steps/stages; Participatory Agro-ecosystems Characterization and Diagnosis, Participatory Planning and Experimentation, Participatory Information and Technology Dissemination, and Participatory Analysis of Experiences.

#### **1. Participatory Agro-ecosystem Characterisation and Diagnosis**

Participatory exercises are utilized to characterize the agro-ecosystem, to diagnose the strengths and weakness of the resource base, to identify and analyse the major problems/constraints to improved production with farmers, and to prioritise problems to be addressed in the research action plan. Participatory Rural Appraisal tools are utilized. Farmer research committees are also formed to enable farmers to assume gradually increasing responsibilities for the research action plan activities.

#### **2. Participatory Research Planning and Experimentation**

Based on the information gathered in stage one, farmers, researchers and other stakeholders collectively develop a Research Action Plan for the coming season/year. All stakeholders are also encouraged to innovate, experiment with experimental designs, and support or develop ‘non-conventional’ activities that include indigenous technical knowledge and farmers’ traditional experimental approaches.

#### **3. Participatory Monitoring and Evaluation**

During the development of the Research Action Plan, stakeholders are encouraged to develop both formal and informal monitoring and evaluation frameworks. Monitoring and evaluation is developed to assess the progress of both the technical aspects of the research plan and also issues of process and other social or economic aspects of participatory research.

#### **4. Participatory Information and Technology Dissemination.**

This stage evolves when technologies or methods have been developed, refined and tested and deemed suitable for wider dissemination. Diffusion and dissemination channels are identified and provision of information, material or technology for dissemination is facilitated.

#### **5. Participatory Analysis of Experiences**

This activity takes place at the end of a project, or a project phase. It is an assessment of whether the various objectives have been met, and involves an overall analysis of the sub-project by all stakeholders. Lessons from the Participatory Analysis of Experiences would be incorporated into the planning and implementation stages of new projects in neighbouring communities.

The TSG decided to try to catalyse local seed producing initiatives and provide an M&E guide to derive lessons from varying experiences at the different sites. Thus other capacity building activities included workshops to design and launch de-centralised seed production and dissemination, these workshops were facilitated at all sites. Site visits and other communication

helped with planning and with the implementation of plans for the seed decentralisation activity. Through the seed system workshops the status of new seeds and varieties was assessed, the type of seed demand and division of labour in seed provision was elaborated. Options for seed provision were considered and participants developed activities for decentralised seed systems.

Monitoring and evaluation activities have also been integrated in AHI as a key component of the program's capacity building efforts, workshops have been held at each site (2000) following the regional workshop (1999). Site teams were exposed to the core concepts in monitoring and evaluation and they assessed their experiences with participatory research, interdisciplinary research and research linkages with development and policy actors. These are three key processes needed to carry out NRM research. All research teams had been sensitised in the use of these processes and were attempting to practice them.

Further capacity building was through support by IARCS regional staff to AHI benchmark site teams. For example the following activities were carried out by CIAT:

- AHI/PRIAM monitoring tour of Western Kenya and suggestions on improvement of activities
- Support to AHI site teams in participatory research through site visits
- Support by a Regional Research Fellow to the Areka team to implement participatory research
- Support by the RRF working on IPM and the CIAT Bean Pathologist to benchmark staff through site visits.

### **3.3 Impacts at Different Levels**

Researchers interviewed noted that their involvement with the AHI programme has positively impacted on the way they are now doing research. They noted that in there has been an increase in the degree of interdisciplinary involvement, amount of participatory research and linkage with development actors. As result of the interdisciplinary work, researchers can now address a wider range of problems faced by farmers, they can work as teams, sharing of experiences is enhanced and roles and responsibilities are distributed among team members. As a result of applying participatory methods researchers have learnt to appreciate farmers' problems and their research has become more relevant and responsive to the farmers' needs and resource endowments.

At the sites a wide range of technological options are being tested. The options were selected as a response to the expressed needs and problems of the farmers. The TSG advised (1998) AHI research teams to start with "entry points" that is, quick start up technologies that would engage the farmers. Then the strategy would be to move into more complex issues such as soil and water conservation and bund management. For example at the Western Kenya site, the following activities related primarily to improving soil fertility or secondary issues emerging as a result of declining or poor soil fertility management, were identified;

- Socio-economic studies of soil fertility management technologies
- On farm demonstration of *striga* resistance sorghum varieties
- Demonstration in preparation and utilization of high quality manure
- Introduction of grain legumes in the farming systems for soil fertility improvement
- Demonstration of green manure for soil fertility improvement and crop yields
- Study on indigenous technical knowledge on livestock diseases and pests
- Demonstration on fodder management and feeding of dairy cattle

In Madagascar site teams noted that exposure to participatory methods have changed their attitudes and provided them with a new way to communicate with farmers. The methods applied have also given them new roles; facilitators and providers of a range of options instead of pushing recommendations. In Madagascar, trials are being implemented in the following areas,

- Soil fertility management
- Productivity improvement
- Off season cropping
- Micro-dams and soil improvement in the *tanety*

Participating farmers have adopted some of the technologies introduced by researchers. For example in Finarantsoa, Madagascar, the off-season cropping intervention has been adopted by more than 100 households out of some 200 households exposed in a period of just over one year. Further, through their own experimentation, farmers have provided researchers with information that has been incorporated into soil fertility technology options.

Some examples of interventions which have had a positive impact, mainly at the farmer level, at the benchmark sites are summarized in Table 3.1 below.

**Table 3.1 Examples of AHI interventions and their impact on farmers and farm conditions**

<b>Intervention</b>	<b>Site</b>	<b>Impacts</b>
Off-season cropping	Fianarantsoa	<ul style="list-style-type: none"> <li>• Increase in revenue for the farmers. The sale of potatoes during the months of September, October and November allows the farmer to; buy rice, pay hired labor, pay school fees.</li> <li>• Improvement of human and animal nutrition. Children weights have increased - researchers claim, there is enough complementary food to accompany rice plate. Pig rearing is possible.</li> <li>• Soil improvement – rice yields have increased from less than 4 ton/ha/year to 6-15 tons/ha/year.</li> </ul>
Access to improved seeds and credit.		<ul style="list-style-type: none"> <li>• Community solidarity - village organisation of community services, farmer's organisations, acceptance of AHI structures.</li> <li>• Farmer motivation to participate in AHI activities</li> <li>• Better livestock husbandry - timely veterinary treatments, more feed.</li> <li>• Better soil management and general crop husbandry – through better seeds, more appropriate tools and access to fertilizers, productivity of main crops has improved.</li> </ul>
Zero tillage	Antsirabe	<ul style="list-style-type: none"> <li>• Improve soil fertility and soil structure</li> <li>• Increase flora and fauna population in the soil</li> <li>• Reduced cost of land preparation</li> </ul>
Introduction of napier on newly dug soil bunds	Areka	<ul style="list-style-type: none"> <li>• Three farmers visited each said between 7 and 10 neighbours had taken planting material this year from Napier planted in 1999. It is being diffused to other villages along kinship lines.</li> </ul>
RRC Kakamega	West Kenya	<ul style="list-style-type: none"> <li>• Re-organised research on the basis of pilot sites in other agro-ecologies. Economies in transport. Cross fertilisation of ideas from AHI site and vice-versa.</li> </ul>
Improved vegetables	Lushoto	<ul style="list-style-type: none"> <li>• Farmers able to improve cash income from off farm sales of more marketable produce</li> </ul>

### **3.4 Overall Assessment of Anticipated Outputs and Benefits**

Tables 3.2 to 3.4 offer an assessment, based on the Review Team's exposure to the programme, of achievements against the outputs anticipated in the Phase II Work plan. Table 3.2 makes an assessment for farmer level outputs, Table 3.3 for regional level outputs, and Table 3.4 of the expected generic outputs.

**Table 3.2 Anticipated Outputs and Benefits at Farmer Level**

<b>Planned output</b>	<b>Status/comment</b>
Use of improved soil and water conservation	Use of mechanical and biological conservation methods by some farmers
Reduced loss of pests and diseases	Losses to bean root rot, potato bacterial wilt, striga reduced.
Increase in livestock products	Experiments on improved livestock feed in Western Kenya and Ethiopia
Increased diversity and use of trees and other crops	Experiments on use of multipurpose trees for soil fertility, fodder and soil conservation at some sites. Climbing beans – Uganda, Embu, W Kenya, Lushoto. Vegetable varieties (tomato, cabbage) in Lushoto.
More productive use of available land	Intensification and improved soil fertility activities taking place at some sites
Fewer conflicts	No evidence observed
Farmers understand need to change and adopt beneficial practices	Conservation practices and innovative cropping systems are being tried by some farmers.
Supportive policy environment created	No evidence yet

Many of the anticipated impacts on farmers were observed during the Review Team’s site visits.

**Table 3.3 Assessment of Anticipated Outputs with a Regional Dimension**

<b>Expected output</b>	<b>Status/comment</b>
Value adding of AHI on the outputs of IARCS, NARS and other stakeholders e.g. improved research and technical advise	Interdisciplinarity and improved partnership starting to show the adding value benefits of AHI
Areas receiving backstopping from IARCS and other regional specialists; <ul style="list-style-type: none"> <li>• spatial decision support</li> <li>• participatory research</li> <li>• seed systems</li> <li>• soil and water conservation</li> <li>• IPM</li> <li>• regional research on discrete areas</li> </ul>	<ul style="list-style-type: none"> <li>• no evidence of spatial decision support noted</li> <li>• staff trained and started applying</li> <li>• workshops held, staff trained and implementing</li> <li>• trials on mechanical and biological methods in progress</li> <li>• noted through some work of RRFs</li> </ul>
Strategic/thematic research with input from the RRF <ul style="list-style-type: none"> <li>• characterization and diagnosis</li> <li>• soils</li> <li>• livestock feeding systems</li> <li>• economic studies</li> <li>• policy studies and dialogue</li> <li>• household resource allocation and interaction</li> <li>• systems agronomy</li> <li>• IPM and integration into the cropping systems</li> </ul>	<ul style="list-style-type: none"> <li>• completed for all sites, documentation available</li> <li>• work in progress</li> <li>• work in progress</li> <li>• work in progress</li> <li>• no evidence observed</li> <li>• no evidence observed</li> <li>• work in progress</li> <li>• some work completed, some in progress</li> </ul>

Most of the strategic/thematic research work is in progress and it is clear there is limited evidence that planned outputs at the regional level have been achieved. Clearly the level of funding realised, less than 50% of that sought, was a major factor in this shortfall. The Review Team conclude that building site team capacity, rather than emphasising regional activities, has been the appropriate early priority for Phase II of AHI. Considering the budgetary constraints and ambitious projection of planned outputs as discussed above, the Team feels AHI has made

inroads into building site capacity, gaining confidence among site communities and testing some of the processes, especially participatory processes, essential to INRM.

**Table 3.4 Assessment of Anticipated Generic Accomplishments**

<b>Anticipated output</b>	<b>Status/comment</b>
At the principle field site, integrated research and development program using systems approach and participatory methods in operation	Interdisciplinary research work using participatory approaches initiated at all sites, not yet integrated.
At the principle field site, farmers groups established and involved in technology design, testing and assessment	Farmer research groups or some pre-existing group at all sites. Their involvement in the research process varied but generally still limited.
At the principle field site, community-level NRM plans generated	No evidence observed
At the principle field site, preliminary signs of farmer acceptance of some technologies	Some technologies widely adopted
At the benchmark locations, framework and database of activities produced to better coordinate inputs	Not noted
At the benchmark locations, improved level of commitment from NARS and other partners	Generally yes, varied from site to site.
Integrated NRM research program emerging	In minds of some site coordinators
At the benchmark locations, improved links with commodity programmes and other providers of factor research	Generally yes, varied from site to site
At the benchmark locations, synthesis of benchmark location information completed and evidence that information is being used	Some use of information in background for reports
At the benchmark locations, site steering committees operational and producing situation analysis, a strategy, annual plans and reports	Site steering committees formed at most sites, some with little evidence of activity.
At the benchmark locations, site coordinator recruited and operational in each benchmark site according to terms of reference.	All sites have coordinator - some are full time, some part time
For institutionalization of NRM, enhanced awareness, involvement and integration into IARC and NARS plans	Generally increased awareness of natural resources management but integration not yet
For institutionalization of NRM integrated NRM research programme emerging in the NARS and at regional level.	Lushoto Site Coordinator has developed project in Kilimanjaro area with an INRM focus.
For institutionalization of NRM, improved capacity to conduct NRM research	Improved capacity in the use of participatory methods
For improved information dissemination and communication, database of available technologies from ITK and global sources available and in use.	A Web site has been developed although it was not viewed by team
Activity and partner database constructed and in use	Developed by project coordinator
For improved information dissemination and communication innovative communication mechanisms used to enhance technology transfer	Special project with RRF in Kabale installing telecentre for improved communications to region
Email connections improved	Email connection facilitated at all sites
Newsletter and other publications produced and distributed	AHI newsletter not produced anymore, ASARECA newsletter distributed.
Five MSc students trained in some area of NRM	No MSc training took place
Three regional topical review workshops conducted and output available	Number of workshops held
Links with regional and overseas universities enhanced and involvement in AHI activities increased	Collaboration with regional and overseas universities in progress
More efficient, better coordinated and targeted short-course training programs	Some good progress noted
Increased number of projects under AHI umbrella	Number of projects under AHI and links to other projects increased.
Improved balance of added value and associated transaction costs	Transaction costs still high but decreasing

Coordination and integration of technical inputs to achieve integrated, systems-oriented program at regional and site levels.	Integration not yet well developed, particularly in reporting of research
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## 4. PROCESSES AND MECHANISMS

### 4.1 Introduction.

Research and Development is commonly portrayed as a continuum with five functions;

- **Strategic research;** to understand biophysical and human processes. Most IARCs and many NARIs perform this function.
- **Applied research;** Using the understanding of biophysical processes to develop new plant materials and new technical practices for soil and water management. All NARI's perform this function, some are supported to build capacity by the IARCs and by other advanced research institutions.
- **Adaptive research:** Working with representative groups of farmer beneficiaries out of a population of farmers who face the same biophysical and socio-economic circumstances, to identify, adapt and integrate plant and animal materials and technical practices, both from applied research and experience elsewhere, to meet the farmers priorities and fit their resource endowments. This is a local specific function related to identified groups of farmers. It is seen as a NARI role and over the last 20 years capacity has been built up to bring some experiments off stations into farmers fields. NGO's are also involved.
- **Diffusion;** Spreading technologies adopted by the representative group across the wider farmer population to which they are relevant. Classically the function of the government extension services, increasingly also being addressed by NGOs, church groups and the private sector.
- **Enabling Services;** Promote diffusion by supportive policy changes, credit, input supply and marketing schemes, and infrastructural development, providing incentives to encourage farmers to adopt. Heavy government involvement will obviously continue in policy and infrastructure. With the trend to decentralisation policy decisions at the local government level will be increasingly important and directly relevant to the local situation. Though the functions of market development, credit, and input supply usually retain some government involvement, there are increasing pressures for privatisation.

Viewed in abstract the continuum is straightforward. Operationally, this sequence of functions has been incomplete and is rarely coherent. The need for an adaptive research function, researchers participating with farmers, is a recent development. Historically the five functions have been the responsibility of different institutions, with weak links between decision makers and sometimes even animosity, with one institution accusing another of being the weak link in the chain. The result has often been chaos throughout a continuum in which coherence is at a premium.

Today it is clear that coherence requires partnership with joint planning and action between partners. Each institution with its special skills needs to acknowledge the importance of the role played by others for its own success. However the mechanisms for creating and operating such partnerships are still a matter of research. Achieving coherence through this continuum is one integrative dimension of AHI and similar initiatives. In Phase II the incidence of partnership varied by site, some have greater diversity in institutional stakeholders than others. This review of the utility of processes and mechanisms featuring in Phase II of AHI is set against this need for institutions with complementary functions to plan, work and evaluate together.

## **4.2 The Planning Process for Phase II.**

At its inception, Phase I of AHI focussed on three themes: characterization and diagnosis of benchmark sites, soil productivity and integrated pest and disease management. After 16 months of operation, a review team was fielded to evaluate progress and identify the future direction of the project to enable it to meet its overall goals. Their report (Mackay and Gichuki, 1996) was supported by the project Task Force's own experiences. It recommended a primary focus on methodological development. Site research should be based on developing a more holistic, systems and integrated approach to NRM. That review team also felt that the concept of NRM was still unclear in most players' minds and would need to be addressed. AHI was directed to bring together expertise, build partnerships within and between institutions at local, national, regional and international levels, identify the goals, visions and objectives of AHI and begin work at the assigned benchmark sites to meet revised objectives. Recommendations were also made with respect to strengthening aspects of the management and coordination of AHI.

Action was taken by both the Task Force and the AHI coordinator. The project made a significant shift from a thematic to a site based modus operandi, giving prominence to the establishment of multidisciplinary site teams. Characterization and Diagnosis (C&D) studies were rejuvenated, and a new emphasis placed on interdisciplinary research. NARI members were added to the Task Force hitherto dominated by the IARCs; a full time AHI Coordinator was recruited and started operating in 1998 and Phase I was extended to the end of 1997.

Towards the end of Phase I, a regional workshop involving key players of AHI (NARIs, IARCs and Donors) reviewed the strengths and weaknesses of AHI. Seven broad thematic areas were identified that would best address NRM issues. These ranged from Intensification and Diversification to Policy. The workshop also elaborated an operational and management framework to achieve project objectives.

Following this workshop, consultants, in collaboration with the AHI coordinator, wrote a draft AHI Phase II proposal which was circulated to an ad hoc technical group made up of selected members of the various Technical Panels of Phase I, it was also circulated to the AHI Task Force. Meetings were held to address the comments and concerns of these groups. Following that review, the updated draft report was then submitted to the ASARECA Committee of Directors for review, where final comments and concerns were addressed. From there, the report was passed to donors by ICRAF.

The planning process used before and during the start up of Phase II met with the approval of most players although it was considered by some to be time consuming and onerous. Some expressed the feeling that the changes in project direction were disruptive. The Review Team has reflected upon these concerns. It concludes that the overwhelming importance of instilling the sense of ownership in the wide range of national and international players required a participatory planning style and this was inevitably time consuming. Considering the complexity of the project the flexibility displayed in achieving an appropriate major change of direction, as better understanding evolved, is considered as a strength, not a weakness.

This Review Team hopes that its report will provide a basis for decisions on the less radical, but nevertheless significant, changes in modus operandi recommended for Phase III.

## **4.3 Research Approach**

In Phase II AHI committed to the development of a holistic, integrated approach to research on INRM. Considering that the emphasis in Phase I was on four thematic areas, this

new orientation required a dramatic “retooling” of site researchers’ attitudes, skills and partnerships to meet this ambitious goal. The Review Team notes that this retooling and building capacity in new research skills among site teams continues to be the dominant activity of AHI.

The criteria used for choosing the benchmark sites included hilly or mountainous topography, elevation above 1400 m (1200m for Madagascar because of its higher latitude), annual rainfall greater than 1000mm, high population density, and evidence of degraded soils. There was concern by some stakeholders that several benchmarks chosen were also AFRENA sites and this led to questions about the relationship between ICRAF, AFRENA and AHI.

The Team would have preferred the benchmark areas to be delineated on the basis of watersheds of similar size. [See for example the PARDYP INRM initiative in the Himalayas]. This would have facilitated the scaling up of the programme as and when it is capable of taking on the more complex watershed management issues. It would have been preferable if an assessment of regional needs had driven the original site selection rather than several being taken over from an existing programme. Similarly the location of the sites in the most important farming systems within the agro-ecological zones would have maximised benefits from the diffusion of technologies adopted by pilot site farmers. Finally, the selection of sites with the view to examining vital gradients would have enhanced the value of information obtained for broad regional comparisons. For instance the type and extent of market access would have been a valuable gradient to examine the impact of market access on the adoption of NRM technologies.

However, there had been considerable investment in time and human resources at the existing benchmark sites, and they do provide a reasonable cross section of the characteristics of the agro-ecosystems of the highland region. More importantly, the primary outputs in Phase III will be processes and methods to address INRM issues and the applications of these are not site dependent. Consequently the Team does not recommend changing the existing benchmark site locations.

In Phase I a concerted effort was made to develop a regional GIS database using elevation, rainfall, soils and population density as gleaned from existing broad scale mapping. In Phase II, considerable time was taken to acquire and digitise secondary data from the region. The intention was to develop a quantitative database to supplement the qualitative PRA descriptions in a non-spatial database relating the pilot sites to the benchmark location and the location, in turn, to the region. Discussions with key stakeholders were held but there was difficulty in coming to consensus about exactly what product was required.

GIS researchers had problems with differences in scales, coverage, varied units and limits within different countries map legends. It appears their rigorous scientific background made it difficult to sacrifice precision for utility. On the field level, site researchers had no access to the GIS work, as it had been compiled using a fairly sophisticated and high-powered (and unavailable to the site teams) GIS program. For plot work in mountainous terrain, where soil variability is extreme, the data acquired at the district level was not useful in characterizing specific pilot sites. In the end the cost to produce the GIS linked database proved to be very high and the end product was not particularly useful at either the site level or the regional level. The links between the GIS lab and the field teams were weak; no site visits made by the GIS researchers to help them envision the requests. Consequently, the GIS work has not served AHI’s operational needs. As a result of these limitations, interest in the GIS program waned within

AHI<sup>3</sup> and resource levels applied to the GIS exercise dropped from substantial in Phase I to zero in 2000. Unfortunately the original enthusiasm for developing a regional typology to delineate research and extension domains also waned. The Review Team return to this in section 6.7 below.

The Team feels that the lack of information related to the area and geographical extent of specific agro-ecological zones across the region has influenced the enthusiasm with which donors and IARCs and NARCs view the progress of AHI. Specifically, the inability to determine the extent to which benchmark sites might ultimately provide answers for more broad geographical areas is disappointing.

Phase I and II has made some headway in the characterization and diagnosis at the benchmark areas themselves. A concerted effort was made to locate all secondary data related to soils and soil characterisation at the benchmark area. However, soil data that might well have been available to characterise plots was rarely integrated at the time of reporting trial results. Where agronomic trials are being conducted, type of terrace if any, slope, soil texture, depth of topsoil, evidence of erosion etc. are important site attributes and need recording if the trials are going to have any eventual significance for INRM work. The lack of integration between agronomists and soils specialists this implies is disconcerting and requires attention.

During Phase II a large number of research trials were conducted at the bench mark sites, the focus for these included varietal choice, soil and water conservation, the introduction of legumes and the use of a participatory approach in trial design, implementation and evaluation. The strategy, essential for progress into more complex areas of intervention in the farming system under study, was to identify relatively simple changes, often in varietal types or other technologies, in which farmers had expressed close interest. These “entry point” technologies are being used to gain the confidence of the farmers and their communities at the pilot sites, showing that the researchers, as outsiders, have something valuable to offer. This ‘entry point’ strategy has been an effective lead in to the more complex processes required for fully integrated NRM. The AHI stakeholders deserve credit for its success.

Though the extent varies by site, a start has been made in Phase II with the introduction of more complex processes and technologies which will show less immediate returns to farmers but which add to the capital invested in the resource base. The adoption of bench terracing, by a few farmers in Lushoto resulting from cross visits to Embu, Kenya, is an example of this kind of process. More and more of the research is managed by the farmer him or herself and this is also a significant step forward.

The team noted that there was little integration between the biophysical and socio-economic data that have been collected. Much of the uncertainty of methodology development facing AHI research teams stems from the difficulties associated with integrating quantitative (“hard”) biophysical and qualitative (“soft”) socio-economic characteristics of an agro-ecosystem. Important results stemming from farmer-researcher interactions are indeed difficult to capture by normally accepted format of scientific writing. Farmers’ enthusiasms, perceptions and response to introduced technology, properly recorded and presented, is as important to AHI research as rigorous statistically analysed yield data. An important role of AHI is to develop a methodology to provide this integration in a manner that distils the most useful information from

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<sup>3</sup> ICRAF has been carrying out a Lake Victoria Water Basin study in which advanced GIS methodologies will be tested within that watershed. If this project is further funded, AHI should monitor it closely to make use of any GIS mapping methodologies that might be useful to characterize the African Highland Regions.

both biophysical and socio-economic characterization. The present methods of participatory research employed by AHI have been unable to address this concern to everyone's satisfaction.

Some researchers expressed the concern that AHI work was actually unscientific. For instance, in an AHI publication, biophysical scientists complained "the reports of farming systems research are all merely narrative and hardly surpass the stage of storytelling and listing constraints". To a degree, the Review Team agrees, the qualitative information needs greater depth, but we find the same criticism true for some biophysical scientists: For example:

- In rainfed cultivation where the vagaries of rainfall are a major influence on crop performance, it is surprising that detailed meteorological information is either not collected directly from village research site or not used extensively when writing up trials. In mountainous regions, the spatial variability of rainfall is great even with relatively small areas and locally collected rainfall data is necessary to understand local and comparative crop responses.
- All of the AHI characterization and diagnosis has emphasized the importance of soil erosion as a degradation process. However, there has been little concerted effort to estimate the variation in surface erosion for various crop covers proposed within the technology basket assembled by AHI. Some of the AHI innovations, such as planting potatoes on steep slopes, could conceivably cause more erosion than the current farmer practice.
- In most of the papers describing field plots within which agronomic trials have been carried out, there was rarely a good description of soil, in terms of its classification, texture, depth of remaining A horizon (if any), structure etc. This contrasts with the substantial efforts made by soil workers characterizing soil chemical and physical properties from secondary sources for the bench mark areas but divorced from the sites at which trials are being conducted.
- As an INRM program, a central goal of AHI must be a concern with externalities such as firewood extraction from forests and the downstream effects of surface erosion. To date much of this work has been on a very general level.

On the human side of the site programmes the Review Team heard many interesting anecdotes about the reasons for farmers' adoption or rejection of offered technologies. However, little of this information is quantified, and little has found its way into researchers' reports.

PAM was the main process used by the programme. The Team noted that by adopting and adapting PAM, the project has made substantial progress towards the development of methods for INRM. These need further refining as more experience is acquired. PAM embraces concepts of agro-ecosystems, enablement and empowerment, it appears, however, that it does not provide tools that can be used to apply all these concepts. Also INRM requires an integration of research in a broader community development approach whereas PAM still remains essentially a research approach. It is suggested that AHI could benefit from considering incorporating elements of community based approaches to further strengthen PAM.

#### **4.4 Capacity Building**

Capacity building in Phase II focused on site staff and was facilitated through international training courses and workshops, regional training courses, regional workshops, site training courses, backstopping visits and site workshops. Four researchers were sponsored to attend a training workshop on elements of NRM research including the "Landcare approach" in

the Philippines. A chronological list of events, including capacity building events, from late 1996 to date, is at Annex 5.

Five regional level capacity building events were organized:

- Regional level course to review participatory research processes, related concepts, team building and to share experiences in the application of participatory methods.
- Regional level course on principles of farmer-led experimentation.
- Team and partnership training workshop,
- Planning, monitoring and evaluation workshop
- Social analysis/soil indicator training workshop.

The participants for regional level events were identified by the coordination office in consultation with national coordinators and site teams. It appears it was project strategy to develop a pool of resource persons through training trainers at these events, who would then have trained others at the sites. This would have required that the same participants complete a set of planned courses. This strategy was not shared by some site teams which sent different people to different courses. Beyond this, the level of detail covered in the regional courses was not adequate to equip participants to be able to train others without further backup in the sites. This backup was planned by the TSG and coordinator, but was not forthcoming due resources being spread too thinly over the 8 sites.

Regional fora are important for some types of training but not for training trainers. Regional training workshops attended by one or two persons from each site was not an effective way to help teams incorporate new approaches. For example in Western Kenya, participants had difficulties distinguishing between the different types of farmer participatory research. Two participants had attended the regional participatory research workshops but it appeared this was inconclusive in conveying an understanding of these principles. Backstopping support was provided after some training but it appears not all sites were visited and backstopping did not including facilitating feed back by those that attended regional workshops. Participants did not debrief with their colleagues nor consistently share materials.

All teams received on-site training in participatory research elements and priority setting with farmers to arrive at a research agenda that started off the pilot sites in 1998/9. This helped site teams to embark on participatory research with farmers. Site staff are also aware of some of the concepts of farmer experimentation, however capacity building is still required in the use of participatory tools, in methods of improving farmers' involvement in the design of trials, and in joint learning. This need is reflected in the types of experiments being done with farmers, which are largely researcher managed and farmer implemented. It is evident that researchers are struggling with how to reconcile scientific rigor and farmer participation.

Workshops to design and launch decentralized seed production and dissemination were facilitated at all sites. Site visits and other communication helped with planning and implementation of plans related to the seed decentralization activity. Through the seed system workshops; the status of new seeds and varieties was assessed, the type of seed demand and division of labour in seed provision was assessed. Options for seed provision were considered and participants developed activity plans for decentralized seed systems

Monitoring and evaluation workshops have been held at all sites. In these workshops site teams were exposed to the core concepts in monitoring and evaluation and they assessed their experiences with participatory research, interdisciplinary research and linkages with development and policy actors from a monitoring and evaluation perspective.

Further capacity building was through support by IARC's regional staff to AHI benchmark site teams. For example the CIAT implemented the following programme:

- AHI/PRIAM monitoring tour of Western Kenya and suggestions on improvement of activities
- Support to AHI teams in participatory research through site visits
- Support by the Intensification of Systems RRF to the Areka team to implement participatory research
- Support by the Integrated Pest Management RRF and the CIAT Bean Pathologist to benchmark staff through site visits

It appears that on site training events were the most effective element of the capacity building strategy, many people benefited and site specific issues were addressed.

Most of the participatory methods training was facilitated by a consultant who had been involved in the development of PAM through a CIAT project (1996-98). This allowed consistency but restricted the methodology development and training content to the concepts and methods dealt with in PAM. It appears the only method elements included that are beyond PAM are on farmer experimentation and social analysis, though some of the methods used in characterization and diagnosis at the end of Phase I, such as participatory wealth ranking, construction of resource maps by differentiated farmer groups, socio-economic and biophysical niche analysis, also exposed other tools to the site team members. Site teams require a wider portfolio of methods to make INRM operational (what to do and how to do it) than those covered in PAM.

#### **4.5 Networking & Dissemination**

Phase II of AHI has concentrated on the establishment of site teams, developing and implementing their work programmes, and adding value to team skills through capacity building. This has involved networking to negotiate and run a number of regional training events, and to repeat other training across the eight sites. This focus on establishing sites, bringing into operation the site teams, and building their capacity in participatory research, has preoccupied AHI during Phase II. There have been few completed research or synthesis activities at the regional level. Examples are two mini-workshops, one on the use of legume cover crops, the other on manure management organized by TSBF.

Despite the heavy emphasis on team formation and capacity building, AHI sites have also begun to generate both process and technology outputs, and have seen local dissemination of some technologies. These achievements have been recorded in section 3 of the report. Most of these successes are not yet documented, and the dissemination has so far been inadequately monitored, both in terms of the process followed and the numbers of farmers involved, evidence of an over crowded agenda within AHI.

In Phase I, AHI began to produce a quarterly newsletter, AHI Updates, which lapsed as the Regional Coordinator's workload increased. AHI has produced eleven [shortly to be thirteen] papers in a Technical Report Series for disseminating experiences to professionals across the ASARECA countries. These form its first documented outputs. Most of the series have a technology focus. Some of these include sequences for planning experiments, designs and the data requirements, thus touching on process, but almost always the traditional type of single commodity experiment with little or no reference to the integration of technological components, nor therefore capturing disciplinary integration. Some record experience with more integrative tools, particularly diagnostic surveys (learning about problems in the context of farmers'

systems) a process implemented at a very early stage of the research approach being followed. In Phase II, there has been no wider dissemination of integrative processes and tested methods across the countries of the region, the main networking function of AHI, because of the shortfall in funds, the change of direction from Phase I, and an over-commitment in attempting to support eight sites.

The device of Regional Research Fellows (RRF) was introduced in Phase I and stakeholders were pleased with the experience then. In Phase II only three out of the eleven RRFs proposed could be recruited with AHI core funding, (and two of these were carried over from Phase I). Additional RRFs were funded through special projects after the start of Phase II, some of which had a particular focus not always congruent with the immediate needs of AHI. . For example, the RRFs assigned to the 'Telecentre' project and the GIS work were wholly absorbed with their particular special focus. As noted earlier the GIS work in particular, proved unproductive for the operation of AHI. Other RRFs were given regional briefs for a designated % of their time, the other % was site related work. Some of those living at sites were pulled in to a technical support role locally, their application to their regional briefs suffered and they felt frustrated with the regional role. The sociologist and the monitoring and evaluation specialist have retained their independence and are implementing regionally based strategic research projects which will, when complete, be valuable for AHI. Also, despite a heavy involvement in the Areka site, the Intensification and Diversification RRF has contributed strongly at the regional level.

An additional issue was the gap between RRFs' terms of service and those of the scientists supporting site work, in particular the site coordinator. This was particularly contentious where the site coordinators were more senior and some RRFs were perceived as relatively young professionals. Some disappointment was expressed that the RRFs were charged through IARCs and not through the NARI's. Given the youth of some scientists recruited as RRFs some NARIs were critical of what was perceived as a recruiting exercise by the IARCs, despite an inclusive hiring process approved by the RSC and extended to all countries within ASARECA. Within country recruitment might provide opportunities for more experienced national scientists, reduce costs by them being located in their home countries, and bring greater leadership and experience to the sites. The Ethiopian RRF has fitted this mould well.

RRFs remain a potentially valuable asset but the Review Team recommend a tighter focus on facilitating the effective implementation of the AHI programme. Proposals for this are included in section 6.6.

#### **4.6 Coordination; Site, National and Regional.**

There has been a mixed experience with site coordinators. The Phase I recommendation was for full-time coordinators, and these have been introduced at several sites. Experience in Phase II shows however that, though full time involvement is important, sympathy with the vision of INRM, a grasp of project objectives, and leadership and facilitation qualities, are even more so. The emphasis must be on the quality of the professional in the role. Four of the eight sites suffer from weak coordination, site committees are not functioning as intended, meetings are irregular and few have embraced the wider partnerships envisaged by including NGO's and local government beyond the extension services. Some of these shortcomings can be attributed to weak site coordination and poor leadership, others to the part-time appointments as site coordinators. Their other work for the NARI, because their advancement there probably depends on it, is a priority. This is relevant to the issue of NARI commitment, taken up in section 5.4.

The national coordination role is something of an anomaly. Where there is only one site, and perhaps even with two, coordination overstates the role required. It is valuable to have someone at national level with a brief to oversee the project, in order that the NARI Directors are well informed when AHI is on the ASARECA agenda. Up until recently, and perhaps even now, there remains confusion on the objectives of AHI among NARI Directors. The confusion is recorded in the minutes of the Committee of Directors in ASARECA and leads the Team to question whether national coordinators or the other NARI representative in the RSC have been able to perform this information role effectively.

Since appointed in 1998 [although de facto involved in coordination since September 1997] the Regional Coordinator has demonstrated and worked towards the strong vision she has for AHI. Her work has been complicated by several factors;

- The change to a site based initiative in Phase II requiring a new round of negotiation at the country level to identify sites and recruit site teams.
- Realised funding, at half the level of the budget sought in the work-plan, required a re-assessment and re-negotiation of priorities.
- The changes required in governance to better balance the partnership, and alter the perception in the NARIs of over dominance by the IARCs in general and by ICRAF in particular – a factor complicated by her being an ICRAF employee, and by the loss the AHI champion in ICRAF's senior management.
- For the IARCs more generally an increasingly competitive funding environment brought dependence on restricted funding and increased time in seeking funds, while falling staff numbers brought a greater preoccupation with their own agendas.

These have brought new transaction costs to the implementation of Phase II and have inhibited the realisation of the outputs enumerated in the original Work-plan. Nevertheless it is safe to say that the achievements at the site level have in no small part been realised through the diligence and competence of the regional coordinator.

The information flows between the regional coordinator and national level managers require improvement. An example of this is in the reactions to the document 'A Synthesis of the Planning, Monitoring and Evaluation Workshop' held in October 1999. Seen as a first view of the Phase III programme, well received and understood by Site Coordinators and Regional Research Fellows, there has been no reaction to date from any senior NARI managers. Weak information flows are at least partially responsible for the confusion in objectives among NARI leaders and the constant re-iteration of the lack of focus in AHI.

#### **4.7 Governance Mechanisms**

In Phase I, the Task Force decided that Phase II of AHI should be guided by a Regional Steering Committee (RSC) to parallel the governance structure of other ASARECA regional networks. Meeting once a year this Committee was responsible for: providing guidance and direction to the activities of AHI, ensuring quality and impact of the program, approving annual work plans and assisting the convening centre in mobilizing resources for AHI. The chair of the Regional Steering Committee, is rotated around the NARI Deputy Directors or their representatives on a one year basis, and he/she reports to the ASARECA Committee of Directors (CD).

RSC membership included two representatives of each of the member countries, (one of these being the National AHI Coordinator and one other, both appointed by the NARI Director), the Executive Director of ASARECA, representatives of international institutes involved in AHI,

two donor representatives, a Director of ICRAF (the convening centre) and the AHI coordinator, the Committee's Secretary.

A Technical Support Group (TSG) was formed in 1998 on the recommendation of the RSC. Membership included the AHI site coordinators (8) as well as IARC scientists with specific technical input of relevance to the AHI program (5 or 6) and the RRFs (numbers varied from 3-5). The IARC scientists were selected to sit in the TSG by the RSC on the basis of their relevant technical expertise. They represented each of five designated working groups; 1. Soils 2. IPM, 3. Policy and Economics. 4. Diagnosis, Monitoring and Impact, and 5. Systems Intensification, Participatory Research, and Dissemination.

The TSG remains responsible for assisting the AHI coordinator to provide technical and scientific leadership on the content of AHI programs. Their duties include; determining the detailed plan of work and the budget, providing and identifying technical backstopping at AHI sites and assisting the AHI Coordinator to ensure that scientific output was both relevant and high quality. A minimum of two meetings is held each year chaired by the AHI coordinator, who, in turn, reports to the RSC. The TSG could also recommend to the RSC the formation of working groups to deal with specific issues.

The Review Team is convinced that governance of AHI has improved substantially over Phase I. The TSG has been a particularly effective body. The effectiveness of the RSC, as an intermediary group between the TSG and the ASARECA CD is less clear. The question of governance structure is re-visited in section 6.10.

#### **4.8 Financial Management and Administration**

Financial Management and administration services provided by ICRAF were widely praised by stakeholders. Quarterly reports of expenses must be received before a further tranche of money is released. The same system is used for the replenishments of cash imprest. Some instances of delays were identified but these are inevitable given the logistical problems faced in the region. One site visited asked whether funds could be allocated through a single channel, the use of several multiplied the work required to acquire and account for funds.

ICRAF finance believes that the Regional Coordinator should have a financial assistant to relieve her of doing detailed checking. The access to the ICRAF on-line accounts is difficult, at least to this detailed level, from Uganda and much has to be done manually by through coordination at ICRAF.

There could be greater transparency in the way the accounts are presented. There are two issues: First the question of expensing funds. The 1999 accounts show US\$ 800,000 carried over from 1998, which, on the surface, appears to be money available for 1999. These funds are not necessarily available as they include monies already forwarded to partners. Such disbursements are only expensed in ICRAF's accounts when partners itemise its allocation in their annual or six-monthly financial reports. The appearance is that significant funds were under spent in the earlier year, and that extra funds are available for implementation in the current year. This is not the case, and, while a more detailed explanation makes it clear, it obscures transparency for the casual reader, which will include most stakeholders.

Secondly, the movement of AHI funds within ICRAF is not transparent. Partners, including donors and the Committee of Directors in ASARECA, need to be able to trace the application of AHI funds by ICRAF, verifying that these are the applications agreed by the TSG and the RSC. Greater transparency here will reduce the perception that ICRAF is using funds for

activities that have not been agreed in advance, and further reduce the worries about ICRAF dominating AHI decisions.

## **5 OVERARCHING ISSUES**

### **5.1 Scaling Up - Where are the Boundaries for AHI ?**

Scaling up seems to have two interpretations in the AHI context which causes confusion. First, it may be used to describe the hierarchy from the plot in the farmer's field, to the full field, then the farm as a whole, then up to the watershed and beyond to the policy makers whose decisions influence human activities at each of these scales. For NRM this is usefully thought of as a hierarchy of nutrient & water cycles, activities at the lower levels impacting the cycles at the higher levels through externalities. Second, in AHI 'scaling up' is also used as shorthand for the dissemination and diffusion of those technologies adopted by farmers in the pilot sites, to other farmers in the agro-ecology. These two interpretations of the phrase are used too loosely within AHI. The Team suggests that the phrase 'scaling up' better describes the hierarchy from plot to watershed and beyond, and 'diffusion' better describes the spread of technology beyond the pilot sites.

The Team observed in their visit to the benchmark sites that researchers were making considerable advances in their relationships with farmers and farmer groups. However there was confusion among AHI researchers about how far they could go in the village beyond the introduction of basic technological innovations. Some had introduced credit to farmers and questioned how AHI was going to deal with this, and with other wider activities including policymaking and market access. These issues emerged from trying to follow a farmer-led agenda introduced by PAM. There is a clear danger that a proliferation of activities, reaching beyond the joint disciplinary skills of the site team, can bring serious operational problems.

While AHI cannot directly address many of the farmers' problems such as credit and marketing, it can act as a facilitator to assist in dealing with them. One AHI role is to facilitate partnerships, monitor the mechanism used and the progress of the partnership, and record results. Facilitation of successful partnerships is within the scope of AHI, once its primary competence in working with farmers is consolidated. Site researchers will eventually need to look beyond the farmer's plot and the village to the catchment and the watershed, and to other institutions with skills in the wider activities that INRM requires, but they need to move a step at a time, building new skills and forming new partnerships required as they go. The steps in this progression towards full INRM need clarification to enhance focus and to set boundaries for the activities in AHI. Section 6.3 contains the Team's proposals on this issue.

### **5.2 Benchmark Site Coverage of ASARECA Countries**

The mandate of most regional networks under the ASARECA umbrella has been the transfer and testing of genetic material, information, methods and experience throughout East and Central Africa. What was learned from research within a specific agro-ecological zone or problem domain in one country would be of relevance to that similar zones or domains in other countries. The primary reason for these regional networks was to promote regional cost effectiveness, avoiding the duplication of research by countries, when a regional effort could meet their needs. Increased cost effectiveness in the application of limited NARI budgets to regional problems is the rationale for the setting up of ASARECA.

There are presently 8 AHI research benchmark sites in 5 of the 10 countries within East and Central This number of sites, although it has a history, runs against the cost effectiveness principle on which ASARECA is based. It has resulted in higher transaction and logistical costs for planning and coordination and capacity building, reducing the potential manpower for technical support and monitoring available for each site. The Review Team is convinced that relatively large number of sites has diluted the intensity of technical support AHI can offer to any one site. The Team is concerned that technical backstopping and attention to methodology development has been stretched very thin and that individual researchers and site research teams are not being given the attention they need.

The change in researcher mindsets required to identify, implement and evaluate processes for INRM is a major challenge. It will only be achieved if there is adequate mentoring of the site teams and careful monitoring and documentation of the processes tried. A higher level of technical support is needed to build capacity in site teams to address and test the processes, methods, and partnerships needed to develop an effective INRM research paradigm.

This concern is heightened with the understanding that there is interest in other ASARECA member countries to host AHI sites. With the present human and financial resources, and with likely future available levels, any further expansion of sites would be a serious mistake. Indeed, the Review Team recommends a restructuring of AHI [section 6.4], to bring greater intensity of technical support to fewer sites.

### **5.3 AHI as a CGIAR Eco-regional Initiative and an ASARECA NRM network**

Whether these two AHI roles, as a CGIAR Eco-regional Initiative and an ASARECA NRM Network, are compatible is an explicit item in the Terms of Reference of the Review Team [See Annex 1]. The team sees no conflict, on the contrary, it is important that there is a regional umbrella that will be the eventual home for the AHI programme.

The 1992 'Revision of CGIAR Priorities and Strategies' saw the need for an initiative to identify a paradigm for research to link productivity improvement with natural resource management. It perceived the resource degradation problem as essentially local, requiring local specific solutions in the form of technology and policy measures, and therefore, being properly within the aegis of the NARIs and not the IARCs. It did see an international role however in the search for the more generic processes and methods which could be used and adapted in local situations.

The 1992 Report foresaw IARC involvement in the medium term, a period of some 15-20 years, while methods were being identified and developed and capacity built, then withdrawal, leaving methods, capacities and skills with the NARIs.

This said it is true that the development and then dissemination of findings on research process and methods has been very limited under Phase II of the programme. This has led to doubts about its commonality with the other networks operating under the ASARECA umbrella. These doubts, expressed from time to time in the minutes of the CD of ASARECA, have been reinforced by the relatively high costs of the AHI Programme compared to the standard network. Its costs are of the order of twice the annual cost of most commodity networks.

Suffice it to say here that AHI is a different animal, but a fair comparison requires a perspective beyond the immediate commodity networks. All commodity networks are front ended by research activities in many countries of the region. The network costs usually exclude these research costs, but in AHI 's case the research costs are included. Proposals in section 6.5

of the report seek to clarify the AHI networking function with the NARIs and indeed with the other ASARECA networks.

#### **5.4 Commitment among the IARCs and NARIs**

The Review Team were repeatedly questioned about the commitment of the IARCs to AHI, there is a perception among NARIs that the IARCs are distancing themselves from the programme. From a CGIAR perspective the eco-regional initiatives sought an increase in inter-centre collaboration, as well as a rebalancing between commodity enhancement and natural resource management. The initiatives would call on IARC programmes and their commodity networks for technologies to address local site problems. Indeed, the original strategy for the Systemwide Livestock Programme convened by ILRI was to have its fieldwork only in eco-regional sites to encourage the integration of crop and livestock interventions for NRM improvement.

Phase I of AHI pursued collaboration by following IARC led theme lines at separate sites and showed only limited success. Phase II has been more successful with CIAT, CIP, TSBF and to a lesser extent ILRI bringing technologies and support at some sites. Interviews with international partners elicited some evidence of collaboration and integration, for example between TSBF and ILRI and between CIAT and TSBF.

The transfer from Phase I to Phase II bruised both CIMMYT and IITA. The sites where they were working on their thematic initiatives did not fit the agro-ecology targeted by the sites selected for Phase II so the thread of their work within AHI was broken. The tragedy of the loss of IITA staff has perhaps delayed any mending of fences there. CIMMYT, the IARC dealing with a major crop in the region, is building up capacity here after several years of limited presence. Currently the Centre is heavily preoccupied with the GM Maize programme in collaboration with KARI, Kenya, however CIMMYT regional staff expressed an interest in collaboration, and sought an involvement in the research planning process.

In discussion with IARCs a number of possible reasons for a distancing from AHI were identified;

- The large number of sites and thus heavy overheads and transaction costs for the support provided.
- Earlier and continuing criticism of IARC dominance in decision making, resulting in the Centres taking a lower profile.
- Low income potential from AHI funds, but heavy logistical and transaction costs, both in the work and in obtaining the funds.
- Low commitment from backstopping scientists with AHI as a minor part of their portfolio.
- The nature of AHI, where a demand driven choice of technology inhibits ‘technology push’. A Centre may invest in bringing technologies to a site but not find any return on the investment. This inhibits ‘Flag flying’ to donors on achievements when Centre technologies are not chosen as a solution to local problems at AHI sites.
- There is an IARC nervousness about ASARECA, they feel there is a danger of losing control over the allocation of their resources as ASARECA seeks its own power base in the region.

This nervousness is perhaps reinforced by two factors; First, the long-term commitment of major donors to SPAAR, in building and funding regional umbrellas. Second, earlier experience in negotiation with SADCC, which had high transaction costs for the IARCs.

In the region AHI has had some success in attracting IARC resources, CIAT and TSBF have been particularly supportive. At the other extreme IARCs have sought AHI resources as the cost of their involvement. This probably has its origins in the hope that shifting more of the CGIAR into NRM would attract new funding, AHI is still viewed as a source of funds for collaborating IARCs which AHI has been unable to provide directly due to limited funds and priorities set in favour of a site focus. However in the West Africa eco-regional initiative IITA has wholly subordinated its own NRM program and budget to operating the benchmark sites. Given the importance placed on greater inter-centre collaboration by the CGIAR, the priority given to NRM and the need to address regional problems, it is not clear why more IARCs in the East and Central Africa region don't follow this example.

ICRAF perhaps presents a special case as the convening Centre. It deserves credit for its early leadership and continuing improvements in administration. Perhaps because of five factors there has been a fall off in the commitment to programmatic collaboration;

- There is no unanimity among senior ICRAF managers as to the primary purpose of AHI.
- There was early criticism of ICRAF dominance in decision making.
- Confusion over the difference in the roles of the AFRENA network and the AHI programme, reinforced by the choice of some AFRENA sites to host AHI, and by both networks having the same coordinator for Phase I.
- The loss of an AHI champion among senior management at ICRAF when the Deputy Director General moved to ILRI.
- Adverse reaction in NARI to the fact that AFRENA tops up NARI staff salaries, but AHI doesn't.

The fact that AFRENA is an agro-forestry network, puts it on a similar basis as the other IARC supported commodity networks, its commodity being trees. AFRENA is a network that promotes and tests the use of trees for providing services in natural resource management and in providing products such as wood, medicines and food.

Yet ICRAF has its own sites that employ non-tree technologies, and have wide institutional partnerships, it has a range of NRM technologies that are strong candidates for the AHI menus of options, its new focus in programmes 1 and 3 is Integrated Natural Resource Management. Nothing could be closer to AHI, there is a great deal to gain from collaboration on both sides.

More generally there is a need for senior CGIAR managers to have an occasional presence in AHI regional meetings and it is to be hoped that a new initiative currently planned in the CGIAR to bring greater cohesion to IARC programmes across the regions of Africa will improve inter-centre collaboration in the context of AHI. Individual IARCs should carefully examine the potential areas of overlap between their own programmes and AHI as a step towards fuller collaboration and greater commitment.

A parallel lack of commitment can be seen among some NARS senior managers. It seems to arise from poor information flows about AHI to Directors of NARIs, caused partly by the governance structure, and partly by the extra workload carried by those NARI managers dependent on project funding, when one small project with limited funds gets little attention. It is important to convince managers that AHI is not just another project.

As the Review Team has already outlined the underlying cause of wavering commitment among senior NARI managers remains a confusion over AHI objectives, aggravated by the apparent lack of focus suggested by the breadth of activities subsumed under the AHI umbrella.

It is exacerbated by a high turnover of senior managers; new people need orientation but have a wide range of other things demanding their attention. ASARECA, as the regional platform for AHI, offers a valuable degree of protection against this rapid turnover. Adverse reactions from new senior managers are tempered by the views of the CD as a whole. Similarly a strong local platform at the site, reaching into the local administration, provides further protection against personality based decisions in the line ministry concerned.

Currently there is a very good spirit among most site teams, essential to success in the field. However the gap between the enthusiasm among site based scientists and the wavering commitment of senior managers poses a threat to the success of the AHI programme. The team believe enthusiasm among senior managers is vital to a sustained and effective effort to identify an INRM research process. Without their enthusiasm there will be unwillingness to commit good staff, and to embrace AHI activities in staff performance reviews. Good scientists themselves will shy away from activities which do not offer the prospect of professional advancement, and the enthusiasm and quality of site based staff will spiral down. Site and support staff already have their worries that some AHI activities do not fit conventional NARI patterns, they are also aware of the short life of most projects, and many part timers clearly see their NARI portfolio as more likely to gain credit from NARI managers than the work they do within AHI. Such staff need re-assurance that the programme is strongly supported by senior managers, and if they perform well in AHI activities this will be reflected on their personal records, and in the incentives they receive.

Senior managers in both NARIs and the IARCs, indeed in all partner organisations, need better briefing on the objectives and activities of AHI. They need sensitisation to its activities, including field visits to sites to convince them this is not 'just another project'. Given the urgency of land degradation in the African Highlands, the numbers of people dependent on these lands for their livelihoods, and the consequences if the drift from the land to the towns accelerates further, they should be the strongest advocates for the programme. There needs to be open acknowledgement, such as we found in EARO in Ethiopia, that a research institution organised solely on commodity and disciplinary lines is ineffective in designing technologies for small farmers, that an additional, integrative, organisational and institutional dimension is required, and that this is the heart of the AHI effort. The upcoming discussion and activities on institutional reorientation should help with sensitisation in Ethiopia and Tanzania, where it is planned to start.

The Team feel this is an urgent problem. We have devoted sections 6.2 and 6.3 of the report to clarifying and justifying the goals, and to categorising and sequencing the activities to be pursued by AHI in Phase III, all in an effort to create greater confidence in the programme on the part of senior NARI and IARC managers.

## **6. PROPOSALS**

### **6.1 The Need for Integration**

Integration in productivity improvement and natural resource management has several dimensions. Understanding the processes to integrate the component technologies emerging from a variety of commodity and factor based programmes is the most immediately urgent.

Agricultural research is conventionally organised on commodity and disciplinary lines. The culture of commodity research is to identify the materials and practices to maximise physical output per unit of land for its commodity in a given agro-ecology. To do this it employs

experimental design and statistical analysis techniques that allow it to distinguish precisely between the performance of one material, or of one practice, and another. Importantly, part of the technique is to hold non-experimental variables at optimum levels to allow full expression of the differences between the experimental variables. This renders the results only partially relevant to the situation found in farmers' fields, where the non-experimental variables are never at optimum levels.

In conventional formal experimentation the priority given to rigour and to precise measurement often overwhelm relevance. This is the reason why, over the last twenty-five years, a new stage has developed in the approach to research; findings on the station are tested in farmers' fields in partnership with farmers. Optimisation of the non-experimental variables is relaxed and the experimental findings on station are adapted, in the context of farmer management. This is the final point in the research process where technological components are adapted, and are integrated into a technology, or a set of technologies, that are compatible with farmers' circumstances.

The other key factor in integration at this technological level is that farmers, and particularly small farmers, have multiple objectives. They operate integrated systems of crops and livestock, as well as exploiting off farm sources for income to provide food and cash for their household needs. In distributing their finite resources of land, labour, and cash across these multiple enterprises they must inevitably compromise on the best way to produce any one of the commodities they need. Thus, before they are relevant to farmers' situations, the formal findings from applied research have to be adapted and integrated, not only with each other, but also with the realities of the system he/she operates; considering his/her priorities, his/her resource endowments, and his/her strategies for managing variability in both climate and markets.

Formal research findings from a commodity and disciplinary based research culture are only very rarely immediately relevant to farmers' circumstances. Where this occurs it is inevitably serendipitous.

There are three other key integrative dimensions in the search for a research paradigm for NRM:

- First, the processes and methods for integrating NRM practice on individual fields, with the need for sustainable nutrient cycling on the farm as a whole.
- Second; the processes and methods for integrating the management of the whole farm with the management of soil, water and vegetation on the wider landscape.
- Third; mechanisms for integrating the efforts, through partnership, of the diverse institutions that have complementary roles to play in research and sustainable development.

The need for integration at levels of the NRM hierarchy from field to landscape and beyond have important implications for the internal organisation of the institutions involved. This aspect has, hitherto, been the Achilles heel of earlier efforts, including integrated rural development and farming systems research, to operationalise a more effective research and development process. Hence the need to acknowledge the long term nature of the kind of changes required and to approach it from a position of common understanding across the diverse institutional stakeholders involved.

## **6.2 Promoting Clarity of Purpose.**

To increase confidence in AHI on the part of senior managers both in the IARCS and NARIs, this part of this sixth section of the report seeks to clarify and justify the goals of AHI,

elaborate the types of outputs to be expected, and identify the “markets” to which these outputs are relevant.

The overriding purpose of programme is to LEARN HOW TO achieve INRM, it is research on research processes and methods, also on the partnership processes for collaboration both between research organisations and between research and development organisations.

- Thus the PRIMARY outputs from AHI sites are integrative processes and methods together with new mindsets and skills in national scientists. The processes and methods, and to a degree new staff skills, are true public goods, transferable from the site, not only across the highlands, but, in large measure, across a wide range of agro-ecologies, they are relevant throughout the ASARECA Region. It is these outputs which provide the value added of AHI.
- Other outputs from AHI sites will reach relatively local markets but are attractive because of the potential for early impact in farmers’ fields;
  - First, NRM and productivity enhancing technologies identified, adapted and adopted by pilot site farmers are evidence of the effectiveness of the integrative processes and the methods and skills used in interacting with farmers. These technologies are immediately relevant to all communities operating the farming system in which the pilot sites are located.
  - Second, at the AHI sites materials, principles and practices are identified which are technically adapted to the wider agro-ecology in which the farming system represented by the pilot site is located. However, such materials and practices will need further evaluation by farmers [partnered by researchers] who operate different farming systems to that in which the AHI pilot site is located. They can confidently be placed in the basket of options to be considered by farmers operating other systems in that agro-ecology.

The main justification for AHI, and for the high level of investment required for its coordination and for technical support at its sites, is that its primary outputs are true international public goods and will be relevant not only throughout the ASARECA region but globally, hence the interest of the CGIAR.

### **6.3 Promoting Focus: Sequencing Research on Integrative Processes into Stages**

As earlier AHI documentation has made clear there is more to INRM than improved agronomy in farmers’ fields. Fully integrated NRM demands changes in the use of the landscape as a whole, especially in these densely populated, steeply sloping areas, in which AHI is operating. Historically agricultural research process and organisation has not been oriented to work at this scale, new processes and new organisational forms are required. What these should be is as yet unknown, though some pieces of an emerging paradigm are clear. What is already clear is that from the beginning farmers’ and their communities must be drawn along as partners in identifying and developing the processes in order to achieve changes at this scale.

The wide scope in activities needed for fully integrated NRM, ranging from soils analysis and variety selection at the field level, to land use policy, credit and marketing at both local and national levels, creates a need for a clear focus, particularly in the short term. In a further effort towards clarification the Team has divided the path towards full INRM into a four stage sequence, each stage representing a set of processes and a set of new skills, and a further step towards full integration. The four stages identified for a sequencing of process, methods and skills, and therefore for a sequence of capacity building are;

1. **Researcher/Farmer interface:** Processes and partnerships at the researcher/farmer interface to enable technology choice, adaptation and farmer adoption. This includes the blending of the skills and knowledge of a range of disciplines to provide an integrated solution to natural resource degradation..
2. **Dissemination and Diffusion:** Processes and partnerships for the dissemination and diffusion of proven technologies from the pilot sites to the wider farming system in which they sit, and of technical principles to the wider agro-ecology which the pilot site also represents.
3. **Researcher/Community Interface:** Processes and partnerships, at the researcher/community interface which facilitate community decisions and action at the watershed level. The variety of stakeholders across the watershed have to negotiate how their diverse interests can be met by an integrated solution. Again, at this more aggregated watershed scale, new disciplines and skills are required, sociology, ecology and experience of catchment studies are examples.
4. **Wider Institutional Partnerships:** Mechanisms for forming partnerships with such local and national institutions that have the mandate for policy formulation, credit administration, input supply, market analysis and infrastructure development necessary for INRM.

It is important to note that in this final stage 4, AHI is not being asked to undertake policy research, or to run credit and input schemes, but to identify mechanisms which enable partnerships with institutions with these skills, in order to mount an integrated effort towards NRM.

The Review Team recommends that, to provide focus both for internal planning, for organisation in the site teams, for the organisation of capacity building, and for better understanding among IARC and NARI managers and donors, AHI addresses these four stages in sequence. The need for a similarly sequenced capacity building strategy is elaborated in section 6.8 below.

#### **6.4 A Revised Modus Operandi for AHI**

Agricultural research has seen major additions to its stages and processes over the last 25 years, the involvement of social scientists and the shift of much experimental work onto farmers fields have increased the relevance of the technologies offered to farmers. Participatory techniques are increasingly dominating the final interface between research and farmers, allowing farmers to identify useful technologies themselves, and giving farmers' needs an increasing role in setting research priorities, again both aspects increasing relevance in the research effort.

The burgeoning urgency to improve natural resource management creates the need for more new research processes, and perhaps new institutional structures to implement them. Again, it is not a question of substituting for classic commodity and disciplinary research, but of supplementing it by additional processes to improve relevance and impact.

The Team believes the attempt to build up capacity at eight sites in Phase II has diluted technical support and threatened the quality of site products. The Team recommends increasing the level of technical support at three sites where the research on process will be concentrated. This will avoid unnecessary duplication in process development and save on transaction, overhead and logistical costs, releasing funds for operational expenses at the sites

The Team recommends that three types of pilot site be identified; 'Research on Research' Sites [RORS], National Pilot Sites [NPS], and National Sites [NS].

- **RORS:** Three such sites will concentrate on strategic research on identifying and testing the processes required for NRM. The number will be limited to ensure quality research, development of new processes, and enough technical support to allow site based mentoring of national staff to build capacity effectively and relatively quickly.
- **NPS:** Will test the process outputs from the RORS, and, where the agro-ecology is similar, introduce the technical outputs from AHI RORS to their own farmers. These National Pilot Sites are supported by the disseminated outputs from RORS, and by capacity building support from AHI. The efficacy of the AHI dissemination network, its capacity building strategy, and the replicability of its process outputs, is tested in their application at NPS.
- **NS:** Sites within a country receiving guidance and capacity building support from the NPS. The number of National Sites will be a reflection of the urgency each NARI places on putting an INRM process into action in agro-ecologies (even those beyond the highlands) where natural resource management is a priority problem for them.

The NPS meet the need, expressed by several country managers, for AHI to support NARI efforts to address the INRM problem, rather than mounting its own efforts which, with the emphasis on process rather than technology adaptation and transfer to farmers, may become too isolated from the NARI mandate to be sustainable in the institution. Essentially, the NPS will be receivers of both process and technical innovations from the ROR Sites. They will eventually serve as role models, supplying skills for training if a NARI decides to replicate INRM sites in other parts of the country. AHI should assist in fundraising for operational expenses at the NP Sites. These sites may also link into the Technology Transfer competitive grant scheme launched by ASARECA, and with other grants schemes being proposed.

The Review Team realises that the final decision on which sites become RORS will rest with the major stakeholders in AHI. It must be emphasised that the more sites are designated for RORS the more will technical support be diluted, threatening the higher quality research at them which is the aim of the recommendation. The Team brought several criteria to bear as a basis for its recommendation on the three existing sites to be designated as RORS.

- No country should be asked to host two RORS.
- Sound past achievement and significant current capacity and leadership,
- Enthusiasm and support for process research among senior managers
- A demand for widening the number of INRM sites in country.
- Logistical and transaction costs of technical support by the IARCs are acceptable.

The Team supplemented the site visits it made by reading the literature, including site progress reports. It suggests that, subject to host government agreement, Fianarantsoa in

Madagascar, Lushoto in Tanzania, Areka in Ethiopia and the West Kenya site are the four candidate sites from which the selection of three RORS might be made. The Team has difficulty with Madagascar as a ROR because of the logistics involved in providing regular on site mentoring, including the low representation of IARCs with programmes there.

### **6.5 The Balance between Research and Networking.**

The team believes that this three-tiered structure of sites and two tiers of networking; across the region and within the country, is particularly suitable to ASARECA's regional mandate to improve the efficiency in the use of limited research resources across the region. It consolidates ROR at sites with the best resources to pursue it, then, through networked dissemination and capacity building, brings the results of RORS to NPS established in all the interested countries in the region. A second level of networking uses the NPS as the in-country node for guidance and training at NS.

The scheme has the potential for improving regional efficiency in the use of research resources. Three RORS do the strategic research on process and the results are relevant to the region as a whole. It requires a strong regional partnership to do this. It depends on trust in the region that the countries selected to have RORS will apply good science and will make the results freely available to partners. This trust is the essence of good partnership and can be seen in the better regional commodity networks, such as those for potatoes and beans, in which, for some problems, a single country is given the mandate to do the research for the region as a whole.

As capacity strengthens at the RORS, as the strategic research outputs increase and impact on local communities becomes apparent, networking will become a major function of AHI. This has not happened in Phase II because of the immaturity in the site teams and the necessary pre-occupation with building up their own capacities. The primary outputs, the processes methods and skills, as well as agro-ecologically compatible technical products developed at the RORS, will be disseminated via the AHI network to NP Sites throughout the ASARECA region. These will receive the primary outputs from the RORS and AHI support in building the skills required for implementing them. The teams at the RORS, the national scientists supporting them, the RRFs and IARC supporting scientists, will be a pool of trainers to support capacity building in the NPS.

The Team also recommends a wider networking role for AHI. We have seen AHI distracted from its operational goal into tool development by premature investment in GIS. It needs to maintain its direction and stick with methods that have immediate operational application. To identify these it will be important for AHI to monitor a range of projects, both in the region and outside it, which are developing or using tools and processes that will be valuable to AHI as it moves through the four-stage sequence in INRM processes. Such projects may also be a source of trainers for transferring capacity to AHI sites. A few examples are offered here.

- The IFPRI project in Ethiopia & Uganda on smallholder development paths.
- ACTs work on interacting with local government in environmental policy formulation
- ALTERRA project working at catchment level in both Lushoto and Embu and monitoring catchment indicators and applying other new methods.
- ASARECA Technology transfer initiative for processes found effective in dissemination and diffusion.

The work going on in Asia and Latin America on INRM, not least that under the CGIAR Global Mountain Initiative of which AHI is a part, should receive greater attention. AHI should

be on a wide range of publication lists and programmes found to be especially relevant should be visited and monitored. The Team suggests the TSG as a forum for identifying programmes that offer outputs, particularly process outputs, useful to the future of AHI.

Further, it will be important for AHI to monitor ASARECA commodity and factor networks in the region seeking new techniques as options to discuss with farmers at sites. Then, as experience accumulates at sites and farmers better articulate their needs, AHI will begin to make demands on the commodity and factor networks for the development of materials and practices which meets these needs. For example farmers' criteria in varietal selection, or on fodder preferences, will be valuable in helping order priorities in the appropriate networks, and in shaping varietal selection programmes, and even germ-plasm pools. Other potential AHI outputs, for example indicators of sustainability at field, farm and landscape level, will be valuable to commodity programmes in balancing their work between productivity gains and environmental considerations.

## **6.6 Increasing Technical Support at RORS.**

The addition of a Technical Adviser to the coordination team will improve the quality of site work and process monitoring and documentation. It is hoped the lower logistical and transaction costs from having fewer sites focused on process research will encourage the IARCs, in particular ICRAF, CIMMYT, ILRI, and IITA, to greater involvement where their programmes are relevant to site needs. The Team also recommends redirecting the efforts of RRFs away from regional analysis to site development and network dissemination, again with the aim of boosting technical support and capacity building.

On balance the Review Team feel that the mechanism of Regional Research Fellows has contributed to the progress made in AHI. This said, the regional dimension of the original role conceived for them has had limited success. The Team noted some concerns that the hiring of regional research fellows is creating a parallel structure 'for a privileged few'. Perhaps these concerns stem from the fact that some RRFs were recruited as relatively junior professionals, without the experience to instil confidence in national scientists in site teams. On the other hand there are examples where RRFs have commanded great respect from the site teams, Areka in Ethiopia is a case in point.

The Team is convinced that the RRFs, or a similar staff category, are needed for the time being, though the re-orientation proposed in their roles places a greater premium on experience and the ability to provide guidance and disciplinary leadership at the sites. Other devices to strengthen technical support may be possible. Buying part-time from experienced NARI staff and employing these in country would often incur lower costs, avoiding the need for re-location and re-housing, as long as such experience is valued by the national programme.

The revised modus operandi for AHI identifies four functions for RRFs:

- To provide technical support through mentoring at ROR sites.
- To aid in the documentation and dissemination of both process and technical outputs from the RORS.
- To contribute to capacity building at NP sites.
- To monitor relevant projects outside AHI.

For Phase III a minimum of three RRFs will be needed. On the whole the NARIs have strong cadres of biophysical scientists but are weak on the social science side. One of the three should be a social scientist, either a farm systems economist or a field experienced anthropologist or rural sociologist, one ecologist or systems agronomist, and one experienced in

monitoring and evaluation to be primarily concerned with dissemination. All three should have good writing abilities and be strong in documentation.

The two RRF scientists would backstop the three RORS in their respective disciplines, and help organise and implement capacity building for the NP Sites. The M&E RRF would help with monitoring and documentation at the ROR Sites, also monitoring relevant outside projects, and help in the dissemination of process innovations to the NP Sites. The priority for additional RRFs beyond these three would be a second social scientist for site support and then a second for M & E and dissemination. .

Clearly the disciplinary and experience mix required in technical support in general, and for RRFs in particular, will change as the sites evolve through the four stages of INRM process. The immediate priorities for RRFs are four types of activity in Phase III:

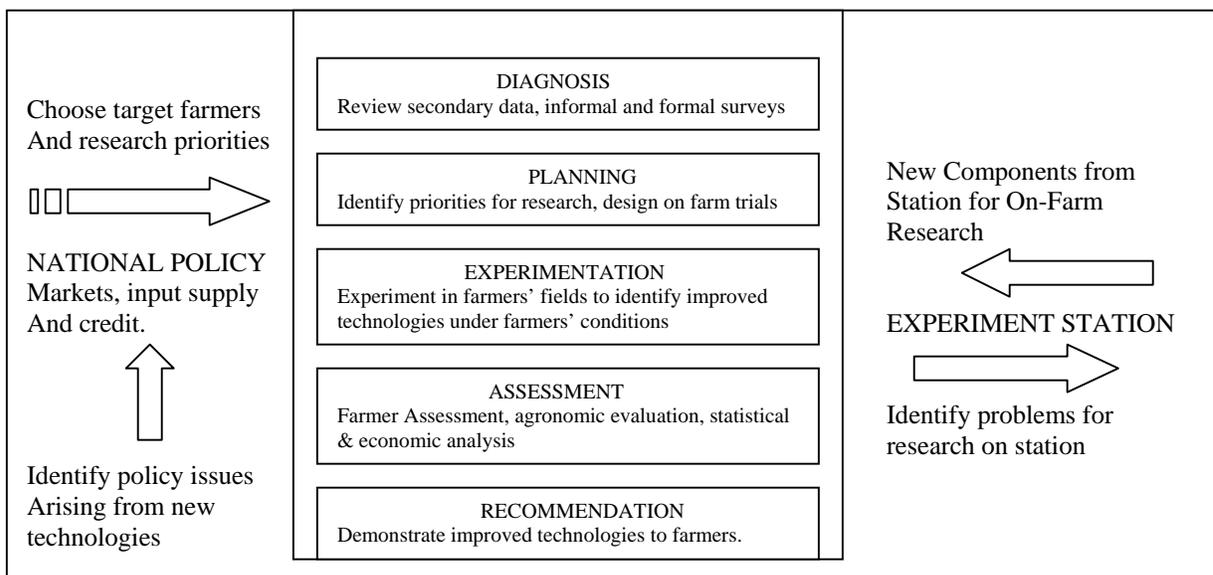
- Begin dissemination and capacity building at NPS [while NPS are in transition it will be important for their morale to show they will indeed get both products and training]
- Social science input, including training, as the human side is generally weak.
- Better understanding of the biophysical background (see the recommendations in 6.7 below) within the RORS, will generate measurement processes for early transfer to the NPS.
- Start identifying and monitoring outside projects for process products for testing in AHI.

The changes recommended in the modus operandi of AHI have other implications for the implementation of Phase III, some are examined in the following three sections.

### 6.7 Suggestions for the Research Approach

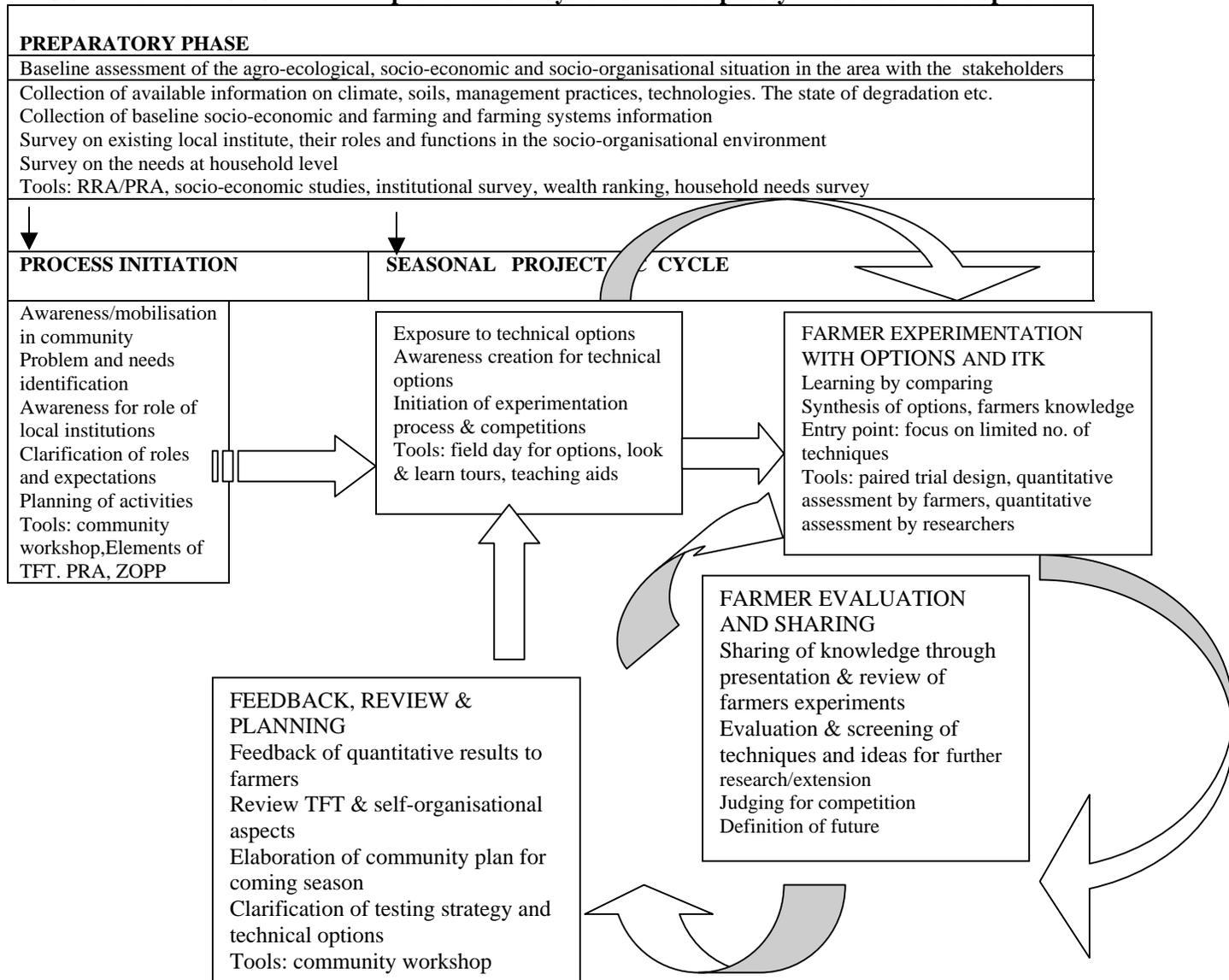
The research approach used includes elements of farmer participation, an improvement from the CIMMYT on-farm research model (Figure 1 below) used within the farming systems approach. However it still remains essentially a research approach. It needs to evolve towards a broader approach to innovation and development. An example called ‘Kukuraya’, used in Zimbabwe, is shown in Figure 2 below.

**Figure 1: CIMMYT – On-Farm Research Model.**



Source: CIMMYT (1988): From agronomic data to farmer recommendations: an economics training manual. CIMMYT, Mexico.

**FIGURE 2. The KUTURAYA’ Implementation Cycle for Participatory Innovation Development**



Source: Hagmann, J., Chuma, E., Murwira K. (1997). “Kukuraya”: participatory research, innovation and extension. In; van Veldhuizen L., Waters-Buyer, A. Ramirez R., Johnson D. and Thompson. J. (eds): Farmers’ research in practice; lessons from the field. IT Publications, London, pp 153-173.

The problem of bridging the gap between the “hard” and “soft” sciences is crucial to the performance of AHI. Biophysical scientists and social scientists must not only look at the same plots and talk with the same farmers, they must do so together and integrate their findings to address the farmers’ felt needs. The biophysical and social scientists should be developing a process that will help them to write up experimental proposals together, it is an important step in process. The farmer, as a client, should be involved and as the relationship matures begin to

direct experimentation him or her self. At all times, the research scientists should be refining their understanding of the bench mark site, to contribute to a better understanding of the much larger and more complex agro-ecological zone and the human interactions with it.

The remaining suggestions centre around the issue of typology. A clearer view of hierarchy will help define the typology required for AHI to function as intended. Plot experiments are located in a field which is part of a farm at the pilot site, and the farm and pilot site are within a catchment. The catchment is either embedded in a farming system or covered by a number of systems, differentiated by where they lie on the catchment. The catchment itself is embedded in an agro-ecology. The size of the farming system, measured by the numbers of households operating it, and the population of the agro-ecology, show the extent of the market for the secondary outputs—technologies and technical principles respectively—from the pilot site, and these are key numbers for both planning and evaluation.

While GIS may eventually offer opportunities for typology refinement, a simple alternative is the best start. Most, if not all, participating countries have existing small scale (1:1,000,000) biophysical or agro-ecological mapping of their country and have a fairly good understanding of the farming systems that occur within these zones. If they don't then two weeks work across transects, by discussion with local agriculturalists, will provide understanding and an outline characterisation of the systems within the agro-ecology. These offer a rough but ready way to document the diffusion linkages. Documentation of the typology is the key. Modest publications which define typology for the site and estimate the extent of the markets for the site products should prove attractive to donors, policy makers, and planners alike.

The Team also recommends greater rigour at three levels of typology.

**Research plot level:** Increased rigour in AHI's INRM research plots is strongly recommended.

- Site specific climatic data should be collected that is relevant to the research plots. Plot level research referring to average rainfall collected from a remote station is unhelpful. Simple weather stations should be installed at all benchmark sites where intensive adaptive, agronomic research is being conducted. This should include a tipping bucket rain gauge (that can record rainfall intensity) and an automated temperature recorder. The micro data loggers available today have revolutionized environmental monitoring and made the researcher's work much easier.
- For research initiatives addressing soil erosion, more specific soil data should be recorded for the specific plots within which the trials are being conducted. At a minimum, slope, soil texture, soil classification, depth to B horizon and pH (all simple field tests) should be recorded. In agronomic trials, estimation of the rates of surface erosion should be made after heavy rainfalls and, where possible, attempts made to determine whether that eroded soil leaves the plot, and if so where it goes.
- The Team feels that the linkages between different land uses, cover crops, rates of soil erosion and loss of N, P and organic matter, needs to be strengthened in on-site research.

Considering that soil degradation has been diagnosed as the central NRM concern, investigating this linkage is essential. There is a tremendous body of relevant literature on rates of soil loss under different covers. The fact that an agronomic change proposed by the AHI research teams might influence soil erosion on a plot or indeed, that future soil erosion might influence the type of crop that could be grown, has not yet been clearly articulated. This does not usually mean a great investment in research time on erosion plots, useful data has already been generated elsewhere which will provide an estimation of NRM trends.

**The Farm Level;** It is at the farm level that many of the more complex nutrient and human energy transfers occur. The farmer manages a whole farm which may consist of geographically distinct parcels of land with widely varying quality and widely varying costs to service. Why and how the farmer makes choices between the management of different parts (and different sub-systems) of his farm can lead to a better understanding of farm level opportunities and constraints. How farmers manage the transfer of nutrients between different niches on the farm can lead to new intervention points and to a better understanding of the externalities that existing management forces onto the catchment in which the farm operates. Agro-ecosystems analysis (associated with the names of Conway, Lightfoot, Rambo and Pajise working in Asia) offers participatory approaches to gain this understanding.

**Sub-catchment Level:** Once the understanding of plot research and the role of the farmer is well entrenched, watershed management concepts should be more actively considered by the research team. These include current management of the catchment by the communities living on it, the way they are organised to manage it, as well as the biophysical character of the catchment.

Wherever possible, a distinct watershed catchment should be delineated which would include the present research sites. Some of the benchmark sites have fairly good land use maps, others not. With three notable exceptions, (Embu, W.Kenya & Kabale) there has been little attempt to collect hard data dealing with changes in land use over time. If one is attempting to monitor the effectiveness of NRM interventions at a catchment level, it is necessary to document the actual land use and conditions, to be able to quantify change.

Ultimately it will be important to know whether cumulative changes in land use and management being promoted by the AHI team influence downstream water quality and quantity and the timing of flows. Simple mapping exercises should be used to understand the linkages between farmer's plots, hill-slopes, sub-catchments, and major watershed characteristics within a particular agro-ecological zone. Large-scale land use mapping of village areas within benchmark sites would provide potential users of the information about the nature of the landscape within which the work is being carried out. Enlarged aerial photographs make a user-friendly tool for discussions with villagers about the management of their land resources. With the assistance of the local farmers through a number of participatory approaches, a fairly detailed characterization of sub-catchment areas within a watershed can be developed very cheaply. The exercise characterizes not only land use but, if properly conducted, land management dynamics at a point in time. This reference point can be used by researchers to monitor changes in the future, that may be attributable to AHI.

## **6.8 Capacity Building Strategy**

Balancing daily project activities with progressive yet managed transformation towards the distant goal of INRM is difficult. Individual researchers and teams require core competencies that include an understanding of integrated natural resources management concepts and the ability to define what exactly is their own role and what is best left to partners. For example; who facilitates with farmers and the community, who is the leader for interdisciplinary research, who co-ordinates with station based researchers, who links with policy-makers. Re-orientation to the degree required needs deliberate intensive and focused opportunities for learning and re-learning. Such a process goes beyond training in participatory tools. The shift from commodity researcher working individually to integrated natural resources researcher working in a team or the shift for the extension worker from teacher to facilitator, requires new skills, new tools, different attitudes and changes in behaviour which cannot occur over night. Such changes can only come about

through action learning while implementing the programme and support from substantial backstopping in terms of concepts and methods.

As discussed in 6.3 above the Team has divided the scope of activities needed for fully integrated NRM into four stages, each representing a set of new skills and step towards full integration. It is hoped this will facilitate orderly the planning and implementation of the project and will underpin a strategy for capacity building. Generally greater emphasis should be on site level training. Where regional level training is held, two measures should improve its effectiveness:

- Greater transparency and consultation on the selection of participants,
- Ensuring reporting after training on the incorporation of acquired skills into the site team plans

The Team concludes that developing and implementing stage 1 of this four stage sequence should continue to be the primary thrust of AHI in Phase III. To facilitate process and partnerships at the researcher/farmer interface to enable technology choice, adaptation and farmer adoption [stage 1 in the process], site teams need skills in participatory approaches and flexibility in the tools and methods to be applied. It is essential that capacities are developed on site.

Stage 1 is the basic building block upon which INRM rests. Unless the working interface between the farmer and researcher is well established, the remaining stages will be constrained. Clearly, given that adoption and diffusion is already a fact at several pilot sites, the second stage of process; testing optional mechanisms for dissemination and diffusion and monitoring their effectiveness and cost, will become increasingly important as Phase III progresses.

To facilitate process and partnerships for dissemination and diffusion of proven technologies from the pilot site to the farming system and to facilitate community decisions and action at the watershed level [stages 2 and 3], site teams require conceptual understanding of systems thinking and interdisciplinarity, team development and management, conflict resolution, biophysical processes and context, scaling up approaches and change, knowledge management and development of innovation systems. They also require knowledge on operationalisation of INRM (how to do it). They require skills in;

- Conceptualisation of action research
- Building local organisational capacities
- Building farmers capacity to innovate.
- Performance / impact monitoring
- Collective NRM (development of rules and by laws, effects and implications of them)

The actual manager of the land, and the person who can respond to the physical, economic, social and political conditions influenced by the project is the farmer. He/she is the one who actually tills the soil, sends livestock out to graze the land and makes extensive use of community lands. Farmer capacity building needs to parallel staff capacity building. Instigating positive change for the farmer comes with positive changes to the conditions under which he or she operates. Developing capacity so that researchers can understand and facilitate farmers to deal with these issues is a goal for AHI in stage 4 of the sequence. To facilitate processes and partnerships for enabling farmer adoption and community action, including forming partnerships and informing policy on land, on credit, on product and input marketing and on infrastructure [stage 4], site teams require technical knowledge which includes;

- New technologies

- Learning tools
- Understanding the trade-offs between farm production and market demand in evaluating technologies to inform decision making of policy-makers.
- Understanding the trade-offs between production and the environment in evaluating technologies to inform decision making for sustainability.

At this stage site capacity building needs to be combined with institutional capacity building at management levels. Processes for the institutionalisation of participatory research in and beyond the NARIs is required, including the following aspects;

- Interdisciplinary team work building
- Performance incentives: Reward system
- Project cycle management
- Multi-stakeholder partnerships
- Facilitating changes in institutional culture and governance.
- Changing organisational structure

A key element in the capacity building strategy is the development of an operational framework which defines the stages in the training process. An example of a training framework developed for Participatory Extension Approaches in Zimbabwe is shown below [Box 6.1]

**Box 6.1 An Example of an Operational Framework based on the Participatory Extension [PEA] Iterative Training in Zimbabwe.**

**Phase 1. The start - two weeks workshop on PEA - Exposure to concepts**

- Introduction, exposure and tools training for initial steps of the PEA cycle
- Create operational framework
- Planning - individual action plan for one community to try out PEA.

**Phase 2. Field implementation of action plan - approximately six months if possible follow up and backstopping by trainers in the field.**

- Mutual learning support among extension staff, further exposure of local staff

**Phase 3 - 1 week workshop; evaluation and re-planning**

- Sharing of experiences gained during first action plan and learning from each other.
- Joint working on how to overcome the major problems faced in the field
- Training on more tools and methods
- Second action plan formulation

**Phase 4. Field implementation of action plans 6-9 months**

- Peer to peer sharing and support
- Mutual learning support and follow-up by trainers

**Phase 5. 1-week workshop**

- Sharing of field experiences during second action plan and further learning.
- Joint working on how to overcome the major problems faced in the field
- Review of the whole process experience and planning to support future learning.

In the framework an overview of a comprehensive capacity building strategy is offered in which the new disciplines and partnerships required, and the elements, concepts and methods to be covered by each stage, are identified. The detail for each stage is developed as training progresses. The framework allows participants a broad view of skills to be acquired at each stage and thus to identify their training needs. It also facilitates the selection of participants for each stage. Such a framework will also assist stakeholders to monitor progress and to understand the dynamics of the programme as it unfolds.

## **6.9 The Promotion of AHI and the Dissemination of Information**

AHI must be able to effectively communicate its products to scientists in the field, senior level decision makers in the NARIs and IARCs, and to donors. Each of these receiving groups requires a somewhat different product to allow it to, firstly judge whether the project is useful and, if it is, to be able to communicate the significance of the product to wider audiences. Given the programme focus on the difficult concepts of INRM, their work needs to be not only clearly presented but promoted in a variety of ways to interest and educate the range of stakeholders involved. The Team has been impressed with communications at the farm and village level. It is also impressed with the number of publications, the substantial reporting network established by AHI and the amount of material that has travelled along it. It offers the following suggestions to assist in the communication and dissemination of AHI work.

More promotional reporting methods might go a long way to alleviating existing misunderstandings. Invariably the anecdotes the Team has heard about why a given innovation has or has not been adopted is exactly what AHI is trying to address. These stories, properly framed within a research orientation are themselves a valuable product. Reporting should record researchers' decision making processes in characterization and diagnosis, and farmers' decision making processes in the adoption or rejection of a proposed NRM technology. In writing up the researcher can usefully personalize his relationship with the farmer or farmer group. In all cases it is highly recommended that those unfamiliar with the project be encouraged to visit a benchmark site and talk with researchers and farmers together.

Annual reports are submitted to the national and regional level describing the AHI research that has been carried out. Other platforms for promotion and dissemination need to be considered. Programme results can be disseminated by exchange visits, manuals, posters, newspapers, radio and television. To raise the programme profile, AHI is encouraged to reconsider the use of posters, brochures, fliers and some higher technology communications.

As a start the AHI Update newsletter, perhaps modelled on a simpler version of the ILEIA newsletter should be resumed. It would focus on the dissemination of three types of material;

- Detailed additions to processes and methods, and their applications borrowed from other sources, such as the ILEIA newsletter. The articles should be focussed on gaps in current capacity at sites. Eliciting farmers' criteria in the evaluation of varieties would be an immediate area of interest. Diagrammatic representation of agro-ecosystem analysis would be a second one.
- Identification and monitoring output, particularly process outputs, from projects regionally and globally that have something to offer AHI to meet its current and future needs. This could be solicited from such projects or taken directly from their newsletters. For example, ACTS might be persuaded to write on its experiences in linking up with local policy makers, or there might already be suitable material in its publications.

- Cross-site experiences with the application of processes and methods, written by site staff.

Distribution would be to two target audiences; site staff and NARI supporting scientists to help with capacity building, national managers and donors to show that dissemination is underway.

As a further dissemination mechanism, the CD-ROM reporting system used by the People and Resource Dynamics Project (PARDYP), an INRM project in the Himalayan region, illustrates just how powerful such a computer based communication platform can be. They have made extensive use of CD ROM technology in lieu of paper reports. Their CD ROM includes many site photographs, animation, scientific text with pull-ups for explanations, references to other areas in the CD ROM file with direct linkages, direct access to web sites via the CD ROM with related or more in-depth material. It is a living document, added to and modified, as new information becomes available. It considerably reduces the amount of paper reporting required.

The Team also feels that an investigative journalist / public relations person may capture the essence of what AHI is, and is capable of achieving. The small successes already evident in the field make for good reading and make excellent promotional material. A comparative study of farmer's acceptance and rejection of proposed innovations across the eco-region would provide a justification for this method of project organization. Senior managers in ASARECA and ICRAF would welcome the chance to show donors their successes with dealing with a complex issue like INRM.

As part of a global network, AHI has a responsibility to share its new gained knowledge and learn what it can from the rest of the network. With the use of email, websites and bulletin boards for scientists involved in INRM work, such communication has become very easy and can be very rewarding. CD ROM based information attached to a web site is a cheap and effective way to distribute information regionally and globally.

#### **6.10 Changes in Governance and in Coordination.**

RSC as a layer of governance is not proving cost-effective. It meets only once a year and many of its members, for whom AHI is a minor responsibility, do not have enough knowledge of the programme to make a meaningful contribution in their recommendations to the CD. Efforts have been made to improve members grasp of the vision, objectives and operations of AHI by extending the annual meeting beyond a single day, the downside is taking yet more time from a cadre whose main interests are elsewhere.

The TSG on the other hand must be complemented on its enthusiasm, interdisciplinary interaction, and vision. With the TSG so successful and its members so much closer to AHI operations, the Review Team recommends that the TSG be renamed the Regional Steering Committee, and the RSC, as currently composed, be disbanded. The Team recognises that this is at some variance with an ASARECA policy that persons remunerated by programmes can only be ex-officio members of an RSC. On the other hand it was brought to our attention that ASARECA is working to improve the effectiveness of its RSC's. It is hoped that this recommendation is taken in that spirit.

To bring the renamed TSG closer to the CD in ASARECA, the Team recommends that one member of the CD be included as a member on a revolving basis, though not as chairperson. He or she should serve a two-year term and attend at least one of the two meetings a year. This will provide the same conduit to the CD as was provided in the current RSC with a CD member as its chairman, but the content of the meetings, and hence the messages moved to the CD,

should be more substantial. Similarly the committee should have a donor representative to maintain a link with stakeholders funding the programme. The Team's recommendation for two levels of pilot sites, ROR and NP sites, should not affect committee membership composition. It will be important to have site coordinators from both types of site as members. If NP sites proliferate with time, some scheme of representation would be needed.

If this recommendation is accepted it raises the issue of the added value of coordination at the national level. It is important of course that there is a project officer at NARI head office who has AHI as part of his portfolio, many things arise that must be taken up at that level without adding to the burden of the NARI Directors. However, with an emphasis on stronger leadership at the sites, and an effort to raise the commitment of senior NARI managers, the Team recommends that the title National Coordinator, and the idea of a national level coordinating committee, be abandoned. Greater emphasis is needed on widening the local platform through the site steering committees.

## **7.0 AN OVERALL ASSESSMENT AND A LOOK INTO THE FUTURE.**

AHI can be regarded as an umbrella for a group of countries and institutions that recognise the need to develop new research processes, and new institutional mechanisms, to meet the challenge of a declining natural resource base in the face of a need for greater agricultural productivity. The institutions with most to gain from AHI success are the NARIs, because the degradation problems have to be solved locally and are unlikely to attract attention from the private sector.

Developing a set of processes to achieve INRM, and building capacity to implement these, is a major undertaking. In their original eco-regional proposals in 1992 the CGIAR gave it a 15-20 year time horizon. With the first efforts on the ground in 1995 the Team believes a fifteen - year period, to 2010, remains realistic. Stakeholders should be urged to take a similar long-term view of the programme. The vision at the end of AHI's rainbow needs to be clear to all stakeholders, yet the initiative needs flexibility to learn by doing. The experiences of both Phase I and Phase II have brought progress along the learning curve. The Review Team was impressed by the skills demonstrated by the on-site teams, a tribute to the capacity building efforts through AHI. The initiative has made a good start in methodology development through the application of the Participatory Agro-ecological Management Programme [PAM]. There is general awareness amongst site teams of concepts such as Integrated Natural Resource Management, agro-ecosystems and participation etc. Researchers continue to struggle with issues such as the trade off between scientific rigour and participation, the linking of research and development, and the definition of roles. Overall the Team feels there has been sufficient progress, particularly since the inception of Phase II and the appointment of a full-time Coordinator, to justify a further phase, Phase III.

From a CGIAR perspective AHI should be one vehicle for greater inter-centre collaboration in the new atmosphere of the CGIAR. ICRAF, recently charged by the CGIAR to bring coherence to Centres' programmes in Eastern Africa, should put the early criticisms of its dominance behind it and engage again with AHI in substance, it has much to offer. The focus of its programmes on INRM are strongly congruent with the focus of AHI, it is in their mutual interest to be closer.

AHI and its purpose need better promotion both among its own stakeholders and more widely. Following the recommendation in section 6.8 there should be early re-start of AHI

Update, with help of the incoming technical adviser. This would begin to build confidence that outputs are emerging, and that process outputs are the primary focus for AHI. It will evidence the beginning of dissemination of useful processes for INRM to all sites, as well as to managers and donors, and demonstrate the value added by AHI from its emphasis on process.

Changing the modus operandi of AHI needs sensitivity. There needs to be a period of adjustment. The transition in the roles of sites in the ROR and NP categories should not interrupt the work planned for the coming season. There has been too much investment in capacity building to throw plans into confusion. In any case the immediate priority in Phase III will continue to be the building of capacity to implement stage 1 processes at both RORS and NPS, though the transition to new roles should be complete by the end of 2001.

Those RRFs pursuing valuable research programmes should complete their current assignments, those who fit the profiles required for the new RRF roles can be retained, others will move on. Sites already showing farmer adoption are ready to move into Stage II of process development, promoting and monitoring alternative ways for the diffusion of innovations. By the end of Phase III all ROR and the best NP Sites will be widening out to Stage III, the broader challenge of community organisation and watershed management.

Finally the Review Team's hope is that added clarity in objectives and the phasing of process development will both enhance focus and offer appeal to a wider group of donors, providing additional funds to speed up the learning process. More immediately the Team hope that stakeholders receiving this report will come to early agreement on its recommendations, and that early commitment of donor funds will provide continuity in the transition from Phase II to Phase III.

## **ANNEX 1.**

### **TERMS OF REFERENCE FOR EVALUATION OF PHASE II OF AHI**

#### **TIME FRAME**

While the review and evaluation will focus primarily on activities which have been undertaken in Phase II of the programme (i.e. from January 1998), it is also apparent that most of what is being undertaken in this phase, was planned during the last year of Phase I – from September 1996 to September 1997. [i.e., the Work Plan for Phase II was published and approved in October 1997]. The evaluation team should, therefore, undertake the evaluation from September 1996 – when the last evaluation team (MacKay and Gichuki) produced its report, which was used as a major input into planning for Phase II.

#### **OBJECTIVES OF THE EVALUATION**

The objectives of this evaluation are to:

- (a) assess activities undertaken in the African Highlands Initiative as regards their scientific and research management capacity on the national agricultural research systems and other technology development and transfer partners in terms of impact at the farmer level;
- (b) review the appropriateness of the methodologies, approaches and technologies utilised, taking cognisance of the ability of the potential stakeholders to transfer the knowledge so generated and likelihood of adoption at farmer level;
- (c) assess the cost effectiveness of the models used to plan, manage and implement research activities with reference to the ability of the national systems to sustainably replicate them;
- (d) assess the dual role of AHI (and its partners) as a CGIAR eco-regional programme, and as an NRM programme of a sub-regional organisation such as ASARECA. (i.e., how this duality has affected the programme, both positively and/or negatively).

#### **SPECIFIC TERMS OF REFERENCE**

It is envisaged that the evaluation will provide to ASARECA, ICRAF as a convening centre, other partners (IARCs and ARIS), as well as donor agencies with an independent and rigorous assessment of Phase II of AHI in the following specific areas:

- (i) The planning process for this phase in relation to the outputs of Phase I and the evaluation report [MacKay and Gichuki, (1996)] in terms of the goal and objectives, and planned activities.
- (ii) The performance of the programme in terms of its effectiveness, efficiency and achievements in relation to the goals, purpose, and outputs for this phase.
- (iii) The impact of the programme in respect to the major implementers, stakeholders and beneficiaries. (ASARECA, NARS, IARCs, donors, farmers, extension systems).
- (iv) The organisational and management structures used to implement and support the programme in terms of their efficiency, effectiveness and sustainability.
- (v) The relevance and practicality of the vision, goals and priorities selected and their likely influence and impact on future research, capacity building activities, as well as evaluation of the programme within the context of national, regional and international agricultural research.
- (vi) The quality, capacity and commitment for continued technical backstopping to the AHI programme by the major partners involved – IARCs, ARIS, NARS.
- (vii) The roles, contribution and effectiveness of the different implementing partners in achieving the technical and institutional objectives (ICRAF, ASARECA, IARCs, NAROS, NGOS, etc.).

- (viii) The impact of the programme on the way NRM and commodity improvement research are being undertaken in the region (i.e., integrated team work; strengthening partnerships; participatory methods, involvement of beneficiaries and other stakeholders;)
- (ix) The way the programme addresses poverty eradication activities, gender and other emerging issues and its impact in all them.
- (x) The effectiveness and efficiency of coordination and collaboration mechanisms being established or used by AHI, including their cost effectiveness and long term sustainability.
- (xi) The financial management and administration in the programme – including fund raising, disbursement, accounting and the roles of different partners/mechanisms (NARS, ICRAF, other IARCS, the Regional Steering Committee, technical support group/panel, donors, etc.).
- (xii) The adequacy of current geographical focus of the programme – including numbers of benchmark sites and countries participating in relation to current and future impact of the programme.
- (xiii) Make recommendations on the evolution of AHI in relation to its vision, strategy goals, partnerships (NARSS, IARCS, other networks, etc.), organisational structure, etc., taking cognisance of the need for the programme to add value to the work of the NARSS, other regional networks, IARCS, and ARIS, and emerging trends (ASARECA's NRM strategy, CGIAR's SSA strategy, overall CGIAR strategy on eco-regional programmes and system wide programmes).
- (xiv) Make specific recommendations on changes to the programme and priority activities for Phase III and identifying activities in Phase II, which should be continued, dropped, re-emphasised, etc.

#### **METHODOLOGY & TIMING**

The evaluation team should interview as large a number of AHI stakeholders and researchers as it is seemingly possible. These should be from the NARS, NGOs, IARCS, ASARECA and its networks, donor agencies. The team should also visit at least 5 benchmark sites, 3 of which have been in both Phase I and II and two of which have come on board in Phase II. The visits should be organised such that the five benchmark sites are in different countries. The visits and interviews should take at least two weeks and a draft report submitted at the end of the third week. The draft report should be simultaneously submitted to ASARECA, ICRAF, and donor agencies, who should be given two weeks to send their comments electronically to the team members. The team leader should then incorporate these comments, where possible and produce a final report within a week. The evaluation should take place during the last 3 weeks of September 2000.

## ANNEX 2.

### ITINERARY OF REVIEW TEAM MEMBERS

<b>Date</b>	<b>PERSON/ PLACE</b>	<b>Activity</b>
Sept 11,	Carson and Chuma arrive Nairobi	Nairobi
Sept 12,	Collinson arrives Nairobi	Nairobi,
Sept 13,	Team in Nairobi	ICRAF and ILRI managers & scientists. Director KARI, AHI National Coordinator
Sept 14,	Team to West Kenya	West Kenya Site, Kakamega, Meet site team, Regional Centre scientists, Farmer groups.
Sept 15,	Team to Uganda Collinson & Carson travel to Kabale.	Team to Kawanda Research Station Chuma meets CIAT staff
Sept 16,	Carson and Collinson in Kabale Chuma to Madagascar	Visit Kabale site, meet site team, support scientists, Farmers groups, Drama presentation on AHI
Sept 17,	Carson in Kampala overnight Collinson to Ethiopia	
Sept 18,	Carson to Arusha, Lushoto Collinson in Addis  Chuma in Madagascar.	Visit SARI research station in Arusha Visit EARO, meet Deputy DG (also Chair RSC), National Coordinator, ILRI staff Visits national scientists, site coordinator
Sept 19,	Carson at Lushoto & Chuma in Madagascar Collinson, travel to Awassa	Visit Field Site, meet site teams, coordinator, collaborating farmers Travel with EARO Head of Soil Fertility Programme, RRF. Visit supporting scientists at Awassa Research Station.
Sept 20,	Carson to Dar es Salaam Chuma Collinson	Visit Research HQ. Dar-es-Salaam Visits second Madagascar site Visits Areka Research Station & site team, visits Areka site, and cooperating farmers.
Sept 21,	Carson to Kampala Chuma to Antananarivo Collinson returns to Addis	Visits DG EARO, ILRI scientists in Addis
Sept 22,	Chuma, Collinson to Kampala	
Sept 23,	Team in Kampala	Debriefing and Report outline
Sept 24,	Team in Kampala	Reading and report preparation
Sept 25,	Team in Kampala Collinson to Entebbe	Report writing. Meet DG & Deputy NARO.

Sept 26,	Team in Kampala Collinson to Nairobi in evening	Report writing, Chuma & Carson meet Director Namulonge, scientists supporting Kabale site.
Sept 27,	Collinson to Kampala in evening	Visit ICRAF & CIMMYT staff and KARI Director.
Sept 28,	Team in Kampala	Preparation of Aide Memoire
Sept 29,	Team to Debriefing Meeting in Entebbe	Presentation of main conclusions in Entebbe to main stakeholders.
Sept 30,	Team in Kampala	Report preparation
Oct 1,	Team in Kampala	Report preparation
Oct 2,	Carson returns to Canada Chuma returns to Zimbabwe	Report preparation.
Oct 3,	Collinson returns to UK.	Draft to AHI Coordinator to check historical accuracy
Oct 6,	Collinson	Incorporates corrections, emails draft for circulation

## **ANNEX 3.**

### **PERSONS MET BY TEAM MEMBERS**

#### **INTERNATIONAL ORGANISATIONS**

##### **IDRC**

Dr. Luis Navarro (Nairobi)

##### **ROCKEFELLER FOUNDATION**

Dr. John Lynam (Nairobi)

##### **ASARECA**

Dr. Geoffrey Mrema (Executive Secretary)

Dr. A Mbabu. Technical Adviser.

##### **ICRAF**

Dr Pedro Sanchez, DG ICRAF.

Dr Anne-Marie Izac, Dir. Research

Dr Glenn Denning, Dir. Development.

Dr Tiff Harris, Dir. Management Services,

Mr Laksiri Abeysekera, Financial Controller,

Dr Kwesi Atta-Krah, Coordinator, AFRENA

Dr Ann Stroud, Coordinator, AHI. (Uganda)

Dr Steven Franzel, Economist,

Dr Frank Place, Economist,

Dr Marcus Walsh, GIS research,

Dr Keith Shepherd, Soil Scientist,

Dr Bashir Jama, Soils, (W Kenya)

Dr Thomas Raussen, (Kabale)

Mr Alex Awiti RRF GIS.

Mr Chris Opondo, RRF, M&E (Uganda)

Mr Michael Ocilaje, RRF, Telecentre. (Kabale)

Ms Olive Kyampaire. Project Assist. for AHI Coord. (Kampala)

##### **CIAT**

Dr Roger Kirkby, CIAT Pan African Coordinator, Uganda.

Dr Kwasi Ampofo, Entomologist, Tanzania.

Dr Soniia David, Sociologist, Uganda.

Dr John Nderitu, RRF, Pathologist, Kenya.

Dr Tilahun Amede, RRF, Agronomist, Areka.

Dr Pascal Sanginga, RRF, Rural sociologist, Kabale.

Dr Robin Buruchara, Bean pathologist, Kawanda

Dr. Anthony Esilaba Agronomist

Mr Julius Araali Kamulindwa, Finance and Administration Officer.

## **TSBF**

Prof. Michael Swift, Director, Nairobi.  
Dr Cheryl Palm , Soils scientist  
Dr Mateete Bekunda RRF soils, Kabale  
Prof Ken Giller, Vice Chairman Board; Zimbabwe.  
Mr J. Mukalama (West Kenya)

## **ILRI**

Mr Bruce Scott, Director of Administration, ILRI.  
Dr Jean Ndikumana, NARS networking.  
Dr Bill Thorpe, Dairy systems leader.  
Dr Phil Thornton, Modeling,  
Dr M Saleem, Highlands Programme leader, (Addis).  
Dr Jean Hansen, Forage Legume Breeder (Addis)  
Dr Jimmy Smith, Systems Livestock Coordinator. (Addis)  
Dr Simeon Ehui, Head, Ag policy, Div. Addis)  
Dr. M Jabbar, Ag Ec Highland Program. (Addis)

## **CIMMYT**

Dr Dennis Freisen. Soils, (Nairobi)

## **CIP**

Dr Peter Ewell, Regional Coordinator.  
Dr Berga Lemaga (Agronomist, Kabale)  
Dr Jane Alumira (Extensionist GIS, Nairobi)

## **NATIONAL ORGANISATIONS**

### **KENYA AGRICULTURAL RESEARCH INSTITUTE**

Dr. R. Kiome, Acting DG, KARI.  
A.B. Orodho, Director Kakamega Regional Research Station.  
Dr. Steven Nandwa, AHI National Coordinator  
Mr. John Ojiem, Site Coordinator, West Kenya.  
Mr A. Ogola KARI-Kibos  
Mr J. Achieng KARI - Kakamega  
Mr E Mwangi MOARD  
Mr H. Obiero KARI - Kakamega  
Mr R. Otsyula KARI - Kakamega  
Mr G. Odhiambo KARI-Kibos  
Mr C. Oduori KARI - Kakamega  
Mr K. Otieno KARI - Kakamega  
Mr Martin Odendo KARI - Kakamega  
Mr W. Muniyere KARI - Kakamega  
Mr S. Insaule KARI - Kakamega  
Mr P. Ongandi KARI - Kakamega  
Mr James Mbakaya KARI - Kakamega

**Other.**

Dr Fred Wang'ati, Consultant Soil Scientist

**TANZANIA :DEPARTMENT OF RESEARCH AND DEVELOPMENT**

Ms Mary Lutkamu, Acting Director, Special Projects.

Dr. Richard Ndondi, Plant breeder.

Mr. Charles Lyamchai, National Coordinator, AHI.

Dr. Jeremiah Mowo, Site Coordinator, AHI.

Mr. S. Lyimo, Agronomist.

Mr. Ngulu, Phytopathologist.

Dr. Ngonges Director, Hort Tengeru.

Dr. A. S Mbwana, Nematologist, Hort Tengeru.

Mr. Wickama, Soils, Mlingano

Dr. G.J. Ley, Soils, Mlingano.

Rashid Shelulando, District Agricultural Extension officer, Lushoto.

T.W. Kizuguto, District Agriculture and Livestock Development Officer,  
Lushoto.

**ETHIOPIAN AGRICULTURAL RESEARCH ORGANIZATION**

Dr. Seifu Ketema, DG

Dr Aberra Debelo, DDG

Dr Paulus Dubale, Head, Soils Department.

Dr Habtu Assefa, AHI National Coordinator.

Dr Taye Bekele Leader, National Soil Fertility Programme.

Dr Telahun Amede, RRF, Systems Agronomist.

Areka Site

M. Diro Acting AHI Site Coordinator

T. Belachew, Soil & water conservation

E. Geta, Areka Centre Manager

Y. Anjulo, Extensionist, MOA

M. Abera, Forage agronomy Asst.

A. Wassi, Soils research.

Melessa Eshetu, Soils PhD student, U/Norway.

Ginchi Site

B. Kassa, Acting AHI site coordinator,

C. Yirga, Economist.

**MADAGASCAR**

Dr Francois Rasolo, Director General, FOFIFA

Dr Yvonne Rabenatoandro, Scientific Director FOFIFA

Dr Raymond Rabeson, National Coordinator FOFIFA

Dr Jean Marc Randrainaivoarivony, Site Coordinator FIFAMANOR

Mr Julien Rakotonoraso, Director TED

Dr Jean Louis Rakotomanana, Site Coordinator FOFIFA

Mr Jose Randrianarijaona, Economist FOFIFA

Mrs Nene Lalanekenarisoa, Extensionist CIRAGRI  
Mr Raymond Rakotomamonjy, Extensionist CIRAGRI  
Mr Victor Randriananasolo, Facilitator FOFIFA  
Mr Richard Rabemnanaa, Agronomist TEFY SAINA  
Mr Derive Rakotondramanana, Farmer Antsirabe site steering committee  
Mr Francis Randralamchaja, Farmer Antsirabe site steering committee

## **UGANDAN NATIONAL AGRICULTURAL RESEARCH ORGANISATION**

Professor Mukiibi, DG.  
Dr Otim-Nape, DDG Outreach.  
Dr. Fina Opio, Director, Namulonge Research Institute.  
Dr. Berga Lemaga, PRAPACE Coordinator.  
Dr Joy Tukahirwa, Former Kabale site coordinator  
Nelson Turyahabwe, Acting site coordinator, Kabale  
Dr J.J Hakiza, Head, NARO sub-station, Kabale.  
Joseph Kikafunda, Agronomist,  
Gard Turyamureeba, Plant breeder, Kabale site  
Steven Tindimuboona, Farmer, Kabale.

## **NGO**

Bremerton Ngombe, Africare, Kabale  
F. Alacho, Agronomist, Africare, Kabale.  
CARE Staff, Kabale.

## ANNEX 4: LIST OF ACRONYMS AND ABBREVIATIONS

AEZ	Agro-ecological Zone
AFRENA	Agro-forestry Research Networks for East Africa
AHI	African Highlands Initiative
ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
BARNESA	Banana Research Network for Eastern and Southern Africa
BRR	Bean root rot
BSM	Bean stem maggot
CARE	Co-operative for American Relief Everywhere
C&D	Characterization and Diagnosis
CD	Committee of Directors
CD-ROM	Compact disk - Read Only Memory
CIAT	International Center for Tropical Agriculture
CIMMYT	International Center for Maize and Wheat Improvement.
CIP	International Potato Center.
CGIAR	Consultative Group on International Agricultural Research
DAP	Diammonium phosphate
DRD	Department of Research and Development
EARO	Ethiopian Agricultural Research Organisation
EARRNET	East Africa Root Crops Research Network
ECABREN	East and Central African Bean Research Network
FAFIALA	Centre for the Development of Forest Management (Madagascar)
FIFAMANOR	Malagasy-Norwegian Centre for Plant-Breeding and Agriculture
FOFIFA	National Centre for Applied Research in Rural Development
FORI	Forestry Research Institute (NARO)
FPR	Farmer Participatory Research
GIS	Geographic Information System
GMI	Global Mountain Initiative
GO	Government Organization
GPS	Geographical Position Sensor
IAR	Institute for Agricultural Research (Ethiopia)
IARC	International Agricultural Research Centre
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	International Center for Research on Agroforestry
ICRISAT	International Center for Research in the Semi-Arid Tropics
IDRC	International Development and Research Centre
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILEIA	Centre for Research and Information on Low-External Input and Sustainable Agriculture
ILRI	International Livestock Research Institute
INRM	Integrated Natural Resource Management
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
ISNAR	International Service for National Agricultural Research

ITK	Indigenous Technical Knowledge
KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Woodfuel and Agroforestry Project
MISP	Maintenance and Improvement of Soil Productivity
MOA	Ministry of Agriculture
NARO	National Agricultural Research Organization (Uganda)
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System(s)
NGO	Non-Governmental Organization
NP	National Proving (Sites)
NRM	Natural Resource Management
PAM	Participatory Agro-ecosystems Management.
PBW	Potato Bacterial Wilt
PRA	Participatory Rural Appraisal
PRAPACE	Regional Potato and Sweet Potato Development Programme
PRGA	Participatory Research and Gender Analysis (Project)
R&D	Research and Development
ROR	Research On Research (Sites)
RRF	Regional Research Fellow
RSC	Regional Steering Committee
SC	Site Co-ordinator
SECAP	Soil Erosion Control and Agro-forestry Project
SSC	Site Steering Committee
SWI	System-Wide Initiative
SWCU	Soil and Water Conservation Unit (SIDA)
SWNM	Soil, Water and Nutrient Management (Programme)
TAP	Technical Advisory Panel
TSBF	Tropical Soil Biology and Fertility (Programme)
TSG	Technical Support Group
USAID	United States Agency for International Development

## ANNEX 5.

### CHRONOLOGY of EVENTS and OUTCOMES (late 1996 – 2000)

EVENT	Year	Concepts or elements	Origin & process	Outcome
Informal survey design, training & implementation at sites (Ethiopia, Madagascar, W Kenya, Embu, Uganda)	Late 96; early 97	<ul style="list-style-type: none"> <li>- wealth ranking</li> <li>- resource mapping</li> <li>- participatory research</li> <li>- gender analysis</li> <li>- scales &amp; systems</li> <li>- multidisciplinary teams</li> <li>- farming systems zoning &amp; sampling regimes</li> </ul>	2 <sup>nd</sup> C&D advisor synthesized AHI concept paper, project documents, first evaluation report & drew on own experience Facilitated by C&D advisor.	A list of guiding principles was drawn up; exposure to “how to” and concepts plus joint field work in 3 sites; guideline produced. Survey was seen as information gathering exercise, team building and start of building a relationship with farmers. Site teams that did not go through this (Antsirabe, Tana, W Kenya) were hampered in moving forward. First introduction to <b>social differentiation linked to resource base &amp; use; multidisciplinary teams &amp; systems; problem cause trees made by farmers.</b>
Site stakeholders meeting at district level (Ethiopian sites, Uganda, Kenyan sites), Madagascar – Fianan)	May 97	<ul style="list-style-type: none"> <li>- multi-institutional involvement in holistic thinking about R&amp;D issues</li> <li>- participatory objective oriented planning</li> <li>- problem complex understood</li> </ul>	2 <sup>nd</sup> C&D advisor. Idea came from her experience in Tanzania. Facilitated by “ZOPP” specialists.	To get a <b>holistic picture</b> constructed with <b>key R&amp;D actors in the area</b> and to earmark what they thought the research component should be and how various contributions could lead towards overall solution to complex problems. <b>Complex problems</b> well understood using cause-effect problem trees.
End of Phase 1 Workshop	June 97	<ul style="list-style-type: none"> <li>- regional dimension starts to develop – by sharing bottom-up results &amp; regional trends identified</li> <li>- thematic areas revisited</li> <li>- <b>SWOT</b></li> </ul>	Expectation by donors & implementers to have C&D findings direct future activities. Facilitated using cards.	Outcome largely directed design of Phase 2. More holistic in nature. Operational decisions or recommendations from the group had roots in SWOT (e.g. need for more commitment)
SAP (synthesis advisory panel) and Task Force meetings to revise Phase 2 draft	Sept & Oct 97	<ul style="list-style-type: none"> <li>- Consensus of technical direction, content and operational modalities</li> </ul>	Carrying out decision of Phase 2 construction process reached in End of Phase 1 workshop	IARC & NARS advisory group start to envision various dimensions of AHI. Consensus reached & plan redrafted to be more focused & specific. Site coordinators to be appointed by NARS from NARS staff & should be full-time. No regional technical advisor – only coordinator. Coordinator to be based outside of ICRAF
Task Force meeting	Jan 98	<ul style="list-style-type: none"> <li>- agreed on way forward &amp; named RSC members</li> </ul>	ASARECA wanted RSC for all networks.	Increase in NARS representation (NC and DDG); rotational chairman from NARS instead of ICRAF; IARC time pay back heavily discussed as point not in agreement between NARS & IARCs.
Regional Policy in NRM workshop	Feb 98	<ul style="list-style-type: none"> <li>- regional analysis of major policy issues &amp; way forward</li> </ul>	Origin & led by IFPRI, ICRAF & ILRI with AHI. Group work.	Consensus of major areas where there are <b>policy issues</b> . AHI advantage not yet distinguished.
1 <sup>st</sup> Regional Steering Committee (RSC) meeting	April 98	<ul style="list-style-type: none"> <li>- first meeting</li> <li>- operational modalities discussed</li> </ul>	Recommendation of Task Force	Governance (TOR RSC & TSG) agreed. Formation of TSG and working groups debated & agreed. Asset management; planning & reporting schedules agreed.
1 <sup>st</sup> TSG (Maseno. W Kenya)	May 98	<ul style="list-style-type: none"> <li>- discuss benchmark site operational modality, reach consensus on future direction at benchmark sites</li> </ul>	AHI coordinator called meeting as per RSC approval. Topic from regional coordinator to get clear consensus of site dimension. RC facilitated with CIAT IPM & NC Ethiopia – used cards.	<b>NRM concept</b> discussed. Implications for <b>NRM research modalities</b> agreed & resulted in <b>geographic concentration</b> , commitment to <b>community-based participatory research &amp; integrated team approach</b> ; discussed links to ASARECA networks & NARS commodity programs; comparative advantage of AHI defined; training requested. First cross-site sharing ever & first time site reps & IARCs come together

2 <sup>nd</sup> TSG (Embu, Kenya)	Oct 98	<ul style="list-style-type: none"> <li>- discuss regional dimension to reach consensus on general directions</li> </ul>	AHI coordinator called meeting. Topic from coordinator & TSG consensus & agreement. RC facilitated used cards.	Agreed on importance of <b>equity, technology, sustainability</b> aspects. Need more balance on equity & sustainability & important to understand <b>tradeoffs; understand intensification</b> – saw as value AHI could add to other networks & commodity programs. Other areas identified – <b>local policy &amp; NRM decision making &amp; management, seed systems, gender &amp; NRM, scaling up, PR, PM&amp;E, IPM, &amp; niche &amp; resource sharing issues, entry points</b> . Working group members & modality identified.
PAM training	Nov 98 – Mar 99	<ul style="list-style-type: none"> <li>- PAM (participatory agroecosystem management) concepts &amp; stages</li> <li>- Participatory planning &amp; priority setting</li> </ul>	Sites requested training in PR, systems thinking. Decided by 1 <sup>st</sup> TSG that planning & priority setting should be bottom up & should be revisited. Consultant implemented site by site.	Site teams had <b>conceptual development of PR process</b> . Hands on facilitated <b>participatory (with farmers) priority setting &amp; planning</b> in field with consultant facilitating. Plans emerged that served as <b>backbone of current work</b> . Farmers now involved more fully – following PRA. Given assignment on niche identification; to come up with action plan; inventory of technologies
2 <sup>nd</sup> RSC meeting	Jan 99	<ul style="list-style-type: none"> <li>- Operational issues</li> <li>- Value added by AHI</li> </ul>	Normal schedule. RC & RSC chair jointly derived agenda. RSC chair chaired meeting – no participatory techniques used.	Issue of duplication of AHI-AFRENA dominating factor of meeting. Unclear to RSC how various elements of AHI program fit together. RSC wants more over-sight role & not details of operations. Some operational rules derived.
Partnership & team training of RSC	Jan 99	<ul style="list-style-type: none"> <li>- Vision for AHI revisited</li> <li>- Partnership elements</li> <li>- Strengths &amp; weakness – partnership assessment</li> <li>- Skills to improve management</li> </ul>	RC attended training on leading for collaborative advantage. Made request to CG organizational change program for followup with AHI. TRG consultant facilitated	Group starting to come together in <b>vision</b> . Gained better <b>understanding of partnerships and teams</b> & what is needed to get cohesive AHI RSC & decided what was needed in future to move in this direction. Support groups built but not used.
Regional Training course on PAM and facilitation & team building skills	Mar 99	<ul style="list-style-type: none"> <li>- Improve conceptual understanding of PR &amp; provide case study examples by practitioners</li> <li>- Build awareness and skills in facilitation</li> </ul>	Due to costly nature of site by site training it was decided by CIAT (taking lead in PR), consultant & RC to try building resource group across sites in a step-wise fashion, going into steps in depth. Facilitated by PAM consultant. Identified IARC to backstop to spread assistance to sites.	Exposed to <b>other PR practitioners</b> from within region (PRIAM project & CARE) to legitimize PR. Built on <b>concept development</b> . First discussion on <b>team dynamics and facilitation skills</b> & action plan developed on how to improve.
3 <sup>rd</sup> TSG (Kabale)	April 99	<ul style="list-style-type: none"> <li>- Review expectations &amp; contributions</li> <li>- Review &amp; clarify roles and responsibilities</li> <li>- Agree on modes of decision</li> </ul>	Feedback to AHI coordinator by members indicating that various roles & responsibilities are not	Increased understanding of work going on across AHI by TSG members ( <b>holistic picture of the program</b> ). Consensus of <b>roles, responsibilities &amp; rules for decision making</b> . RRF work plans reviewed & agreed. Idea supported for <b>mini-synthesis workshops</b> on soils. Need for RRFs prioritized. Realization that <b>changing “ways of working” is important part of AHI</b> .

		<ul style="list-style-type: none"> <li>- making Revisit &amp; redefine AHI framework &amp; arrange activities</li> </ul>	<p>clear. RSC request for output driven framework &amp; holistic picture how activities are adding value. Facilitated by consultant &amp; elected chairperson. Share results by RRFs &amp; sites &amp; working groups.</p>	
Regional training workshop: Enhancing farmer involvement in experimentation	June 99	<ul style="list-style-type: none"> <li>- Enhance appreciation for farmer involvement in experimentation</li> <li>- Design &amp; implementation considerations</li> <li>- Field visit to Embu to see examples</li> </ul>	<p>In depth work on experimentation needed to support PR process. From earlier decision discussed in TSG to build regional resource group. Facilitated by R Kirkby (CIAT), S Franzel &amp; R Coe (ICRAF) &amp; RC.</p>	<p>Concepts &amp; practicality of working with <b>technical options</b>, ways to <b>monitor on-farm trials</b>, revised <b>checklist for protocol development</b> to increase consideration of farmer inputs; logic of experimental definition &amp; design; consensus building on <b>reasons to increase farmer involvement in NRM research</b></p>
AHI-PRIAM monitoring tour	June 99	<ul style="list-style-type: none"> <li>- <b>Visit a range of cases in the field to be exposed to different PR methods</b></li> </ul>	<p>To further help group visualize PR. Facilitated by CIAT &amp; consultant.</p>	<p>Seeing is believing. To legitimize PR and better understand range of methods &amp; terms being used.</p>
Policy working group meeting	June 99	<ul style="list-style-type: none"> <li>- Discuss with wide range of stakeholders &amp; recommend a strategy for AHI</li> </ul>	<p>Policy part of AHI but not moving forward given dearth of NARS and IARC expertise. TSG decided to use working group to set process in motion. Facilitated by F Place (ICRAF)</p>	<p>Three areas were identified: <b>policies for improved land management, economic analyses of NRM practices, and decentralization, local governance and local initiatives.</b></p>
Sponsorship to Philippines NRM & PR training (ICRAF)	July 99	<ul style="list-style-type: none"> <li>- To expose 4 researchers to concepts, hands-on practice &amp; case studies &amp; experiences from Asia</li> <li>- To bring these into the TSG &amp; site teams</li> </ul>	<p>RC felt need to expose group to practices &amp; concepts from elsewhere. SE Asia ICRAF held course. T Amede (CIAT RRF), Tanzanian, Malagash, Kenyan attended.</p>	<p><b>NRM indicators, use of GIS &amp; NRM, Landcare, PR in NRM</b> were areas covered among others. NRM indicators under discussion in TSG. Not sure how successful spread of information to site teams was from this.</p>
International PRGA meeting (CIAT)	Sept 99	<ul style="list-style-type: none"> <li>- Share experiences in PR in NRM</li> </ul>	<p>Linked to small grant application which was funded. RC &amp; J Tukahirwa (Uganda) attended.</p>	<p>Negotiated with CIAT to get RRF in rural sociology with funds. Exposed to <b>stakeholder analysis, landscape work, CIAs, participatory methods</b>. Met facilitator who later was used in PM&amp;E workshop.</p>
4 <sup>th</sup> TSG (Lushoto) & training TSG on	Sept 99	<ul style="list-style-type: none"> <li>- Share results</li> <li>- Worked on RRF-site coordinator</li> </ul>	<p>RC saw leadership problems in site teams;</p>	<p>High level appreciation for <b>teams, partnerships &amp; skills</b>. Site teams wanted this "training" at site level. Did MBTI test with group so realized group's <b>diversity, strengths</b></p>

partnerships, appreciation of diversity & teams		relationships, team building, partnerships, understanding diversity, accountability, feedback culture, transparency	lack of understanding of RRF relationship in AHI; implemented 2 <sup>nd</sup> part of TRG assistance on teams & partnerships with facilitator.	<b>&amp; weaknesses.</b> Some operational issues ironed out.
Regional planning, M&E workshop	Oct 99	- Enhanced understanding of what AHI is doing & value added by revisiting & agreeing upon the under-pinnings of AHI	RC felt that given TSG work on various parts of AHI, group work on the entire concept & actions required was required. Then an M&E plan could be developed. There was need for complete, agreed vision & articulation of what AHI should do.	Conceptual development on several fronts. <b>PM&amp;E</b> concepts & application; agreement of PR in NRM and components: <b>increase innovation of farmers</b> , advocacy & <b>institutional change within scaling up strategy</b> important. Reason & value of regional links with sites understood. <b>Experiential learning cycle</b> . <b>Integration function</b> of AHI valued. <b>Vision and strategy</b> clear but need to spread understanding into site teams & managers.
3 <sup>rd</sup> RSC meeting	Feb 00	- Day added for site & working group reports; RC gives overview AHI-AFRENA & outreach strategy discussed with plan of work & budget	Annual event. RSC chair elected & facilitated meeting using group work & consensus building techniques.	RSC formulated position of AHI-AFRENA for upcoming ASARECA NRM strategy meeting. Outreach strategy components formulated. POWB approved.
ASARECA NRM Strategy meeting	Feb 00	- Roles and responsibilities of networks & programs decided in relation to overall NRM - Information shared among networks on NRM work being undertaken	EU / ECART team wanted clearer definition of a NRM strategy and roles of various networks in relation to the strategy prior to committing funds to ASARECA. Plenary & task force provided CD with recommendations & CD approved.	AHI and AFRENA seen as separate entities. <b>AHI's role described as institution &amp; capacity building in NRM with emphasis on methods and approaches.</b> Not seen as having a strong role in technology generation – but should draw on other networks.
Scaling up workshop & Landcare (ICRAF)	Mar 00	- <b>To discuss feasibility of Landcare as a possible “movement” for Africa</b> - To identify cornerstones of scaling up	ICRAF and Dir of Development called these sessions. Facilitated by professional.	<b>Landcare</b> might be feasible for Africa. Concern about social aspects for acceptance. <b>Scaling up cornerstones</b> identified which can apply to AHI's own thinking & strategy in this area. Only RC attended.
Regional social analysis skills training / Soil quality indicator training	April 00	- To be exposed to social analysis tools - Soil quality indicator session & improve CIAT manual – adapt to Africa	Site request; part of PR needing strengthening; CIAT PRGA program links – RC wanted to bring tool kit developed in S Am to Africa. Inclusion of ITK on soils &	<b>Stakeholder analysis for improving NRM</b> & see gender as part of this. Practical session on resource mapping; <b>institution mapping, visualizing &amp; building scenarios using models.</b> Action plan devised. Combining indigenous & scientific knowledge relating to soil qualities. Writing manual as guide to teach others..

			scientific parameters.	
5 <sup>th</sup> TSG (W Kenya)	June 00	<ul style="list-style-type: none"> <li>- Sharing of progress reports from sites, RRFs &amp; working groups</li> <li>- SWOT analysis for Ph2.</li> <li>- Vision on thematic areas for Phase 3.</li> <li>- NRM indicators discussion</li> <li>- Monitoring framework introduced</li> </ul>	End of phase reflection and vision of future revisited. RC facilitated vision and R Kirkby (CIAT) facilitated SWOT.	Shared progress. Discussed NRM indicators & formed RRF task force. SWOT analysis.
GIS regional working group meeting	June 00	<ul style="list-style-type: none"> <li>- Share work being carried out by organizations</li> <li>- Identify gaps that AHI should support in this area</li> </ul>	Rockefeller foundation suggestion to follow up on AHI GIS RRF retirement.	Sharing of GIS research & identification of gaps. If AHI to get RRF, should work on tools supporting community-based work & add value to other GIS work that is ongoing.