



BROADENING HORIZONS ---
INSTITUTIONAL, POLICY and TECHNICAL INNOVATIONS FOR
IMPROVING NRM and AGRICULTURAL PRODUCTIVITY
in the EAST and CENTRAL AFRICAN HIGHLANDS

PHASE 3 - 2002-2004

Profile Report to ASARECA
Revised January 2003

Compiled by:
Dr Ann Stroud
AHI Regional Coordinator

AHI Coordination Office
P.O. Box 26416
Kampala, Uganda

Table of Contents

Table of Contents	i
List of tables	iii
Acronyms and Abbreviations	iv
List of Appendices	v
Forward	vi
I. Background	1
A. Introduction to and historical background of AHI	1
B. Importance of AHI in the Regional Context	3
C. Within the context of AHI, the major problems faced at the regional level and the importance of the AHI to the sub-region	4
II. Status of AHI	6
➤ Strategic Plan and Conceptual Framework	6
➤ Governance Structure	6
➤ Participating Countries	7
➤ Implementing Agencies and partners	7
➤ Linkage with Other NPPs	7
➤ Policy	8
➤ Human Resources	8
➤ Facilities	11
➤ Budget/Expenditure	11
➤ Activities	14
➤ Priorities	15
➤ Planning, monitoring, and evaluation mechanism and system	16
➤ Management	17
➤ Information management	19
➤ Technology transfer mechanism	19
➤ Major achievements and impact	20
➤ Readily available technology, research findings and recommendations for transfer to farmers or end users	20
III. Gap/Constraint Analysis	21
➤ Strategic Plan and Conceptual Framework	21
➤ Governance Structure	21
➤ Participating Countries	22
➤ Implementing Agencies and Partners	22
➤ Linkage with Other NPPs	22
➤ Policy	23
➤ Human Resources	24
➤ Facilities	24
➤ Budget/Funding	25
➤ Activities	25
➤ Priorities	25
➤ Planning, Monitoring, and Evaluation	25

➤ Management	25
➤ Information Management	25
➤ Technology Transfer Mechanism	26
➤ Publications	26
IV. Future Trends	26
A. National level emerging and/or perceived threats	27
B. National level emerging and/or perceived opportunities	27
C. Regional level emerging and/or perceived threats	28
D. Regional level emerging and/or perceived opportunities	28
V. Strategic plan	29
VI. Goal, purpose, expected output and revised indicators of success for AHI	33
VII. Targets groups	34
VIII. Beneficiaries	35
IX. Recommendations and conclusions on the major future areas of focus and the way forward	35
APPENDICES	37
1. Address list	37
2. Publication list	44
3. Budget by category	49
4. Activity table	55

List of Tables and Figures

Tables

1. Available human resources in various AHI research topics
2. A series of tables on budget and expenditure by donor over time
3. Projected budget 2002-2004
4. Major regional activities (2002-2004)
5. Regional Framework

Figures

1. Process steps in achieving integrated watershed management in the highlands
2. Key elements for improving integrated NRM to arrest land degradation and contribute to poverty alleviation and economic growth
3. Local experiences lead to regional application

Boxes

1. Conceptual framework for AHI's support

Acronyms and Abbreviations

AHI	African Highlands Initiative
ASARECA	Association for Strengthening Agricultural Research in East and Central Africa
C&D	Characterization and diagnosis
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIMMYT	Centro Internacional de Mejoramiento de Maíz y Trigo
CIP	Centro Internacional de la Papa
DRD	Department of Research and Development (Tanzania)
EARO	Ethiopian Agricultural Research Organization
ECA	East and Central Africa
ECABREN	East and Central Africa Bean Research Network
ECAMAW	East and Central Africa Maize and Wheat Network
ECAPAPA	East and Central Africa Programme for Agricultural Policy Analysis
FOFIFA	Centre nationale de la recherche agricole applique au developpement
GIS	Geographical information systems
IARC	International Agricultural Research Centre
ICRAF	International Centre for Research on Agroforestry
IDRC	International Development Research Centre
IFPRI	International Food Policy Research Institute
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
INRM	Integrated natural resources management
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated pest management
ITK	Indigenous technical knowledge
IUCN	International Union for Conservation of Nature
KARI	Kenya Agricultural Research Institute
M&E	Monitoring and evaluation
MEAPU	Monitoring, Evaluation and Planning Unit (ASARECA)
MISP	Maintenance and improvement of soil productivity
NARI	National agricultural research institutes
NARO	National Agricultural Research Organisation (Uganda)
NARS	National agricultural research systems
NGO	Non government organisation
NPP	Networks, programs and projects (of ASARECA)
NRI	Natural Resources Institute
NRM	Natural resource management
PAM	Participatory agroecosystem management
PMA	Programme for the Modernization of Agriculture
PRAPACE	Potato and Sweet Potato Network for ECA
R & D	Research and development
RMT	Regional research management team
RSC	Regional Steering Committee
TOFNET	Trees on Farm Network
TSBF	Tropical Soil Biology and Fertility Program
TTP	Technology Transfer Project

List of Appendices

1. Address list
2. Publication list
3. Budget by category
4. Activity table

5. Forward

The African Highlands Initiative (AHI) is an ecoregional research program of ASARECA that focuses on improving livelihoods and reversing natural resource degradation in the intensively cultivated highlands of East and Central Africa. To this end, AHI promotes an “integrated natural resource management approach” (INRM) where coordination of collaborative and participatory research and development efforts are integrated to improve agricultural production and natural resource management in highland watersheds, address the human and institutional factors affecting management, and aim to help construct more conducive development strategies and policies. Targeted beneficiaries and participants include national and international research organizations and networks, civil society organizations, service providers, policy makers, local authorities, community organizations and male and female farmers.

The land and resource use in this highland ecoregion although already very intensive given the population pressure and land scarcity, requires further intensification and diversification while ensuring environmental protection and conservation, through promotion of better practices and technologies, improved links to markets, and better policies and levels of investment to address the social, economic, policy and biophysical dimensions of the problems. These problems encompass a complex of soil and water loss, nutrient depletion, depleted forest resources and habitats, scarcity and inefficient water use, declining livestock contributions to the systems, poor public services and infrastructure limiting access to markets.

During phase 3 (2002-2004) AHI is supporting research and development inputs to pursue these concerns: (i) improve watershed management using participatory, integrated approaches in pilot sites; (ii) effect scaling up of INRM approaches to the pilot districts (or appropriate administrative units) and beyond; (iii) to pursue institutional and policy change in favour of INRM; and, (iv) to enhance networking and use of best practices among practitioners. AHI is supporting and enhancing researcher and research institution’s capacity to promote and use INRM approaches so as to better address and achieve impact through the integration of technical, economic, policy, institutional and social dimensions. AHI is focusing on selected methodological dimensions seen as key ingredients to solve NRM and productivity issues: ways to achieve integration, partnerships and working arrangements, collective action and farmer innovation, and institutional change. Further, AHI will pursue *action research* as a way of working that simultaneously builds researcher capacity, is used to invent and explore new approaches and methods, and can ultimately help to institutionalize INRM.

Other key features of AHI include organizing, networking and supporting a consortium of R&D implementers at community, district, research institution and regional levels. There will be enhanced strategies for outreach, documentation and communication. The new thrust on institutionalization will ensure that the investments made in specific highland locations in the region to create and test models and methods, would provide lessons and useful experiences for scaling up to other institutions, countries and situations.

AHI will use six key strategies to accomplish its objectives: emphasize participation and collective action leading to local action, innovation and sustainability; employ an integrated, systems approach; use an action research approach; draw upon strategic partnerships and complementarities, manage a ‘paradigm’ shift through capacity and institution strengthening and promote synergies between local experiences and regional application.

I. BACKGROUND

A. Introduction to and historical background of AHI

The African Highlands Initiative (AHI) is a collaborative research initiative focusing on key natural resource management (NRM) and agricultural productivity issues in the highlands of east and central Africa. The founders of AHI chose the intensively cultivated highlands eco-region in 1995 as an area where partnership could make a difference. The founders were concerned NARIs and IARCs working in the region that expressed the need to improve R&D approaches and partnerships as a major way to increase the impact of research, which has been elusive given limited adoption of “proven” NRM technologies.

In response to this challenge, ASARECA approved the initiation of AHI in 1995, as one of its first new programs. AHI is a relatively unique entity among the 18 networks and programs led by ASARECA as it is “cross-cutting” in terms of integrating the technology innovations that many of the other networks distinctively handle; it is the only “eco-regionally” focused program; and it is the only initiative, that is, where there is need to build the limited research capacity and to work on developing new research areas. AHI is hosted by ICRAF, and facilitates the contributions from a consortium of research organizations¹ that provide a range of expertise aimed at solving the complex resource degradation issues in the highlands.

AHI has evolved during its three phases, each of three years. In Phase 1 (1995-97), AHI was organized around a regionally determined set of separate thematic technical agendas, i.e. integrated pest management (IPM), maintenance and improvement of soil productivity (MISP), and characterization and diagnosis (C&D) of the benchmark site areas. Benchmark sites were chosen as representative highland areas having high population levels, small farm sizes, degraded landscapes, and relatively humid conditions. The institutional context, that is the R&D actors present, also was considered. Although there are basic similarities, the benchmark sites have differences in terms of enterprise mix, socio-economic, policy and development environment and NRM issues present. These differences are useful in regional syntheses and comparisons.

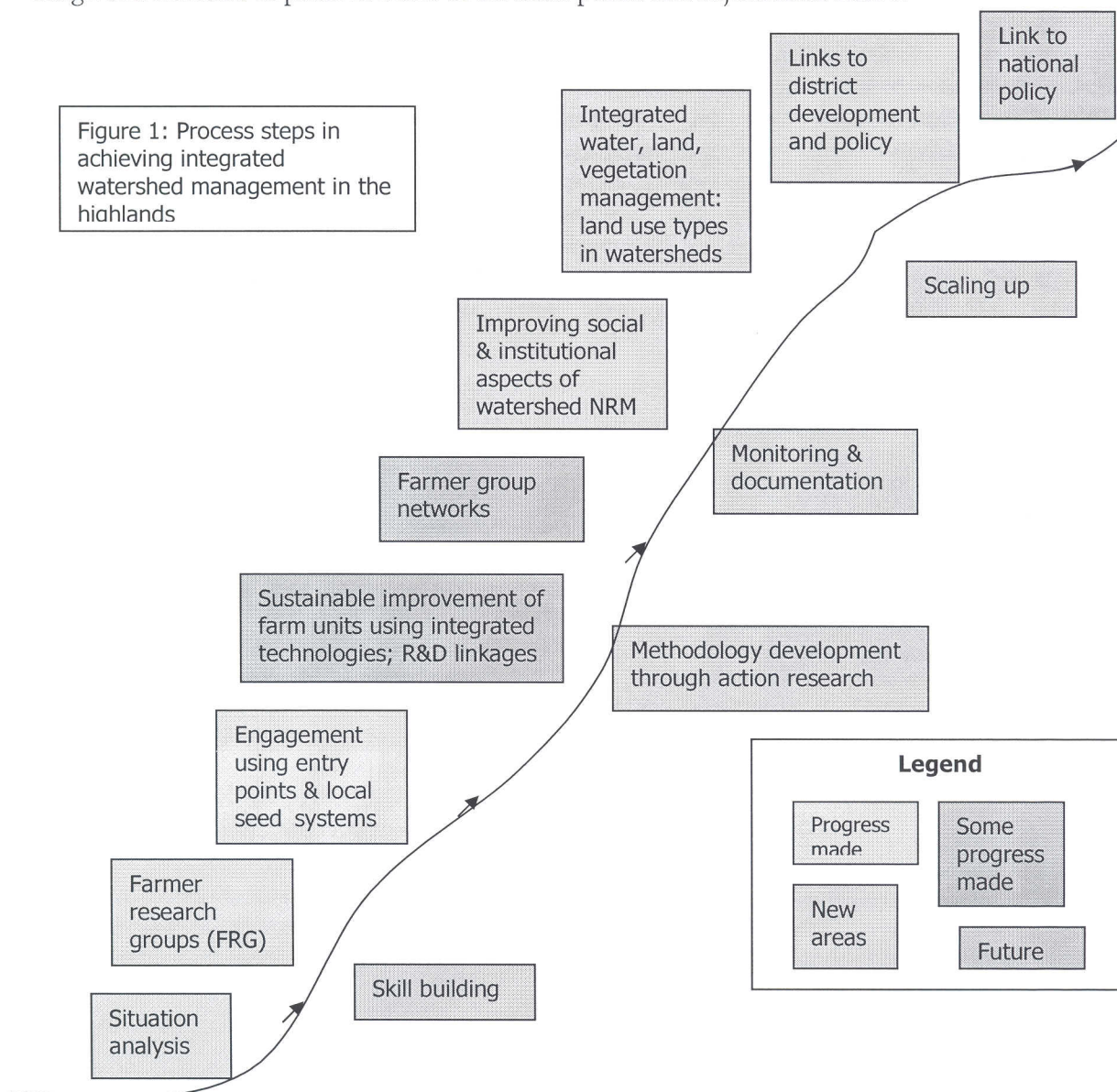
An early evaluation of AHI (1996) indicated that the top-down thematic approach was not achieving the necessary integration, systems approach, or partnerships. In response, the then regional “Task Force” recommended the appointment of National and Site Coordinators and the adoption of a benchmark “integrated research team” approach. Phase 2 (1998-2001) followed directly from these recommendations. AHI supported work in pilot benchmark or pilot sites as a way to test approaches and demonstrate the impact of improved integration of inputs required to solve NRM and livelihood issues. “Core” research teams comprised of NARI scientists were designated to work in these sites using participatory methods. The bottom-up approach entailed problem identification, priority setting, planning and resource allocation, and use of participatory methods, a process called “PAM” (participatory agroecosystem management) by AHI teams. Research teams have used farmer groups to carry out research, focused on “entry points” or introduction and testing of relevant “on-the-shelf” technology options that could be quickly taken up by farmers in their farm plots.

¹ The main organizations involved include: NARIs in 5 of the ASARECA countries (DRD - Tanzania, FOFIFA and FIFAMANOR - Madagascar, EARO - Ethiopia, KARI - Kenya and NARO - Uganda) provide local research teams together with NGOs and extension; IARCs (CIAT, CIMMYT, CIP, ICRAF, IFPRI, IITA, ILRI and IPGRI); CGIAR system-wide programs include: participatory research and gender analysis (PRGA), soil, water and nutrient management (SWNM) and livestock (SLP); regional and international research institutes (TSBF, NRI, ALTERRA).

This research has aimed at systems improvement (better environmental management that also improves livelihoods) through the introduction of a wide range of options for farmers to experiment with and choose from: to solve soil fertility and conservation issues, to enable further diversification and intensification by capitalizing on improved systems integration, and to start to address the local policy concerns. Once farmers felt they were benefiting from this initial interaction, the agenda would expand to include more complex NRM issues within the production systems addressing collective watershed management as the next level of aggregation. (Figure 2)

During Phase 2 there has been technology development, integration and adoption by farmers, increased farmer involvement, empowerment and changed attitudes (on the part of the farmers and researchers) due to the participatory methods employed. Participatory M&E using performance indicators and self-reflection was introduced as a way to track progress. Cross-site sharing and learning was improved, stronger site teams offered inspiration for less advanced ones, and the regional research fellows made a solid contribution. Multi-institutional contributions were realized, and there was wider appreciation and use of INRM approaches.

AHI had a second evaluation in 2000 for the period 1996-2000. Many of the findings and recommendations, as well as subsequent discussions and reflections, have been taken into the design and direction of phase 3. Some of the main points and adjustments follow:



- AHI's *focus and scope* is now better articulated and is now centered on developing, testing and institutionalizing relevant participatory and INRM approaches and methods to solve production, land degradation and associated NRM issues.
- **The number of benchmark sites:** It was recommended to reduce the number of sites for intensive work to ensure quality work. These pilot sites can generate results that can be scaled up to others. The sites were reduced from 8 to 5 (one per country). The other 3 sites will be in a "network" of sites that can receive "lighter" capacity strengthening on INRM.
- **Use of "learning and action" research ("research on research") to derive methods:** This is a process-oriented approach, is new and will require oversight from a regional research team for mentoring, collaborative research and a documentation system.
- **Improve mechanisms to share information and build capacity:** There will be better inclusion of station managers and improved vertical and horizontal communication; an improved documentation and communication system; replacement of thematic working groups with focused regional sessions on specific research areas; regional forums will be used; and an outreach thrust to assist other integrated research teams will be put in place.
- The **governance structure** has become more efficient with a reduced Regional Steering Committee.
- A **regional research management team** (RMT) will be put into place that has direct responsibility for regional projects and outputs. They will work with and report to the regional coordinator.
- A **better balance between research and networking** expectations is expected given AHI will have a dual nature: 3 of the regional projects have a research emphasis and one has a "networking" emphasis.

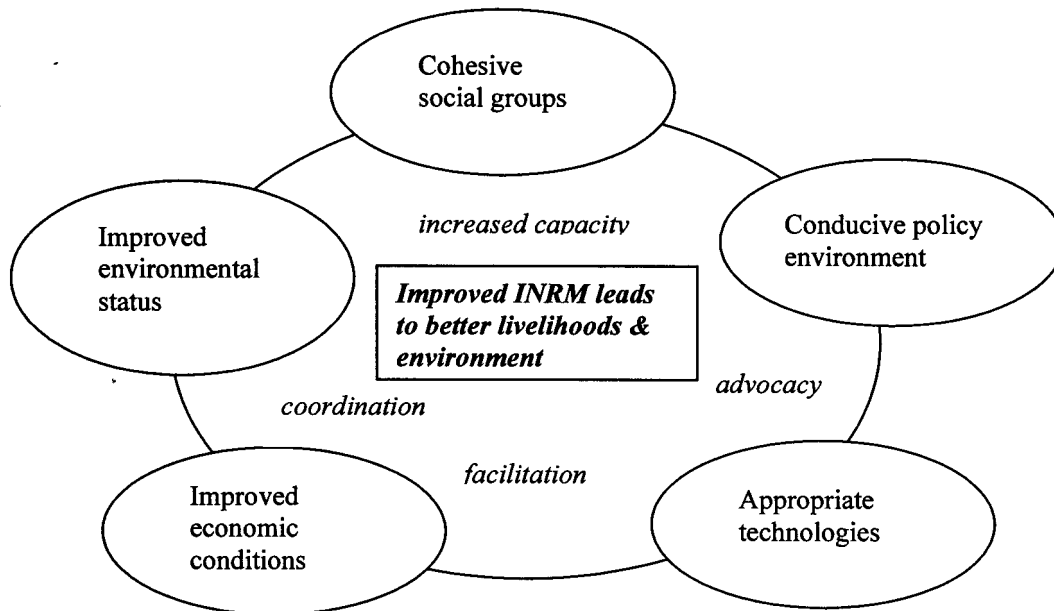
B. Importance of AHI in the Regional Context

AHI's goal is to contribute to increased sustainable agricultural productivity and to improved nutrition, environmental management and income in the ECA region. AHI's purpose is to develop and institutionalize effective and efficient approaches for sustainable INRM and enhanced productivity in the intensively cultivated highlands of ECA. To this end, AHI will promote integration of inter-institutional research and development (R&D) efforts with strong community participation to solve critical issues of soil productivity, water use and land-use efficiency in highland areas. In so doing, AHI will help reduce environmental degradation, increase investment in NRM, increase returns to land and labour, and improve social capital.

AHI's mandate is to develop, promote and use an **"integrated natural resource management"** (INRM) approach for improving development strategies, practices and policies for agriculture and livelihood change in the highlands (see part C below). INRM is a relatively new concept, and it is evolving given field experience and internalisation of experiences. INRM is an approach that takes into account: policy, economic, social, and technical dimensions of problems; the need for research to inform development processes; the need to improve the "ways" to accomplish impact (best practices and methods); various levels of interactions (local, district, national, regional); the need to create local capacity and ownership; and the need to integrate inputs to solve a complex of poverty-livelihood-environmental issues in a practical way. (See Figure 1) The implementers of AHI believe that a new paradigm is needed for INRM to be successful – **a broader vision** to incorporate the dimensions, actors and levels, **a process orientation** to improve involvement of the local people and use of new methods, **new skills and roles** related to research for development, inclusion of stakeholders views through new partnership arrangements, placing emphasis on "ways of doing things" (methodology development); and **changed attitudes and policies** to include integrated amongst reductionist approaches and to support innovation within research institutions.

AHI's role in the portfolio of ASARECA Networks, Programmes and Projects (NPPs), spans changing local NRM through investigating methods and approaches to do this more efficiently; and changing institutions so that they can contribute more effectively to solving complex issues using an INRM approach. The "proof" of a successful shift would be the enhanced capacity of farmers to innovate and create various "win-win" technologies, practices, arrangements and policies. Therefore, the impact expected from AHI is two-fold: better resource management and increased productivity by the grass roots; and ability to use INRM approaches and methods by research institutions and their personnel.

Figure 2: Key elements for improving integrated natural resource management to arrest land degradation and contribute to poverty alleviation and economic growth



C. Within the context of AHI, the major problems faced at the regional level and the importance of the AHI to the sub-region.

Food security and economic growth receive consistent attention by governments, development and research organizations; however, attention to environmental degradation and sustaining environmental services stays in the background. The attention to increasing agricultural outputs is often at the expense of sustainability of important agroecosystems, such as the intensively cultivated highlands in East and Central Africa. Major driving forces leading to unsustainable use of resources are increased human population levels, limitations of policies and institutional strategies, and continuing restricted livelihood options. These drivers are causing a heightened level of agricultural intensification through a process of expansion into marginal lands; increasing competition for scarce water, grazing and forest resources; displacing biodiversity assets, and discouraging investment to maintain or replenish natural resources. Poor farmers, in particular, rely more on the inherent quality of the resource base and can least compensate for land degradation, loss of wild sources of food and income, and natural sources of fuel, tools and building supplies. If these sustainability issues are not tackled, we will see continued hunger and decline in the future regardless of short-term gains in production.

In addition there are “new generation” challenges influencing sustainable production. Climate change will result in dynamic changes in farming systems and their management, and influence diversification and intensification scenarios putting increased pressures on natural resources and giving rise to associated problems, such as increased pests, diseases and weed problems. There will be heightened interactions between market forces, associated policies and potential productivity / profitability gains or losses and impacts on the environment. On a more positive note, the trend in decentralization offers the potential to increase the collective voice of poor farmers and could lead to better resource management, improved economies of scale in marketing, and increased advocacy for more conducive policies.

Highlands at Risk

Large numbers of people and governments depend upon the produce and exports originating in the intensively cultivated highlands of East and Central Africa. The highlands have a strong cultural identity, are the source of water for a large percentage of the area, and are a unique source of biodiversity. They constitute about 23% of the total landmass in the region, yet house over 50% of the population given their suitability for human habitation. People in mountain areas earn 30% less income relative to people from other regions. Population densities (100-200 people per km²) are already relatively very high, having risen over the last fifty years, and this has caused critically small, often fragmented farms (due to land inheritance practices) reaching 0.25 to 1.0 ha for an average family of six (AHI 1998). The negative interplay of population increase, limited livelihood options and non-supportive policies has threatened the resource base upon which there is strong reliance.

The African highlands and its populace are challenged with the following realities:

- small land holdings with high incidence of fragmentation and unstable tenancy regimes.
- soil and water losses and associated off-site effects due to agricultural expansion into marginal, hilly areas coupled with limited investments in conservation measures and maintenance of land cover;
- nutrient depletion coupled with the inability to replenish nutrients and to associated pests and diseases related to soil productivity decline which are affecting major cash and food crop yields;
- destruction of habitats of wild species due to encroachment on wetlands, forested and protected areas, through burning, and through elimination of micro-habitats within agricultural lands is leading to a downward trends in biodiversity;
- depletion of highland forest ecosystems and tree biodiversity in farm-based agroforestry systems, community forests, and natural forests coupled with weak protection and land tenure policies
- scarcity and inefficient use of water for agriculture, livestock and other competing uses within the mountains themselves and along mountain to lowland gradients.
- declining ability of livestock to positively contribute to the maintenance of the system is caused by poorly intensified feeding systems, poor links to markets and break down of traditional management systems. In some systems this is causing decline of grazing lands and leading to an increased number of conflicts.
- poor public services and infrastructure seriously limiting access to credit and markets.
- Cultural transformations with positive and negative consequences

An interplay of these conditions limit the ability to cope, are leading to increased marginalization of some groups and exacerbating poverty at large in the highlands. The economic conditions and policy environment have not provided the necessary incentives to highland dwellers to make long term investments in better management of their resources; also exacerbated by limited

credit and continued low local wage rates. The situation is worsened by the increase in HIV and the increased need for family labor to seek employment elsewhere.

Research and Development in Highlands – Lagging Behind

Despite the importance of highlands' contribution to agriculture production and food security in the region, agriculture R&D efforts have not made a sufficient impact. The highlands have generally not been recognised as niches at risk requiring urgent and specialised attention. Research efforts have been highly fragmented and discontinuous, technical recommendations are not widely spread and, given their general nature, are often not applicable to the highly heterogeneous environments, niches and residents found in mountain areas. Social, economic and policy dimensions inherent in the issues as major constraining factors have largely been ignored. Basically, R&D actors have not been able to provide an integrated front to solve land degradation and related poverty issues.

Although various independent research efforts have generated technologies to improve soil fertility and conservation, limited adoption and impact has been due to:

- Failure to integrate conservation technologies with solutions to farm and livestock production related constraints.
- The integration of biophysical, social, economic and policy concerns has failed due to inadequate capacity in the latter and a general use of “reductionist” approaches.
- Extensive use of a blanket or package recommendations where technologies are developed with little input from farmers hence do not fit farmers' circumstances.
- Neglect of social aspects that impact on resource management such as local collective arrangements, gender, resource endowment levels and use of traditional rules and norms.
- Limited market, credit and input supplies act as disincentives to farmers to take up new technologies, particularly those that are labour intensive.
- Short term needs but long-term payoffs inherent in many technical solutions have not encouraged farmers to adopt.
- Limited attention to policy issues related to local by-laws definition and enforcement, communal management and public investments.

II. STATUS OF AHI

➤ Strategic Plan and Conceptual Framework

Two strategic plans (Phase 2 and 3) and a conceptual framework (1995) have been developed for AHI.

➤ Governance Structure

In 1995-97 AHI was in a start-up phase where it had a Regional Task Force. The chairman of the Task Force was provided by the convening center – ICRAF. The members included: regional representatives of major IARCs (IITA, CIP, CIMMYT, CIAT, ICRAF, ILRI, IFPRI, IPGRI), a part-time regional coordinator, a representative from each of the host NARIs (Kenya, Uganda, Tanzania, Madagascar, Ethiopia), the leaders of the 5 Regional Technical Advisory Panels (TAP) (IPM, C&D, Maintenance and Improvement of Soil Productivity, Training and Information/Documentation), and the Executive Secretary for ASARECA. The Task Force met twice per year and provided minutes of their meetings to ASARECA and all NARIs.

Starting in Phase 2 the Task Force was converted into a Regional Steering Committee similar to

other ASARECA networks. There is a rotating chairman from an active NARI RSC member who is elected by the RSC. Changes were made in membership: each NARI added the National Coordinator, TSBF was added and IPGRI dropped out, donor members were included (SDC, IDRC, Rockefeller, Netherlands) and a Regional Coordinator was hired and convened the meetings on behalf of the RSC. The TAPs and associated members were abandoned.

Starting in Phase 3, the RSC was streamlined to now have 1 member from each NARI (National Coordinator position was dropped), any donors are welcome, there is limit to IARCs who are actively collaborating (CIAT/TSBF, ICRAF, ILRI, CIP, IPGRI), an ASARECA secretariat designate, **NPP representatives from ECAPAPA** (cross-cutting), **SWMNet** (NRM) and **AARNET** (commodity).

➤ **Participating Countries**

Kenya and Uganda started with AHI in 1995, Ethiopia and Madagascar were added in 1996, and Tanzania in 1997.

➤ **Implementing Agencies and partners**

ICRAF has been and continues to be the implementing agency.

AHI has had five basic categories of partners: the **IARCs** (ICRAF, CIAT, TSBF, ILRI, CIP, CIMMYT, IPGRI, IFPRI) and later ICRAF, ILRI, CIP, TSBF, IPGRI). The **NARIs**, as participating countries, include KARI-Kenya, FOFIFA and FIFAMANOR-Madagascar, DRD-Tanzania, NARO-Uganda and EARO-Ethiopia. (see list above in RSC membership).

In phase 3, AHI is engaging with several **NGOs** for strategic partnerships: CARE-Uganda, Action-Aid Uganda, Africa 2000 Network, SOS-Sahel and possibly Farm Africa in Ethiopia; **farmer organizations** such as the Kabale District Farmers Association; and **national and local government** – Ugandan Parliamentarians Forum on Food Security, Population and Development; National Agricultural Advisory Services (NAADS) in Uganda, the ministries of agriculture at national, district and local levels, local government bodies in Uganda and Tanzania.

➤ **Linkage with Other NPPs to date**

1. **ECAPAPA**: AHI is implementing two grants on **NRM conflicts**. AHI has sponsored a regional **"NRM policy working group"** (1998-2002) and ECAPAPA was a member. ECAPAPA, AHI, ILRI, ICRAF and IFPRI have co-sponsored and/or been active in **policy issues related to land degradation**. Two regional conferences have been held (1998 and 2002).

2. **PRAPACE** AHI and PRAPACE have co-sponsored work on **IPM in potatoes** (bacterial wilt) in Uganda, Kenya, Ethiopia, on **potato seed systems** (Uganda, Ethiopia, Kenya), and **Farmer Field Schools for potato production, soil management and IPM** in two AHI sites – Ginchi and Kabale.

3. **ECABREN** AHI sponsored regional work on **IPM in beans (root rot and stem maggot)** related to soil fertility management (Uganda, Tanzania, Kenya, Ethiopia and Madagascar); AHI sponsored work on **climbing beans** as a potential sustainable intensification (Uganda, Kenya); there have been links on methodology (mainly via CIAT technical assistance) on **participatory methods for technology development (PRIAM)**.

4. **AFRENA**. During phase 1, AHI sponsored some work on *fodder, green manure, biomass transfer, inorganic and organic combinations, and improved fallows* (mainly related to soil fertility improvement) in Uganda, Kenya and Tanzania.

5. **ECAMAW** During phase 1 and 2 AHI sponsored the work on Striga control, as it is related to declining soil fertility and management, in W Kenya (maize) and Ethiopia (although this was on sorghum). There was similar interest in improving soil fertility in maize production areas using legumes – but this was not well coordinated.

➤ Policy

Diagnostic work and a few studies have shown repeatedly across the region that there are a number of policy issues impinging on NRM improvement. (TT designates technology transfer; TG technology generation and U utilization)

1. Lack of inorganic fertilizers: availability is limited (Uganda, Tanzania, Madagascar in particular), unaffordable prices (all countries), removal of subsidies (Ethiopia). (TT, U)
2. Lack of seeds and planting materials: with the exception of some maize varieties in Kenya, seed is not readily available due to no formal organization of seed supply of many crops and livestock (all countries); cumbersome variety release procedures and policies or lack of; limited facilitation of extension services. (TT, U, TG)
3. No incentives to make long-term investments in water management, conservation works, reforestation, and the like. (U)
4. Limited incentives or management structures to encourage joint resource management, e.g. shared between communities and public interests (forests, grazing land, etc) (U)
5. Very few benefits are provided to local people related to preserving resources for national and global interests, particularly where traditional livelihood strategies are interrupted (park, forest, wild life and wetland protection, etc); no compensation for damage from wild life. (U)
6. Lack of or insecure land tenure (parts of Uganda, Ethiopia) limits local investment and stewardship. (TT, U, TG)
7. Although there are local credit groups, the amount of credit is limiting and lacks as disincentive to investment. (TT, U, TG)
8. Limited grassroots advocacy due to the centralized and top-down nature of policy setting (Ethiopia, Kenya, Madagascar, Tanzania with greater amount in Uganda). Local people have limited knowledge of policies. (U)
9. Sectors and levels that make and enforce policies are not coordinated, nor do they have good communication for integration. (U, TT, TG)
10. Traditional conflict resolution mechanisms have been disrupted by new government structures and have not been augmented by new negotiation methods. (U, TT, TG)
11. Enterprise development focus does not always cater for or have strategies to support NRM. (U, TT, TG)

➤ Human Resources

Major research topics that AHI is aspiring to address are listed below, however there are sub-topics as follows within each category. Concentration is mostly on developing methods through practice. The table that follows provides an indication on available human resources in the IARCs and NARS.

1. **Collective action:** marketing, local institutions rules and norms for communal and cross-farm boundary management of natural resource and associated land units, conflict management, advocacy, links between groups and communities; networking between

communities for improved NRM

2. **Integrated watershed functions:** hydrology, agroforestry, forests, grazing, agricultural land of various types. Specialists, understanding contributions (or negative impacts), interactions and participatory dimensions.
3. **Land use trends and change:** GIS, mapping, participatory methods at different levels and scales, scenario modeling and communication to decision makers
4. **Integration at farm system level:** understanding priority setting and decision making, participatory methods, biophysical research
5. **Farmer innovation** and experimentation: participatory methods, new methods on monitoring data collection, analysis and processes
6. **Monitoring and documentation systems:** participatory monitoring and evaluation for various actors; NRM indicators that are locally derived as well as scientifically derived; on means of integration and partnership arrangements; process documentation and outcome mapping
7. **NRM Policy:** understanding NRM conflicts at various levels, methods for policy and conflict dialogue and communication mechanisms to affect development strategies
8. **Scaling up methodologies** in mountain areas: rural communication and information systems such as use of telecenters, farmer field schools, technology transfer consortium, methodologies for facilitation of demand side including LandCare at grassroots levels, diffusion and adoption processes, seed systems (diffusion dissemination mechanisms), ways to foster agro-enterprises and facilitation of market chains.
9. **Institutional change:** test strategy of using "change teams", creating national platforms for cross-site sharing on methodologies, synthesis, analysis and production of guidelines; institutional assessment using participatory methods including practitioners and managers.
10. **Characterization and diagnosis:** situation analysis including larger scale trends in African mountain areas; understanding social differentiation, stakeholder analysis (vis a vis NRM), social capital and institutional issues, biophysical and policy issues.

Table 1. Available human resources in various AHI research topics

Research Topic	Country	Name	Institution	Level of training	Specialization
Collective action & social / institutional aspects	Regional	B Swallow	ICRAF	PhD	Economist
		D Russell	ICRAF	PhD	Anthropologist
		P Sanginga	CIAT	PhD	Sociologist
		L German	ICRAF/CIAT	PhD	Socio-ecologist
		J Ramisch	TSBF	PhD	Sociologist
		A Martin	NRI	PhD	Anthropologist
		C Opondo	ICRAF/AHI	MSc	Sociologist
		C Chitsike	CIAT	PhD	Development
		S Kaaria	CIAT	PhD	Sociologist
Farmer innovation & integration	Tanzania	A Temu	DRD	PhD	Agronomist
		J Mowo	DRD	PhD	Soil science
		M Kingankomo	DRD	MSc	Livestock
	Ethiopia	C Shangali	MOAFS	MSc	Extension
		K Mekonen	EARO	MSc	Agroforestry
		T Amede	CIAT/AHI	PhD	Agronomy
		Waga	EARO	MSc	
		T Belachew	EARO	BSc	Soil & water
		D Dauro	EARO	PhD	Breeder/agronomist
		B Kassa	EARO	MSc	Pathologist
	Kenya	B Kidane	EARO	MSc	Agroforestry
		J Ojiem	KARI	MSc	Soil scientist
		M Odendo	KARI	MSc	Economist

		R Otsyula A Ogola G Odhiambo K Otieno C Odouri P Tukamuhebwa N Turyehabwe R Kanzikwera W Wagoire B Bekunda B Mwebesa JL Rakotomanana JM Randrianaivoarivony J Rakotonoraso B Rabary N Lalanekenarisoa	KARI KARI KARI KARI KARI NARO Makerere NARO NARO Makerere CARE FOFIFA FIFAMANOR TED NGO FOFIFA CIAGRI	MSc MSc MSc PhD MSc MSc MSc MSc MSc PhD BSc PhD PhD ? MSc ? PhD PhD PhD PhD MSc PhD	Breeder/pathologist Agronomist Agronomist Livestock Agronomist Breeder Agroforestry Agronomy Breeder Soil scientist Agronomy Soils/agroforestry Agronomy extension Agronomy/PR extension Agronomy Soil Science Sociology Economist Extensionist Entomologist
Landscape analysis	Regional Tanzania Uganda Uganda Ethiopia Kenya Madagascar Regional	Robert Zomer Juma Wickama ? various various J Tukahirwa unit ? AAwiti various ? T Oberthur	IMWI DRD SUA NEMA Freelance ECOTrust EARO KARI ICRAF RELMA ? CIAT (HQ)	PhD MSc ? MSc MSc PhD ? ? MSc PhD	GIS Land use mapping GIS & land use mapping GIS & land use Land use GIS GIS/land use GIS GIS GIS participatory mapping
Watershed functions	Regional Tanzania Kenya Uganda Regional	LVerchot J Wickama A Tenge F Gichuki B Okoba D Siriri Chin Ong T Gumbricht N Hatibu ? ? ? S Cooke	ICRAF DRD SUA U of Nairobi KARI ICRAF RELMA ICRAF SUA Makerere? EARO IMWI CIAT HQ	PhD MSc MSc PhD MSc MSc PhD PhD PhD PhD PhD	Ecologist Hydrology & soils Soil science Hydrology Soil/water conservn Soil science Hydrology Hydrology Engineer Hydrology Hydrology Ecologist
Integration at farm system level	Regional	T Amede	CIAT/AHI	PhD	Agronomist/modeling
Monitoring & documentation systems	Regional Regional International	C Opondo P Sanginga J Hagmann	ICRAF/AHI CIAT/AHI Consultant	MSc PhD PhD	Sociology Sociology Facilitator

		R Khandelwal	consultant	MSc	Development
Policy	Regional	F Place	ICRAF	PhD	Economist
		J Pender & collab.	IFPRI	PhD	Economist
		S Ehui	ILRI	PhD	Economist
		M Jabbar	ILRI	PhD	Economist
		P Krisjanson	ILRI	Various	Economist
		ACTS	Nairobi	PhD	Economists
		I Minde	ECAPAPA	PhD	Economist
	Kenya	P Sanginga	AHI-CIAT	PhD	Sociologist
	Uganda	A Mascaramus	freelance	Prof	.
Scaling up incl. agro-enterprises	Regional	R Best	CIAT	PhD	Post harvest
		D Russell	ICRAF	PhD	Anthropologist
		B Jama & collab.	ICRAF	PhD	Soil Scientist
		S David	CIAT	PhD	Sociologist (seed systems)
		S Ferris	IITA	PhD	Sociologist
		C Opondo	ICRAF	MSc	Extensionist
		H Queresch	ICRAF	MSc	Soil science
		J Ojiem	KARI	MSc	Soil Science
		J Mowo	DRD	MSc	Climatologist
		C Lyamchai	DRD	MSc	Agronomist
		S Lyimo	DRD	PhD	Agroforestry
		K Mekonnen	CIAT-AHI	MSc	Agronomist
		T Amede	EARO	PhD	Agronomist
		Waga	NARO	PhD	Pathologist
		I Kashaija	IITA	PhD	Entomologist
		S Okech	FOFIFA	PhD	Soils/agroforestry
		JL Rakotomanana	FIFAMANOR	PhD	Agronomist
		JM	FOFIFA	MSc	Agronomist
		Randrianaiivoarivony	CIAGRI	?	Extension
		B Rabary			
		N Lalanekenarisoa			
Institutional change	International	J Hagmann	Consultant	PhD	Facilitator
	Regional	A Stroud	AHI ICRAF	PhD	Coordinator
	International	N Allen	Consultant	PhD	Sociologist
		C Opondo	AHI/ICRAF	MSc	Sociologist
Characterization & diagnosis	Regional	T Oberthur	CIAT HQ	PhD	GIS
		R Zomer	IMWI	PhD	GIS – geographer
		C Eledu	INIBAP	MSc	GIS- geographer
		P Sanginga	CIAT/AHI	PhD	Sociologist
		D Russell	ICRAF	PhD	Anthropologist
		D Johnson	Consultant	MSc	Development
		C Opondo	ICRAF AHI	MSc	Sociologist

➤ Facilities

AHI does most of its work under field conditions, so has a limited requirement for facilities. The two types of facilities required are: GIS and soil testing. TSBF has been offering soil testing services (which are done at ICRAF), and alternatively we use the national labs in Mlingano or SARI for Tanzania, Kawanda /NARO in Uganda, NARL KARI in Kenya, and the National Soil Laboratories in Ethiopia. These labs usually have shortages of chemicals which require foreign exchange and frequent breakdowns of equipment. Through AHI's Combatting Nutrient Depletion project in Ethiopia, we are strengthening 4 laboratories.

GIS facilities have been used at ICRAF and ILRI, although these are not service oriented, but rather are used for conducting ICRAF's research. ICRAF does training for free of limited

numbers of students. We are interested in pursuing, with Rockefeller Foundation assistance, to start a regional lab in Kawanda. Makerere University also has a lab, but we have not explored its capacity recently.

➤ **Budget/Expenditure**

Presented here are the budget and expenditure figures by donor and grant from 1997 to the present. Budgets by expenditure category are in the annex.

Table 2: A series of tables on budget and expenditure by donor over time 1997

Income Source	Donor funds availed in 1997	Donor funds spent² by entity	
SDC	\$463,484	ICRAF	\$357,091
Netherlands	\$251,289	IITA	\$20,000
IDRC	Provided funds to cover this period but not availed in 1997 according to ICRAF financial statement	CIP	\$20,000
USAID	“ “	CIAT	\$20,000
TOTAL	\$714,773		\$417,091

¹ Donor funds from SDC and Netherlands are combined and spent across the program. IDRC funds were targeted to characterization and diagnosis work only.

1998

Income Source	Amounts available in 1998	Expenditure² and disbursements	Balance carried into 1999³
SDC	556,197 105,879 (c/f 97)	425,454	236,622
Netherlands	240,000 339,871 (c/f 97) 122,500 (accrual 98)	615,228	147,143
IDRC			
NRM	88,000	30,484	57,516
Acacia	141,052	0	141,052
TOTAL	1,653,499	1,071,167	582,332

¹ Included funds disbursed in 1997 but not yet accounted for plus unspent funds for 1997.

² Includes funds disbursed and accounted for from 1997 and some accounted for in 1998. Does not include funds disbursed in 1998 that were accounted for in 1999.

³ Includes disbursed and not accounted for in 1999 plus actual unspent in 1999.

1999

Income source	Amounts available in 1999	Expenditure² & disbursement	Balance carried into 2000³
SDC	754,694 (c/f 98) ¹ 508,562	424,508	838,748
Netherlands	411,276 (c/f 98) 118,261	366,804	162,733
IDRC			
NRM	18,254 (c/f 98)	196,565	(178,311)

Acacia M&E	124,827 (c/f 98) 54,295 (c/f 98)	30,280 52,447	94,547 1,848
Norway (Ethiopia)	245,205 (c/f 98) 222,142	30,783	436,564
GMP	75,000	0	75,000
PRGA	25,000	20,000	5,000
Rockefeller	425,000 (for 3 years recvd Dec)	0	425,000
TOTAL	2,557,516⁴	1,121,387	1,614,440⁴

¹ c/f Included funds disbursed in 1998 but not yet accounted for plus unspent funds for 1998.

² Includes funds disbursed and accounted for from 1998 and some accounted for in 1999. Does not include disbursed in 1999 to be accounted for in 2000.

³ Includes disbursed and not accounted for in 1999 plus actual unspent in 1999.

⁴ Does not include Rockefeller grant

2000

Income source	Amounts available for 2000 ¹	Expenditure 2000	Balance carried into 2001
SDC	330,186 (c/f 99) ¹ 508,562	882,850 ²	(44,102)
Netherlands	162,733 (c/f 99) 175,000	336,945	1,788
IDRC			
NRM	(178,311) (c/f 99) ³	125,105	0
Acacia	94,547 (c/f 99)	164,500	0
M&E	92,000 1,848 (c/f 99) 43,150	50,198	(5,200)
Norway (Ethiopia)	214,422 (c/f 99) 222,142	203,000	233,564
GMP	75,000 (c/f 99)	25,261	49,739
PRGA	7,000 (c/f 99)	0	7,433
Rockefeller	141,600 (c/f 99)	0	141,600
TOTAL	1,453,315	1,787,859	335,083⁴

¹ c/f Included funds disbursed in 1999 but not yet accounted for plus unspent funds for 1999.

It appears that there will be a carry over of 250,000 – 300,000 into 2001 based on disbursements made to date.

² Funds sent as imprest to collaborators retired and backlog posted by ICRAF.

³ IDRC owed funds which was paid into ICRAF.

2001

Income source	Amount in 2001 (US\$)	Expenditure 2001	Carry forward to 2002
SDC	308,891	310,071	-1,180
Netherlands	123,270	121,735	1,535
IDRC			
NRM	16,754	16,754	0
Acacia	69,000	66,646	2,354
M&E	51,115	48,327	2,788
Norway (Ethiopia)	240,000	239,472	528
Rockefeller Participatory research	141,600	12,251	129,349

Dfid (policy Kabale)	44,490		5,426
TOTAL	995,120	815,256	140,800

¹ c/f from 2001 – under spent given delay on recruitment for socio-ecologist

² Project not reflected in budget below, funding not yet secured.

³ Percentage of funds go to collaborators outside of region (Norwegian Ag University, NRI)

Income source	Available for 2002 ³	Amounts pledged to date in 2003 (US\$)
SDC	324,510	335,800
Netherlands	128,069	150,000
IDRC		
NRM	Ended	--
Acacia	2,354	--Phase 2 ?
M&E	2,788	--
Knowledge systems	---	117,281
Norway (Ethiopia)	119,734	168,760
Rockefeller		
Participatory research	124,720	120,000
GIS	---	128,771 (to start 2003)
Dfid (policy Kabale)	31,651	38,618
ICRAF contribution		20,000
EU ASARECA	---	102,282 (to start 2003)
TOTAL	733,826	1,181,512

Table 3. Projected Budget 2002-2004

Source	2002	2003	2004	Total
SDC	360,000	360,000	360,000	1,080,000
Netherlands	150,000	150,000	150,000	450,000
IDRC				
Knowledge mgmt	134,481	113,983	118,627	367,091
IDRC Acacia	12,000	?	?	12,000
Norway (Ethiopia)	185,800	?	?	185,800
Rockefeller				
Partic. Research	156,224	158,700	158,700	426,328
DFID (policy)	44,000	43,230		87,230
EU ASARECA	75,000	75,000	75,000	225,000
Italy (LandCare)	160,000	?	?	160,000
TOTAL	1,277,505	900,913	862,327	3,040,745

➤ Activities

The major current activities from the regional perspective are as follows:

Table 4. Major regional activities (2002-2004)

Output 1: Support sustainable	Activities for Phase 3
-------------------------------	------------------------

³ Includes new income and carry forward funds

INRM in practice	
Project 1.1 Advance watershed-based participation to improve integrated agriculture and NRM	<ol style="list-style-type: none"> 1. Pilot implementation of watershed development interventions in selected sites through integration of social, institutional and technical variables 2. Integration of farmer-led sustainable agricultural change practices at farm level 3. Capacity building of men and women farmers and community-based organizations
Project 1.2 Develop and implement district-based strategies to improve the orientation of development, policy interventions and practices of INRM approaches	<ol style="list-style-type: none"> 1. Identify and initiate potential partnerships within selected districts to advance INRM 2. Consolidate a valid information base on INRM gaps and potentials to influence policy and investment 3. Training and capacity building of district stakeholders able to contribute to INRM
Output 2: Scale up watershed-based INRM approaches through increased institutionalization and public investment	Activities for Phase 3
Project 2.1 Induce change in research institutional policy and practice for enhanced use of INRM approaches	<ol style="list-style-type: none"> 1. Document, synthesize, analyze and disseminate lessons derived from pilots 2. Build capacities of researchers and institutions to undertake INRM research 3. Enable partner institutions to initiate change in support of INRM 4. Support advocacy for the use of INRM approaches
Project 2.2 Widely share INRM lessons and experiences and enhance skills in partner institutions	<ol style="list-style-type: none"> 1. Document, synthesize, analyze and disseminate lessons derived from pilots and other experiences 2. Provide technical support to INRM programs of various institutional players 3. Enhance networking among research and development partners in applying INRM approaches

➤ Priorities

Current to short term priorities (1-3 years but extend to 5 years):

- **Project 1.1:** Develop *integrated watershed management models* in selected sites. This will be a 5-year process given deficits in capacity and the new and innovative aspects to this work. To this end AHI will build research capacity to develop methods using an action research approach. **Methodological work** will begin in year 1 on developing and using participatory characterization and diagnosis methods of biophysical, social and institutional aspects; facilitating the “set up” of community group structures that would plan, priority set, implement and assess various integrated land improvement, better management scenarios. Research hypotheses, **indicators and documentation/monitoring** will be developed, strengthened as experience is gained, and tracked regarding participation, social and institutional aspects, biophysical aspects, partnerships, collective action and integration. Farmer innovation will be a focal point and expansion on improved methods and area/farmers covered. Work will include finding the best **ways and processes to build local capacity to innovate, to integrate and to have successful collective action** in advocating for resources, self-management, conflict resolution and deriving new rules and methods. In addition to method development, complementary studies will be carried out.

- **Project 1.2: Research to enhance district strategies** with identified stakeholders will start by sitting in district meetings and forums to promote research contributions and to develop future strategies where research might assist. Funding permitting, AHI would expand the **community-local government policy dialogue** work into Ethiopia and Tanzania. Documentation, communication and information would be targeted to farmers and other district level stakeholders as part of a scaling up strategy. At district level there will be various events designed to **increase capacity and exposure** of the various stakeholders to integrated watershed management and all it entails.
- **Project 2.1.** There will be **hindsight assessment and documentation of progress** made to date concentrating on some of the non-technology aspects of the work. Funding permitting, AHI aspires to set up **national platforms for sharing experiences and methods** on integrated watershed management in Ethiopia and Tanzania. It would proactively contribute to other such initiatives set up by others. One to two intensive **trainings for the core group** will be held every year. Every two years, AHI will sponsor a **regional forum** on a specific research topic. **Informal mentoring** will be through periodic visits by the AHI regional research team and other adhoc consultants/resource people. Funding permitting, AHI will continue work in Tanzania and Ethiopia on the two cases of **institutionalizing participatory INRM research principles and methods**. Support an INRM task force in 5 sites linking vertically to zonal and national managers as part of the **“change team”**.
- **Project 2.2.** Establish an **AHI regional research team** who will oversee the regional research agenda – hypotheses development, testing, documentation, monitoring and synthesis. This will be completed in a collaborative mode with the site teams. **Extension to other NARS, NPPs and general networking** will be contingent on funding. If available, extension would be made into Rwanda and DRC upon request. Networking will be through electronic means and other products produced for a wider set of target audiences.

Medium term priorities (3-5 years):

Emphasis would continue to be on **creating models of best practice in the watershed sites**. As time goes on there would be a deepening of skills and more sophisticated products would be available. Emphasis would still be on **creating local capacity**, but at this stage, would concentrate more on finding ways to **improve grassroots communication, information and networking, advocacy and action**. More emphasis would be placed on scaling up within the district areas and beyond. At this juncture, research would be conducted on pointed studies or cases that would assist in development work. There would be more emphasis on influencing a wider set of actors within the NPPs, the NARS and the R&D sector. AHI would be able to spread to more countries and sites. More emphasis would be placed on Project 2.1 and 2.2 in the medium term compared to the short-term.

Long-term priorities (greater than 5 years):

By this stage, if AHI has been successful in **building a group of trained people**, has **influenced institutions** and has **created good operational models** – **the emphasis should be on networking, training others and venturing into new domains**.

➤ **Planning, monitoring, and evaluation mechanism and system**

Annual planning and review

An annual review and planning at regional level is held in March-April and annual work plan and budget presentations made by the coordinator to the ASARECA CD in November of each year. Prior to the formal CD review of plans, AHI will utilize the small, focused task forces, mostly at regional level, and mentoring at site level (by the regional theme leaders) to assist in thinking through and planning the details of methodological-related action research.

Submitted projects will be reviewed by the RMT, suggested amendments incorporated and then submitted to the RSC as part of the portfolio.

Periodic regional stakeholder workshops will be held for regional sharing and learning, and overview of program. These will serve as review forums in addition to the above. Periodic site stakeholders' workshop would also be held to share progress and develop work plans. Each site would have an internal annual planning session and invite relevant external stakeholders to ensure integration.

It has been agreed with the host NARIs that all projects, particularly involving their staff, should also pass through the NARI review system as well. In cases where there is no mechanism/forums or group that reviews integrated work, the AHI coordinator will negotiate to install an adhoc mechanism to do so. The national INRM task force can monitor this process so as to see its institutional merit.

Monitoring and impact assessment

Rigorous monitoring of processes, outcomes and impacts will be carried out at different levels during Phase 3. Indicators developed in phase 2 will be further developed and tracked through collection of data, analysis and synthesis. In addition new indicators will be developed in order to meaningfully interpret changes in dimensions that received relatively less attention in the past (e.g. farm-watershed integration, social cohesion and collective action, district level scaling up, partnerships and institutionalisation etc).

The regional research management team (RMT) in consultation with site teams and community groups will develop a monitoring system for various users (regional level, site team level and community level). AHI wants to use monitoring as an integral part of the learning process at these various levels. In addition, AHI will use monitoring to ascertain whether or not work agreed to has been accomplished in good time and quality. (The latter a specific task for the RMT and the Regional Coordinator.) Thus, two pronged and a multi-tiered system will be put into place.

Areas for process and indicator monitoring will include, among others:

- participatory evaluation and impact assessment of technologies and innovation at the farm level with participating farmers with an *emphasis on integration of the farm and the landscape issues* and demands selective monitoring of biophysical changes that are occurring as a result of research-development interventions in the wider context of watershed. Quantitative monitoring of these changes will need to be qualified by descriptions of processes and methods used by AHI teams.
- *Organisation and collective action* How groups perform and the techno-social processes through which they achieve better collective management of their natural resources. Case studies highlighting dimensions of collective action and analysing the causal factors for change will be encouraged across sites as outputs for learning and reflection.
- The impact of AHI's teams to influence *district policy and programmes and achieve "scale up"* including a quantitative dimension to impact at district level, and a larger "process" output in terms of possible changes in policy, increases in public investments or influence on other NRM programmes and initiatives within the district.
- AHI's *inter-institutional collaboration and linkages*. Close partnerships are envisaged with district departments, NGOs and / or IARC programmes and AHI will engage in regional partnerships and use these as a central strategy for institutionalising change. How linkages unfold and become operational and the dynamics of partnerships lend itself to

on-going assessment for learning and change. Newsletters, communications, joint review meetings and feedback sessions are all forms of monitoring processes and/or output that may be undertaken for enriching partnerships.

- *Institutionalisation of change within research institutions* as a result of AHI's work is a complex area for monitoring, given difficulties in tracking and attribution. The changes should be manifested in programmes, procedures, resource allocation and research methods / outputs of NARIs. The effect of processes set in motion for enhanced appreciation of NRM lessons arising from the strategic research sites needs to be understood and monitored. Case studies, policy analysis and peer reviews are methods for tracking changes within institutions as well as in individuals in whom a shift is sought to be induced.

➤ **Management**

Technical management: Given the three-tiered structure of AHI (e.g. site, country and regional levels) there are complementary technical management structures described with links between them.

- **Site level**

Site coordinators are located in the strategic research sites and are employees of the lead organization (in most cases NARIs). They lead a relatively small committed multidisciplinary team who would undertake the on-site project activities (project 1.1 and 1.2). Ideally, the members have broad applicable skills (a systems or general agronomist, soils specialist that can handle fertility and conservation issues, livestock specialist and socio-economist) and would form a core group who are involved in conducting and overseeing major activities, and would co-opt other contributions on an as-needed basis. Another key team member will be a community facilitator – someone who can be present in the communities looking after the social dynamics of the groups, advising on application of technologies, assisting with data collection, etc.

- **National level with links to site(s)**

AHI will set up a **national "INRM task force"** having the site coordinator, station/site directors, and key appointed headquarters staff as members. There would be one designate from the host NARI headquarters who would represent the NARI interests in the RSC. (This would be in place of the national coordinator's position used in phases 1 and 2.) Either the station manager (or designate) or the headquarters designate will be the contact person for AHI in the NARI who will ensure communication, reporting and implementation goes on as planned. The INRM task force would ensure good horizontal and vertical communication on aspects related to AHI and INRM, would be champions and advocates for INRM, and would assist in implementing INRM in their own institutional context and work with others within AHI to this end. They would assist in leveraging or facilitating contributions, collaboration, integrated management and programming of inputs to achieve INRM.

- **Regional level with links to sites**

The full-time Regional Coordinator would provide overall leadership for technical aspects and be an integral part of a **Regional Research Management Team (RMT)**, which will be assembled to oversee and contribute to the projects and associated methodologies that are being implemented in the strategic research sites and to link with other partners on relevant strategic research issues. In addition to the Regional Coordinator the RMT would include a minimum of two regional scientists (social and biophysical), an information management specialist and the site coordinators.

The regional scientists would at a minimum include a socio-ecologist who would oversee the collective action and other institutional aspects of the projects, conduct some training and

mentoring of site team members and others, as well as conduct strategic research in this area. Secondly, there would be a systems agronomist (or similar biophysical orientation) who would assist in farmer innovation and integration, watershed management aspects. The regional coordinator would at the onset take responsibility in the area of partnership monitoring and institutionalization aspects. The core team would all take responsibility for aspects of integration. They would co-opt in advisors and resource persons as needed. Regional cross-site sharing will take place in the small discussion sessions and in larger regional fora.

Administrative and financial management

AHI coordination office has a project officer and will be recruiting an accounts/administration officer in 2002. The coordination office manages the financial details of all projects and staff based in Uganda as well as the majority of the coordination office related expenses, including regional events if held in Uganda. These details are reported on a monthly basis to ICRAF, where the financial information is compiled along with other expenses incurred at the ICRAF location. The financial system is set up by ICRAF and uses its checks and balances. Annual budgeting and re-budgeting is done using ICRAF's timing, systems and processes. The coordinator proposes the budget after consultation and submission of plans and budgets from the various sub-projects. These are shared and reported along with expenditures to the RSC annually. Reports (and analyses) are organized along the lines of cost centers, outputs and types of expenditures. The budget and expenditures are then reported to the ASARECA CD and to the ICRAF BOT. ICRAF has an annual internal and external audit, plus conducts on-site internal audits. The AHI coordinator handles most personnel issues with backup from the Human Resources Unit of ICRAF. Hiring procedures and employee packages follow ICRAF policies. Consultation is made on these procedures with ASARECA when needed. Office space is rented at a nominal fee from NARO (Kawanda); however, there is now lack of space for our expanding staff, so we will be moving and incurring rental costs in town.

➤ Information management

Site teams submit annual reports to the Regional Coordinator (RC). The RC and the project officer compile and synthesize these into annual technical reports. AHI also maintains a Technical and Workshop series. ICRAF used to provide assistance, but is no longer able to do so and now out-sources services. Due to work bottlenecks, we are facing problems and delays in producing reports. We are taking three courses of action: hiring an administrative assistant to relieve financial management burdens from the Projects Officer, identifying a project and position for IDRC support on knowledge management and putting in place the RMT to expand the synthesis capacity. We are now aiming to finalize the WebSite, to target a wider range of audiences and to harvest past information. In addition, AHI will most likely become the program handling the Mountain Forum node for Africa – an email list serve and database. At local levels, AHI is experimenting with a Telecentre approach (see next section).

➤ Technology transfer mechanisms

Technology and methodology transfer mechanisms are primarily operational at site levels currently, with some outreach occurring at regional level. In phase 3, AHI intends to improve this aspect and test the following mechanisms. We think that a number of mechanisms are needed and should be targeted.

- Set up sites of “best practice” and to use these to influence other practitioners.
- Use sites of best practices as farmer-to-farmer transfer sites (we have found this to be the best model to influence farmers on management practices)

- To work with a variety of other NGOs, NPP staff, ministry personnel, research personnel through which they will be exposed to/involved in developing “best practices” and further extend these into their own institutions
- To use the INRM Task Force and institutionalization work to influence practice in NARI partners
- To use cross-site visits for practitioners and exchanges through email, Web Sites, forums, and training courses
- To develop a cadre of experienced researchers and fellow development practitioners who can train others
- To use various awareness creation techniques relevant to other farmers, policy makers, researcher managers, donors and others
- To use high-level consultations and site visits to influence higher level policy makers and managers
- To experiment with rural information systems, building upon the Telecentre project in Kabale
- To use farmer field schools on a wide range of topics; technology transfer networks and consortium started by others, ministry of agricultural structures. We will be conducting a comparative study of these methods.

➤ **Major achievements and impact**

All achievements summarized here came about through collaborative efforts of a number of organizations and expertise that AHI brought together for this purpose. Therefore, credit should go to these entities. At this stage, AHI refers to the following impacts as OUTCOMES.

- Capacity of farmers to experiment, innovate and manage their systems has increased due to the participatory approaches used by research teams.
- Many location specific technical options were derived from farmer and researcher innovation in a systems context given the team approach and participatory methods used. Farmers from various resource endowment categories are applying and integrating these multiple options and are able to explain how they work.
- A number of soil and pest and disease management principles have come out of field work in various countries, synthesized at regional level. This includes a organic resources database.
- Capacity of extension and NGO partners to work on and understand a wide range of technical areas in a more participatory way was increased due to the multi-institutional inclusion during planning, implementation and review.
- Capacity of the NARI research staff involved in team work to test a wide range of technical options and implement research with community groups has increased due to formal training sessions, practical field experience and regional sharing of experiences.
- IARC capacity to collaborate, expand their agenda and methods was enhanced given the various forums and use of the benchmark site concept;
- Institutional and regional level outcomes included: publications for other research and technology transfer organisations, regional databases, bringing institutions together to share and foster better coordination and integration. The AHI technical support group made considerable progress in conceiving and directing the technical aspects of the program and in coordination and facilitation of linkages among organisations, networks and scientists

➤ **Readily available technology, research findings and recommendations for transfer to farmers or end users.**

Technology development and adaptation:

- ***IPM technologies*** related to: *bean root rot and stem maggot* (CIAT, KARI, NARO, EARO, DRD); *striga* (CIMMYT, EARO, KARI); *banana weevil and nematodes* (IITA, NARO); and *potato bacterial wilt* (CIP, NARO, EARO, KARI, Africare).
- ***Multiple soil fertility improvement technologies*** have been developed in the following broad categories: inorganic and organic combinations, improved fallows, incorporation of herbaceous and woody legumes into various farming systems; mulching and biomass transfer; minimum tillage; mpingo phosphate evaluations; nutrient supply studies (CIAT, ICRAF, TSBF, KARI, DRD, EARO, FOFIFA, NARO, CIP, CIMMYT, CARE)
- ***Soil and water conservation measures:*** buffer strips with combined livestock feed and agroforestry trees (EARO, DRD, KARI, FOFIFA)
- ***Livestock integration:*** manure quality and composting, feed systems intensification and integration, forage species selection for high altitude areas (pasture improvement); MPTs as live fences and livestock feed (KARI, DRD, EARO, FOFIFA)
- ***Intensification and diversification:*** improved varieties adapted by farmers and integrated into farms (climbing and bush beans, cabbage, tomato, banana, maize, rice, potato, coffee, fruit and other agroforestry trees, wheat). (KARI, DRD, EARO, NARO, FOFIFA, CIAT, ICRAF, CIP, CARE)

Methodologies:

- ***Seed systems:*** setting up community-based seed/planting material multiplication for different crops and soil improvement legumes as test cases; monitoring tool for groups, R&D agencies (CIAT, ICRAF, DRD, KARI, EARO, NARO, Africare other NGOs)
- ***Policy dialogue (in progress):*** linking local government with communities, policy “experiments”, by-law analysis (CIAT, local government)
- ***Social capital:*** assessing characteristics and dynamics of farmer groups used for R&D purposes; various methods for improving capacity, technology uptake and knowledge base of farmers (farmer experimentation methods; nutrient flow analyses), facilitation techniques; building awareness of environmental degradation issues (burning, erosion, soil fertility decline); local credit group experiments (CIAT, ICRAF, EARO, DRD, KARI, FOFIFA)
- ***Diagnostic techniques:*** resource management strategies for different stakeholder groups; R&D stakeholder analyses for development planning and action (CIAT, TSBF, EARO, DRD, KARI, FOFIFA, NARO, ICRAF)

Studies and syntheses⁴:

- Soils research in Uganda, Kenya, Tanzania and Madagascar: Analysis of past achievements and gaps (consultancy)
- The contribution of legumes to soil fertility improvement in bimodal rainfall areas: A synthesis of the state of knowledge (various)
- Manure Management: A synthesis of the state of knowledge (TSBF eds)
- Local potato seed systems: Evolution and review of institutional challenges (CIP)
- Synthesis of status of natural resource management in the highlands of East and Central Africa: Conditions, challenges and gaps in R&D (CIP)
- Compilation of characterization and diagnostic studies in Uganda, Kenya and Ethiopia (targeted at AHI benchmark areas) (ICRAF and site teams)
- Land use change studies in Central Kenyan and Southwest Uganda highlands (ICRAF)
- Diagnostic work to understand and characterize four pest and disease management complexes affecting highland farmers: bean root rot and stem maggots, Striga, potato

⁴ Most of these studies and syntheses were done by regional research fellows supervised by various IARCs as indicated)

- bacterial wilt and banana weevils and nematodes (CIP, CIMMYT, CIAT, IITA)
- Designing a development communication and rural information system strategy: Information needs assessment and baseline study in Kabale District, Uganda (ICRAF) (Refer to annex for list of studies and publications)

III. GAP/CONSTRAINT ANALYSIS

➤ Strategic Plan and Conceptual Framework

AHI has a comprehensively thought out strategic plan and conceptual framework. Key stakeholders have been involved in its construction over the last year. It currently has a time frame of 3 years, but this can easily be stretched to 5 years given the complexity and ambitious nature of the envisioned undertakings. Further work needs to be done on the regional hypotheses, the monitoring, documentation and communication system, and scaling up strategies. AHI has now designed a comprehensive research process management system.⁵

➤ Governance Structure

The AHI RSC has streamlined its structure this year and will need to test this starting in 2003. We may need to consider other members outside our current membership, as the RSC is made up of “implementers” and has no “non-implementers”. There needs to be a balance of inclusiveness but yet of governance by those who know enough about AHI to give good advice, similar to a BOT. Perhaps ASARECA could consider the pros and cons of involving non-implementers in the RSCs of the NPPs and provide a policy.

➤ Participating Countries

AHI is resisting requests to expand into other sites and countries. On one hand we have to resist being spread too thin, and on the other hand we want to ensure that we have sites and countries that: (i) add value to the research, (ii) that address the capacity building needs, (iii) are able to take advantage of unique and useful partnerships, and (iv) consider scaling up. AHI has just *scaled down* to fewer strategic partners per location, a smaller, more committed research team, and fewer strategic sites. Some are concerned that AHI is “withdrawing” and will have less influence mainly on (ii), (iii) and (iv) above. We therefore need more thought as to how to include other locations and scales (micro to macro watersheds), how to include other scientists and development partners in strategic ways, and how to ensure AHI has a scaling up and sharing modality without stretching our management, monitoring, and financial resources too thinly – thus potentially reducing quality and control.

In terms of expansion – Rwanda and eastern DRC are likely candidates for new countries. In terms of sites – there are opportunities to move into larger scale ventures (the large mountain watersheds of the region), to other sites within existing partner countries (for example, Amhara and Tigray regions in Ethiopia), and to accommodate new and potential partnerships (IMWI, ICRAF, CIAT, CDE in Switzerland, IUCN among others).

➤ Implementing Agencies and Partners

AHI could benefit from having stronger partnerships with several categories: *ARIs* in developing countries such as CDE in Switzerland, some *African universities* who have potential links for

⁵ Assisted by Dr Jurgen Hagmann, change management consultant

student work, *environmental organizations* and NGOs concerned with land degradation and population pressure on important national parks located in mountains but who have a different mind-set compared to agricultural research, and *international organizations* that could provide links to other parts of the world having similar problems (FAO, SANREM CRSP funded by USAID, UNEP, among others).

AHI is venturing into new methodological areas where NARI skills are scarce (e.g. non-technology development areas). This provides us with a dilemma: should AHI put most of its efforts and resources into building capacity of its local partners; or put effort into strategic research products through contract arrangements with those having expertise? We are trying to have a balance between strategic research achievements and local capacity building efforts using “in-house” expertise, full-time under AHI. But, resources are limiting to support this strategic sector of the program.

Overall numbers of IARCs involved in AHI is dwindling. They are keener to pursue their own more strategic research that is reaching to the global agenda (challenge programs) and to form their own partnerships to do so, outside the regional umbrella of AHI. Collaboration is now more strategic and stronger with a fewer number of IARC partners and partnerships form around high level of congruent interests.

If AHI were to venture into new strategic partnerships as a way to seek strategic research competencies, what would be the appropriate decision making mechanism? Can ASARECA and the AHI RSC agree on involving others? What level of consultation should be taken and with whom, given that the RSC members are from implementing organizations? What are the implications on resource use?

➤ Linkage with Other NPPs

In theory AHI should draw upon the expertise and technologies from commodity and NRM NPPs. However, there are several constraints listed with associated solutions:

- Existing NPPs have already programmed their resources in other places than the AHI benchmark sites, so there are either no funds for expansion of their program, or they have investments elsewhere and cannot re-locate to AHI sites. **Solution:** improve, purposeful programming of resources based on need and synergies. Use ASARECA competitive grants for this purpose. Should AHI expand to embrace other NPP sites? Resolve “sites” issue within ASARECA – should we use some similar benchmark sites?
- Some NPPs are not up and running: SWMNet, TOFNET, A-AARNET, where AHI particularly could use their input. **Solution:** use NRM grants to ensure overlap and complementarities; start with good programming and negotiation over site selection; AHI to expand sites?
- Less attention to methods and processes by other NPPs in non-conventional areas of research. If an NPP does not recognize division of labour between NPPs, there is danger of duplication of efforts in a methodological area (example: ECABREN’s work on participatory methods). **Solution:** if work is ongoing, then negotiate between NPPs so as to decrease duplication and increase synergy. If it is new work, ensure program links. NPP could invite AHI to do the work for it (similar to AHI inviting other NPPs to do its technology testing work).
- Lack of time to go to each other planning sessions. This is particularly difficult for AHI, as we are an integrating entity, and could essentially go to many other NPP annual planning meetings. **Solution:** Have cross-network planning sessions within ASARECA’s annual meetings. This could be rather chaotic given all the potential collaborations – but

collaboration/integration could be arranged around key and priority regional problem areas that require integration to be solved. Secondly, there could be “logical collaboration sets” assembled – where synergies are “natural”, e.g. the NRM NPPS and AHI.

- Institutional capacity and leadership to seek integration, synergies, partnerships are weak: This occurs with some conveners, because of “project-ization”, and in NARIs – where scientists are not required to integrate related activities supported from different sources. This in part is due to financial gains to individuals, and to risk avoidance (particularly where NARI does not provide operational funds and where projects have set life spans.) **Solution:** Have stronger leadership and buy-in to the principles of integration. ASARECA takes leadership in this.

➤ Policy

Most policy interventions would logically mostly occur at national level as follows:

- Improve input supplies, availability and prices in all countries. Find ways to stimulate local entrepreneurship through loans that foster the establishment input supply shops in rural areas. Encourage *regional* input supply policy mechanisms to cut tax and cross-border trade costs to ensure enough volume and profit for suppliers. Study entire demand-supply chains to identify specific bottlenecks and suggest solutions.
- Look into policy incentives that encourage investment in long-term NRM efforts (soil and water conservation, dams, irrigation), provide incentives to buffer zone dwellers and others gleaning livelihoods from protected areas and natural reserves without undermining local initiative.
- Review impacts of different land tenure or land security arrangements in a holistic, more detailed fashion. Understand interactions between landowners, land managers and hired farmers local wage rates that keep parts of the population poor. Look into different segments of society and understand traditional ownership mechanisms. Look into women’s rights to land. From these studies derive recommendations to policy makers. Different policies are needed for different circumstances in the same country.
- Learn more about traditional and modern credit arrangements. Test these to derive better policy support for a diversity of credit measures that can encourage local saving and investment.
- Develop methods and conduct research that can assist NGOs, CBOs and local groups in advocating for their rights, including resolution of NRM conflict issues.
- There is need to harmonize policies governing NRM vertically and horizontally. Now they are fragmented, not coordinated, not implemented.
- Establish better understanding of conflict resolution (or not) mechanisms. Look into

different interests around different major issues. Find ways to resolve local versus local; local versus government and local versus international conflict of interests.

➤ Human Resources

1. Limited expertise in a number of research topics and current partners highlighted here:

- Social science inputs: There is limited appreciation for and expertise in NARIs that have the necessary skills to conduct action research (not just studies) on social aspects: collective action modalities, farmer innovation methods, social and institutional aspects of community action and building of local capacity, among others. There is little expertise in IARC partners as well; it is difficult to get their engagement, and/or their experience is expensive to

purchase. Expertise from ARIs is similar and even more expensive given high overheads.

- Policy research inputs: Limited to economists who do econometric studies, having little contextual interpretation, and are not action oriented.
- Watershed and landscape level research: very few (or no) ecologists, systems agronomists, hydrologists in NARI research centers.
- Institutional change of public institutions: very little expertise or literature in this area. Definitely a pioneering field.

Solution: Look more broadly for expertise. Put resources into capacity building in these areas. Try to show by example the science in social science; and the rationale and strategic nature of action research. Train biophysical scientists in qualitative methods to combine with quantitative methods.

2. Skills in new methodological research areas are not widely developed, understood or supported by institutions and incentive structures:

- Use of integrated systems and participatory approaches are limited to relatively few examples in NARIs and IARCs, but are central to INRM. There is limited appreciation and/or assessment to understand the added-value of these approaches to the more reductionist approaches more commonly used. As a result there is currently limited buy-in, support or understanding of these methods.
- Research on development processes and strategies so as to better inform decisions and resource allocation of R&D agencies, farmer groups and NGOS is a new concept, but a potentially valuable research area. New skills are needed to do this across research institutions.

Solution: Work out strategies to increase buy-in and demonstrate feasibility and contribution of new methods and paradigms. Work on institutional change strategies that increase the capacity for institutions to value and support innovation, so that it can renew itself.

3. Difficulty in getting capable contributions on strategic research areas due to time and funding constraints.

Solution: Better leadership to encourage programming into AHI; better alignment of new projects; better coordination. There is need for some changed attitudes – collaboration requires some compromises in agenda setting, choice of sites and partners, for example.

➤ Facilities

Through regional analysis of strengths and weaknesses, come up with a strategy to support certain centers of excellence for certain facilities. Develop mechanisms by which scientists and organizations can buy services across national boundaries without undue risk, expense or inconvenience. Both soil and GIS labs could be handled in this way, particularly if soil samples are allowed to cross borders.

➤ Budget/Funding

AHI has limitations in amount of “core” funds to cover all the required benchmark site research expenses, regional and national sharing events, outreach to other sites and countries, RMT positions, and for coordination unit operations. AHI requires the RMT to build capacity, produce strategic research results, set up an analytical framework and conduct syntheses, but cannot afford to fund the set of minimum positions envisioned. Although AHI’s funding amounts may look substantial, analysis shows that core funding amounts (that cover these particular areas) are declining, while the gap is being filled with targeted grants.

AHI has experienced some delays due to reliance on donors timing for grant approval. We generally feel insecure in the duration of funds, given that our work is relatively long term in

nature, and funding cycles are relatively short (3 years).

Perhaps one has to plan and accept these uncertainties. On the other hand, ASARECA could perhaps work with coordinators to find alternative core resources that have longer duration.

➤ **Activities**

Activity gaps are due to a deficit of expertise and/or funds (as indicated in the priority section in part 2 above.) The solution is to look for expertise and/or funds to fill these gaps. This can be done by raising new projects, leveraging others to contribute or program their resources into AHI's agenda, and/or to set priorities so as to sequence the activities and emphasis over time. The regional coordinator is an active fund-raiser assisted by ICRAF's resource mobilization unit to locate opportunities. Getting others to program in their resources is proving difficult given the non-alignment of agendas and lack of leadership or mechanisms to integrate.

➤ **Priorities**

Most gaps are due to lack of expertise and/or funds. Refer to discussion in above paragraph. One of the most critical gaps is to support the outreach activities (Output 2, project 2.2) and the RMT.

➤ **Planning, Monitoring, and Evaluation**

AHI has spent time and resources on further developing an interactive monitoring system that includes performance evaluation of those involved. This now needs to be operationalized and tested to see if people will use it. The planning mechanisms are still complex, given NARI and regional levels. We would welcome assistance from MEAPU in PM&E.

➤ **Management**

Currently there is a lack of engaged and suitable expertise that can technically manage all of the outputs. This would mostly be solved by recruitment of more members for the RMT as funds permit.

We have a large administrative burden, have recommended that ICRAF invest some of the overhead funds in more assistance for the coordination office, which they promised for 2003. ICRAF is aware that it needs to improve its outreach human resources guidelines and salary scales. It also needs to provide financial management guidelines to outreach staff. These requests are being worked upon in ICRAF and when implemented will help to streamline our workload.

We are discussing overhead rate issues for pass through funds that are managed by other organizations. The proposal is to pay the end micro-manager for overhead and reduce the portion going to ICRAF, but to not exceed the rate agreed on the grant agreements.

➤ **Information Management**

Africa-Link has been responsive and has solved connectivity problems wherever it could; however, there are some unsolvable issues affecting AHI – such as lack of working lines to Holetta and Areka (EARO); and weak local expertise who are unable to trouble shoot to solve their problems. We still find that many researchers are not able to have computer access for technical work, nor do they use or access internet, nor do they actively communicate to each other on technical issues using email. Perhaps AfricaLink could assist in breaking down these behavioral barriers.

Information management has been one of our biggest bottlenecks. AHI aims to enter at least two articles per year in the Agriforum. I believe AHI has contributed 2-3 articles to date. We are

slightly under our target, the reason being lack of time. Our Web Site has been rejuvenated and redesigned and the redesign is in process. We are going to use the Web Site as an information management system.

- The RMT members will each be responsible for by targeting specific areas to write up for specific audiences (instead of compiling a general annual technical report).
- A knowledge management specialist (support from IDRC proposed) will devote time to contribute to the Agriforum and other efforts.
- An administrative assistant will be hired and this will free up the RC and project officer's time to be able to contribute towards solving our publications backlog.

➤ **Technology Transfer Mechanisms**

AHI needs to operationalize the options it has identified. The focus of transfer will be more on methods and approaches using institutional means for scaling up, than on transferring technologies per se. Some of the site teams however, would like to do some comparative studies on mechanisms for technology adaptation and innovation at farmer level, particularly concerning difficult-to-adopt NRM technologies, as these tend to be more complex. There has been significant dissemination from the pilot sites and we need to learn more about how this spontaneous dissemination is working.

➤ **Publications**

There are three bottlenecks, other than time constraints:

- A "non-writing" culture: difficulties in getting site team members to write up comprehensive reports and repackaging to suite various audiences
- Limited synthesis skills of research partners
- Limited qualitative data collection and analysis as well as limited documentation skills

It might be useful to sponsor a wider variety of training courses that have tangible outputs related to strengthening these deficit areas. Research institutions have to send the message that they value and expect these outputs from their research employees. Our RMT is working with the site team members to document past experiences using an ethnographic method to collect the information. Documentation of processes will remain a challenge for the next year or more.

IV. FUTURE TRENDS

National and regional level emerging and/or perceived threats and opportunities.

A. National level emerging and/or perceived threats

- Continued unchecked population growth, coupled to limited economic development, policy support (including unstable tenancy arrangements) and livelihood options will continue to exacerbate the fragmentation of land holdings in highland areas elevating pressure on resources and resulting in worsening land/resource degradation and water scarcity. This will spread into adjacent lowland and marginal areas as well.
- Continued unchecked disturbance of high mountain forests and water courses, global warming, and limited investments in conservation measures and maintenance of land cover will result in large scale negative off-site effects, such as water scarcity and sediment loads, to large areas.
- Continued unchecked destruction of habitats of wild species and of unique mountain ecosystems caused by encroachment on wetlands, forested and protected areas, through burning, and through elimination of micro-habitats within agricultural lands will lead to an unrecoverable loss in biodiversity.

- Soil nutrient depletion coupled with the inability to replenish nutrients, limited investment in resource maintenance and to associated increase of pests and diseases related to soil productivity decline will continue to drive yields down exacerbating poverty and quality of life in the very small farms of the highly populated areas.
- Increased pressure on water and land resources will result in more conflicts, theft and disturbance unless traditional or other strong, local stewardship and collective management systems are facilitated and supported.
- Poor public and private service provision, education (literacy levels) and infrastructure due to limited investment in mountain areas seriously limits access to information, credit, inputs, markets, which in turn limits investment in natural resource management.
- The unique, diverse African cultures, religions, and identity associated with mountain areas are negatively transformed by development, losing unique traditions, values, norms and peoples.
- The fragility and heterogeneity of mountain areas, the complex problem sets (as indicated in the bullets above) and limited institutional, policy, and economic integration, coordination and cooperation will result in a threatened ecosystem and exacerbated poverty.
- Limited local capacity and facilitation to build capacity, isolation of local highland populations, continued reliance on super-structures and external donors will undermine the grassroots ability to demand services, solve their own problems, advocate for their rights, and take custodianship of the landscape, the culture and of livelihood improvement.

The above scenarios are found in each country, but are shared throughout ECA.

B. National level emerging and/or perceived opportunities

- The emergence of integrating frameworks from central governments that devolve decision making powers and resources downward (e.g. decentralization and the PMA in Uganda) sets up a platform for self-determined and better coordinated development.
- The emergence of various coalitions and alliances that support land rights, women's rights, anti-corruption, and rights to self-determination and local decision making start to set the scene for advocacy by local people to preserve their environment, improve livelihoods, and maintain their cultural heritage in mountain areas while moving into the modern world.
- The heightened valuing and emergence of partnerships as a way to integrate and work together on complex issues, such as those found in mountain areas, will provide a more efficient and collegial atmosphere that will lead to greater impact; for example, between conservation, NGO, local government and agricultural research organizations with growing appreciation of each others perspective.
- Increased attention by research to informing development and facilitation processes can make a wide impact on building local capacity to manage their resources, advocate for better policies, and solve their own livelihood problems.
- Improved rural communication and information mechanisms can increase information flow on technologies, markets, health care, among other topics and connect isolated mountain people to the modern world.
- Changed research and development processes and strategies will divert some resources and expertise towards providing research information to decision makers regarding policy formulation, incentive programs, shared investment strategies, understanding trade-offs when setting development priorities, and in understanding and supporting local initiatives to improve land and resource management.
- Potential for better coordination, vertical and horizontal, of policy formulation and enforcement linked to involving local people in evolving resource management

arrangements, rules (by-laws) and enforcement strategies will assist in improving management of resources in mountain areas.

- New research tools and methods (GIS, modeling, action research) will help to understand complex, large-scale social and biophysical processes and interactions with local levels of management. These are applicable to solving mountain issues and enhancing local capacity in their application.

C. Regional level emerging and/or perceived threats

- Limited cooperation of governments, policy makers and R&D institutions working across borders leaves complex NRM problems originating in mountain areas unanswered, limits impact, and creates conflicts and undo competition for resources among organizations and governments.
- Cross-border conflicts arise over water and siltation, and other ecosystems are threatened due to limited solutions and limited resources invested in upland resource conservation.
- Global concerns on biodiversity conservation take precedence over local interests, while local interests continue to erode biodiversity due to lack of livelihood options and conducive, incentive policies and economic conditions that support alternatives.
- Unchecked land and resource degradation, limited economic growth and investment in highland areas exacerbate cross-border migration and results in increased insecurity, urbanization and worsening poverty.
- Mountain areas remain isolated, with limited investment in infrastructure, and regional trade barriers limit development of new markets, reduce the ability to locally reinvest in maintenance of the resource base, and the downward spiral continues downward.
- Limited regional cooperation and integration reduces the opportunity to work locally, to share different solutions to common problems regionally, and to share the synthesis globally and back to local.
- Governments remain isolationist, unstable, corrupt and conflict-oriented which removes desire and ability to collaborate to solve cross-border problems and to form a united front to the rest of the world, representing Africa's interests and needs.

D. Regional level emerging and/or perceived opportunities

- Forums and policies to enhance regional collaboration are arising that can enable various entities working in the region to collaborate, integrate and solve complex problems, such as those found in mountain areas.
- Improved links and an increasing number of platforms between countries and associated organizations can support partnerships, information sharing, and cross-country / cross-institutional learning relevant to solving sustainable development, complex NRM, economic and social issues.
- The development of new research tools and methods (GIS, modeling, action research) will help to understand complex, large-scale social, policy, economic and biophysical processes and interactions with local levels of management. These are pertinent to solving mountain issues and enhancing local capacity in their application.
- Mountain areas offer a wide range of habitats suitable to diversified cash crop production that could provide livelihood options and foreign exchange; however, these must be coupled to improved land and water resource management.
- Mountain areas have significant cultural and natural biodiversity (both natural and agro) which if protected and valued could provide local peoples with benefits and incentives that could be coupled to better land management and livelihoods.
- Innovative technology development and dissemination mechanisms, that include

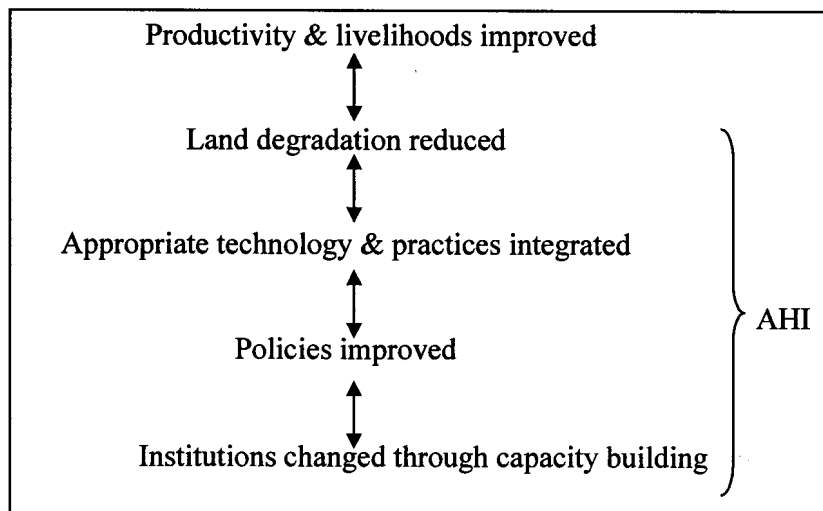
traditional indigenous knowledge, that might be developed through regional collaboration but taking advantage of local “experiments”, could go a long way in improving the accessibility of knowledge and experiences to many.

V. STRATEGIC PLAN

The broad focus of AHI during phase 3 will be to continue addressing natural resource degradation issues in highland areas while increasing productivity and improving livelihoods through:

- intensifying the INRM work in watershed sites,
- effect scaling up of INRM approaches to district levels and beyond;
- pursue institutional change in favour of INRM;
- enhance networking among INRM practitioners.

Box 1: Conceptual framework for AHI's support



AHI will concentrate on *establishing integrated watershed management “models of practice”* that can illustrate how the approaches will work, will build local and R&D capacity to achieve this, and will illustrate the impact of what stronger links between R&D can accomplish in the highlands. These models will help to generate the methods, provide the representative circumstances of highland issues, and be available as examples for scaling up across other watersheds, institutions, districts, and countries. AHI would particularly focus on *methodological dimensions* of achieving the necessary integration, partnerships and working arrangements, collective action and farmer innovation as key ingredients to solve NRM and productivity issues.

The new *district focus* is proposed as a means of scaling up INRM approaches and impacting on policy and development. This focus will provide a platform to AHI teams for making an input into discussions related to local environmental and agricultural development as well as into strategies, decision making, planning and implementation of these programmes, and into discussion about service delivery modalities of NGOs and GOs.

The mandate of *institutionalising change in research institutions* for enhanced use of INRM approaches will rigorously continue. AHI would support and enhance researcher and research institution's capacity to promote and use INRM so as to achieve better integration of technical, economic, policy, institutional and social dimensions.

Finally AHI will attempt *wider INRM policy and practice change through networking, enhancing information exchange, and compiling and synthesizing information* from a wider set of experiences including from NGOs, other INRM programmes and IARCs. Through these efforts, AHI will be encouraging and assisting others to start integrated watershed management sites, be supporting a modest network of "sites" where there is interest in sharing information and methods; and generally try to mainstream environmental and sustainability concerns into the traditional production oriented focus.

AHI's **goal** is to contribute to increased sustainable agricultural productivity and to improved nutrition, environmental management and income in the ECA region. In so doing, AHI would help reduce environmental degradation, increase investment in NRM, increase returns to land and labour, and improve social capital.

AHI's **purpose** is to develop and institutionalize effective and efficient approaches for sustainable INRM and enhanced productivity in the intensively cultivated highlands of ECA. The purpose being accomplished would ensure that communities residing in representative highland watersheds would be more able to sustain their land and water resources. Farmers and communities would be more innovative and able to integrate technical and management options into their farming system and watershed areas. Community organizations would be more cohesive and would be able to collectively advocate for more supportive policies, positively change their institutional strategies and arrangements concerning NRM, and have a stronger presence in decision making platforms. Lower level governance would be enabled through provision of better information, to make better decisions and consider tradeoffs and balance interests. Research organizations and their staff would be able to implement INRM approaches.

Two broad strategic objectives for AHI to solve natural resource issues in degraded and poverty stricken areas of the highlands are:

- (1) To support sustainable INRM in practice**
- (2) To scale up watershed-based INRM approaches through increased institutionalization and public investment.**

The principal strategies that will guide AHI's work are as follows:

- Emphasis on participation and collective action leading to local action, innovation and sustainability
- Using an action research approach
- Employing an integrated, systems approach
- Partnerships and complementarity

- Managing a ‘paradigm⁵’ shift: capacity and institution strengthening
- Promoting synergies between local experiences and regional application

Strategy 1: Emphasis on participation and collective action leading to local innovation and sustainability

Participatory approaches will continue to be used to facilitate attitude and behavioral change of farmers and community groups, and ultimately, to empower local stakeholders including women and the poor, to take charge and solve their own problems using their own innovativeness. NRM-type interventions useful in solving hillside management problems are knowledge and management intensive, unlike variety-type interventions. It is well known that many innovations come about by combining knowledge of management principles with ITK. Therefore, putting emphasis on creating capacity for improved adaptive management to address a highly heterogeneous, diverse set of conditions and stakeholders makes more sense than being “prescriptive”.

Some solutions to NRM issues require agreements between stakeholders; for example, shared grazing areas, hillside management, or rainfed irrigation management. Conflicts over the use of natural resources constitute one of the major factors limiting the adoption of NRM technologies and the implementation of locally derived and national policies. In highland areas, conflicts often arise due to shortage and competition for resources, due to breakdown of local mechanisms to cope and resolve conflict issues, and lack of incentives and possibly skills to come up with new, improved management mechanisms. Conflicts dilute or diminish social capital in local communities. Understanding NRM management arrangements, conflicts and their resolution mechanisms are key to building social capital and developing and implementing alternative management strategies to transform conflict situations into opportunities for collective action, collaboration among a range of stakeholders and resource users, and effective local policies.

Strategy 2: Using an Action Research Approach

As an underlying principal Phase 3 will rigorously pursue *action research* as a way of working that simultaneously can build researcher capacity, can help to invent and explore new approaches and methods, and can ultimately help to institutionalize these. Action research must include purposeful documentation, monitoring and feedback for learning and self-reflection. Methods and approaches are developed through personal engagement and informed, innovative “trial and error”. This is a “process approach” and as such supports actual engagement in process while deriving research findings. It is a departure from “study and survey” approach and from “on farm research” approach, both of which tend be controlled by outsiders and may have limited impact.

Strategy 3: Employing an Integrated, Systems Approach

An integrated, systems approach is necessary to develop technical options that address multiple objectives of farmers, communities and society at large for several reasons. Addressing sustainable productivity issues is multi-faceted and therefore requires multiple combinations of technical and socio-economic options that may be site and user specific in their combinations and application. In addition, farmers manage multiple enterprises using a range of resources over time and space, so that the management and actions are not independent. Solutions are rarely single components, but rather the “win-win-win”

⁵ A shift would involve a shift in vision, process, work culture, and attitude behavior. Participatory methods, systems integration, demand orientation, farmer innovation and improved collaboration and links with development are several areas that might be included in changes in orientation.

combinations of options that generate more income, more food and improve the environment. Lastly, natural resources (soil, water, vegetation, livestock and fish) are integrated in them and as such cannot be dealt with in practice exclusively.

Therefore, to improve farms and watersheds, an integrated systems approach is required so as to focus attention on the links, interactions, resource flows (nutrients, cash, labor, water, etc), social and biophysical interactions, and trade-offs in the system (farm or watershed) within time and space, to better understand how to manipulate the components so as to optimize returns, interactions and flows. Research questions need to link the various biophysical and socio-economic dimensions, and using models or key indicators to trace multiple variables and change over time. Farmer (at farm-level) and community(s) involvement (at watershed level) are critical; as there are no prescriptive practices, but rather principles along with the options applied in context to improve system management. The experiences and results of systems research and investigation can inform researchers who develop technologies (components), are useful as advice to farmers and communities on ways to manipulate components and optimize the performance of their system or watershed.

Strategy 4: Fostering Partnerships and Achieving Complementarity

This is a key strategy that needs reiteration for the third phase. The main aim of integration is to relieve as many major constraints as possible by combining options and efforts. To do this, AHI would ensure facilitation of the “demand side” by bringing in expertise from various sources to ensure that issues requiring an integrated approach are addressed. AHI would facilitate strategic partnerships and that collaborative contributions would be drawn in from IARCs for strategic research aspects (refer to examples in annex 2); NGOs for development aspects and NARS and NPPs for adaptive research inputs, other NPPs for institutional inputs (e.g. ECAPAPA for policy aspects, etc). Mechanisms used to set up integrating frameworks; to conceive, negotiate, and sustain strategic partnerships; and to improve coordination and collaborative modes of operating are part and parcel of the methodological work set out as core business for AHI.

Strategy 5: Managing a Paradigm’ Shift: Capacity and Institution Strengthening

The implementation of an INRM approach will require a paradigm shift or a change in operational modalities of research institutions. The pilot integrated watershed and district strategy cases would be used as learning and testing grounds. Capacity and institutional strengthening would be implemented at the various operational levels and would involve traditional training, facilitation and mentoring, forums for exchange of experiences and information, and iterative conceptual and practical work.

The paradigm shift being promoted will be to approach problems from an integrated systems vantage point not just from a component view point; to treat issues with a more holistic view (incorporating social, economic and policy elements); to give a higher priority to building local capacity to solve their own problems; and to shift to a “demand-driven”, impact oriented (as opposed to the current supply driven mode) approach to research for development efforts. Ultimately, what is proposed is to promote a fundamental change from current research methods and attitudes.

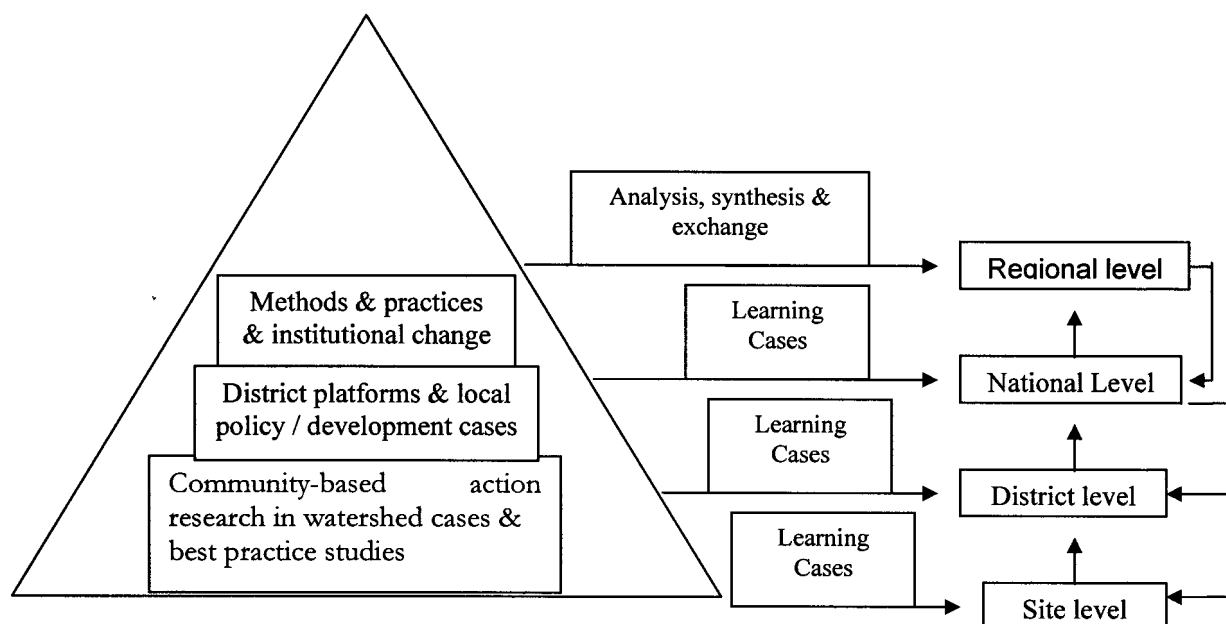
Strategy 6: Promoting Synergies between Local Experiences and Regional Application

AHI, as a regional program, is charged with generating and assembling a general body of knowledge having regional and global application. Research and documentation of methods, processes and lessons would take place mostly from the results from pilot sites, and synthesis

of these and related experiences would provide regional principles through generalizing “what works” and “what doesn’t work” in different contexts. These lessons and best practices would be used for scaling up nationally and regionally using various media to inform a range of R&D actors. (Figure 3).

The integrated watershed management pilot cases would build on phase 1 and 2 work, be nationally relevant, be nodes for integration and capacity building, contribute to the regional dimension of AHI in terms of method and approach development, act as models for others, and provide strategic research products. These lessons will be augmented by research and findings from other experiences. AHI would encourage other institutions to support their own sites striving to use integrated watershed management approaches. AHI will facilitate a network of sites, to encourage methodology and other information exchange.

Figure. 3 Local experiences lead to regional application



VI. GOAL, PURPOSE, OUTPUT AND REVISED INDICATORS OF SUCCESS

Table 5: Regional framework

Narrative	Indicators
SUPER GOAL: To contribute to poverty alleviation, food security, economic growth and a sustainable environment.	
GOAL: To contribute to increased sustainable agricultural productivity and to improved nutrition, environmental management and income in the ECA region.	<ol style="list-style-type: none"> 1. Reduced environmental degradation 2. Increased returns to land and labour 3. Improved social capital 4. Increased investment in NRM

PURPOSE: Effective and efficient approaches for sustainable INRM and enhanced productivity are institutionalized in the intensively cultivated highlands of ECA.	<ol style="list-style-type: none"> 1. Improved management of natural resources and production elements in selected watersheds. 2. Increased and improved livelihoods based on efficient use of resources in selected watersheds 3. Policy makers and decision makers making better informed decisions. 4. Increased synergies between research and development partners 5. Evidence of positive change in local and research institution strategies and arrangements.
OUTPUT 1: Support sustainable INRM in practice	<ol style="list-style-type: none"> 1. Evidence of farmers & communities integrating technical, management and institutional options and innovations 2. Increased level of community action and advocacy aimed at improving policy and economic conditions. 3. Increased number of functional, strategic partnerships and integrated, collaborative activities. 4. Districts have more concrete, informed and better coordinated sustainable productivity policies and action plans. 5. Models and syntheses available on selected aspects of INRM 6. Evidence of various effective integrated, participatory watershed management approaches and methods
OUTPUT 2: Scaling up of watershed-based INRM approaches through increased institutionalization and public investment	<ol style="list-style-type: none"> 1. Greater incorporation of INRM approaches into research priorities and practice of NARIs. 1. Evidence of enabling organizational mechanisms and procedures for researchers to implement INRM 2. Evidence of development of institutionalization approaches and methods to improve INRM 3. Greater application and convergence of social, institutional, policy and watershed dimensions into research 4. Process monitoring and assessment tools and systems available and in use 5. Increased information and experience exchange for diverse stakeholder groups 6. Increased support by AHI's regional team to further integrated watershed development initiatives in degraded highlands 7. Documentation of factors, lessons, and experiences.

(Note that indicators are not yet SMART – work in progress)

VII. TARGET GROUPS

The main groups involved in implementing AHI are research organization staff augmented by NGO and extension staff. The R&D teams work with local communities, local government staff, and other service providers. AHI also works directly with research managers and interacts in national, regional and international forums on topics of research coordination, technological inputs, priority setting, particular thematic areas related to sustainable development in mountain areas. There is a broader group of research and development practitioners and the general public that are reached through the Web Site and publications. Therefore, a complete spectrum of groups at various levels is targeted. If AHI were

successful in targeting these groups one would hope to see: Lower level governance would be enabled through provision of better information, to make better decisions and consider tradeoffs and balance interests. Research organizations and their staff would be able to implement INRM approaches. The general public would be better informed on the challenges and success stories on INRM and mountain area issues. Research staff will be more able to use and develop INRM methods and approaches, to explain and demonstrate the value-added of action research and research for development, and to have greater impact. The effect on highland communities and society at large is presented in the next section.

VIII. BENEFICIARIES

The beneficiaries that AHI is directly targeting are those residing in the highland watersheds of east Africa. As a result of better research and development strategies, methods and processes, the communities residing in representative highland watersheds would be more able to manage and sustain their land and water resources. Farmers and communities would be more innovative and able to integrate technical and management options into their farming system and watershed areas. Community organizations would be more cohesive and would be able to collectively advocate for more supportive policies, positively change their institutional strategies and arrangements concerning NRM, and have a stronger presence in decision making platforms. These communities would receive better services and support from policy makers, service providers and other development efforts. Women and the poor would benefit along with other more able beneficiaries. If the local communities benefit, if the environment is conserved and maintained, then society at large will benefit from continued preservation of culture, habitats, biodiversity, water and soil resources.

IX. SUMMARY OF RECOMMENDATIONS AND CONCLUSION

A summary of various recommendations and issues brought up in subsequent sections includes:

The Big Picture

1. Policy interventions are needed to support improved INRM and productivity in the highlands: inputs, long-term investments, incentives, fostering local control and management, harmonization, cross-border issues, conflict resolution
2. There is need to target conservation of biodiversity issues using livelihood and integrated strategies at regional, national and local levels, which require partnerships between environmental and agricultural entities.
3. There is need to find ways to develop local capacity to better manage their resources, individually and collectively. This is more than technology development, but includes understanding how to manage social and biophysical processes and their integration can be supported with advice, facilitation and information, plus improve links to policy and economic support systems.
4. There is need to compile information for different audiences (policy makers, general public opinion, local and services providers) on mountain issues to raise their awareness and support for positive change and conservation.
5. There is need to support collaborative, integrating frameworks and partnerships to speed impact by amalgamating resources and expertise to address complex problem sets (e.g. including economic, social, policy and technical dimensions).

6. There is need to invest in new research methods, tools and approaches that can provide better information to decision makers and managers in order to solve complex and large-scale problems as we see in mountain areas.

Specific Management and Strategy dilemmas for AHI

The following issues came up in the gap analysis:

1. AHI is proposing and working on non-conventional research products and methods that it believes through its analysis and experience are necessary to achieve the impact envisioned. This begs the question as to whether the NARIs and IARCs are interested in embracing these new research dimensions and what strategy might be undertaken to either lobby for or help organizations to embrace these new areas. How to manage a paradigm shift in public funded institutions then also becomes a researchable item.
2. There is need to improve general understanding and appreciation of the benefits of action research, research for development, and concentration on methods and approaches. New research paradigms are required to make an impact.
3. Expansion versus consolidation in terms of number of partners, countries and sites given the trade-offs in finding expertise, having reach and impact and producing quality, strategic research outputs.
4. Limited expertise in the new areas of INRM – how do we handle the deficit: build local capacity over time or buy-in more expensive strategic research; specifically sociologists, watershed / landscape ecologists, hydrologists, integrated systems specialists, institutional change. Activity gaps were identified related to lack of expertise and funding deficits.
5. Issues linking AHI with other NPPs: need for better programming of resources, leadership in this direction, and mechanisms and related policy decisions to integrate around key thematic issues and sites.
6. Need to increase AHI's "core" or regional funds particularly to fund the Regional Research Management Team, site research and outreach activities.
7. Assistance needed from MEAPU to operationalize PM&E system and to make indicators SMART and to integrate this type of M&E system with a performance driven M&E system. AHI needs to link M&E to research hypotheses, monitoring of change of different actors and levels, to institutional change and experiential learning for method development.
8. We need to operationalize potential solutions to solve information management and publication bottlenecks using several suggested strategies.
9. How do we deal with the fast changing institutional landscape? How do we deal with significant changes in personnel involved in AHI over time?

APPENDIX 1: DIRECTORY OF MEMBERS

A. Steering Committee Members

Dr. Abera Debelo
AHI EARO Representative
EARO, P. O. Box 2003
Addis Ababa, Ethiopia
Tel 251-1-454433 (direct) ; 460380 (main office);
9-203871 (mobile); 462633 (operator)
Fax 251-1-461254 / 461251
Email iar@telecom.net.et

Dr. Ann Stroud
AHI Co-ordinator
Kawanda Agricultural Research Station
P. O. Box 6247
Kampala, Uganda
Tel 256-41-566722/567670/75-766432
Fax 256-41-567635
Email A.Stroud@cgiar.org

Representative
MEAPU
ASARECA
P. O. Box 765
Entebbe, Uganda
Tel 256-41-320556/320212
Fax 256-41-321126/321070
Email asareca@imul.com

Dr. Glenn Denning
Director Development Division
ICRAF House
UN Avenue, Gigiri
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email G.Denning@cgiar.org

Dr. Jean Ndikumana
International Livestock Research Institute (ILRI)
Naivasha Rd
Nairobi, Kenya
Tel 254-2-630743; dir 631201; 351215/7
Fax 254-2-631499
Email J.Ndikumana@cgiar.org

Dr. John Lynam
The Rockefeller Foundation
International House 13th Floor
Mama Ngina St.
Nairobi, Kenya
Tel 254-2-228061-2/332361
Fax 254-2-218840
Email J.Lynam@cgiar.org

Dr. Jane Wamungo
AD-SWM
Kenya Agricultural research Institute (KARI)
P. O. Box 57811
Nairobi, Kenya
Tel 254-2-583720/583209
Fax 254-2-583344/583291
Email JWWamungo@kari.org

Dr. Luis Navarro
IDRC, Liason House
State House Avenue
Nairobi, Kenya
Tel 254-2-713160
Fax 254-2-711063
Email lnavarro@idrc.or.ke

Ms. Mary Lutkamu
AHI DRD Representative
Dept. of Research & Development
P. O. Box 2066
Dar es Saaalam, Tanzania
Tel 255-51-865323 / 865319
Fax 255-51-865312
Email drd@ud.co.tz

Dr Otim Nape
AHI NARO Representative
Deputy Director General Outreach,
NARO, P.O. Box 295
Entebbe, Uganda
Tel: 256-41-320178/320264; -77-474214
Fax: 256-41-321070
Email: onape@infocom.co.ug; narohq@imul.com

Dr. Peter Ewell
Regional Representative
CIP/Sub Saharan Africa
P. O. Box 25171
Nairobi, Kenya
Tel 254-2-632054/632151
Fax 254-2-630005/631499
Email P.Ewell@cgiar.org

Dr. Rakotondramanana
Director -FIFAMANOR
P. O. Box 198
Antsirabe 110, Madagascar
Tel 261-33 11 05096; 30 4486217
Fax 261 20 44 49964
Email fifamanor@ds.mg

Dr. Roger Kirkby
CIAT,
Kawanda Agricultural Research Institute
Bombo Rd
Kampala, Uganda
Tel 256-41-566089/567670
Fax 256-41-567635
Email R.Kirkby@cgiar.org

B. AHI Coordination Unit Technical Staff

Dr. Ann Stroud
AHI Co-ordinator
Kawanda Agricultural Research Station
P. O. Box 6247
Kampala, Uganda
Tel 256-41-566722/567670/75-766432
Fax 256-41-567635
Email A.Stroud@cgiar.org

Ms Olive Kyampaire
AHI Project Officer
Kawanda Agricultural Research Institute
P. O. Box 6247
Kampala, Uganda
Tel 256-41-566432
Fax 256-41-567635
Email ahikamp@infocom.co.ug

Mr. Chris Opondo ; M&E
AHI/ICRAF
Kawanda Agricultural Research Institute
P. O. Box 6247
Kampala, Uganda
Tel 256-41-566432
Fax 256-41-567635
Email chriso@infocom.co.ug

Dr. Pascal Sanginga
Rural Sociologist
AHI/CIAT
P. O. Box 239
Kabale, Uganda
Tel 256-486-23153 / 22710 ; 077-6369
Fax 256-486-23200 / 22400
Email p.sanginga@cgiar.org

Dr. Tilahun Amede
Agronomist
AHI/CIAT
Areka Benchmark site
P. O. Box 79
Areka, Ethiopia
Tel 251-6-510995
Email ark.arc@telecom.net.et
tilahun@avu.org

C. Major NARS Member scientists & other technical staff

Mr. Kindu Mekonnen
AHI Site Co-ordinator, Holetta/Ginchi
EARO
P. O. Box 2003
Addis Ababa, Ethiopia
Tel 252-1-5118802/512579/370300
Fax 251-1-514002
Email harc@telecom.net.et

Mr. Wagga
AHI Site Coordinator, Areka
Areka Agricultural Research Centre
P. O. Box 79
Areka, Ethiopia
Tel 251-6-510995; 552143
Fax 251-6-201527
Email ark.arc@telecom.net.et

Mr. Jean-Marc Randrianaivoarivony
AHI Site Co-ordinator, Antsirabe
FIFAMANOR
P. O. Box 198
Antsirabe 110, Madagascar
Tel 261-20-30-4448954; 86217
Fax 261-20-30-4449964 ; 86217
Email fifamanor@dts.mg

Mr. Chrispus Oduori
AHI Site Co-ordinator, Kakamega
KARI-Kakamega RRC
P. O. Box 169
Kakamega, Kenya
Tel 005-331-30039; 005-733-771928
Fax 005-331-30062
Email ahi@swiftkisumu.com

Mr. Charles Lyamchai
AHI National Co-ordinator
Selian Agricultural Research Institute
P. O. Box 6024
Arusha, Tanzania
Tel 255-27-2503883/2502268/2505675
Fax 255-27-2508557;2503971
Email sari@yako.habari.co.tz

Mr Francis Alacho
Tech Advisor for Adaptive Research
NARO Outreach
P.O. Box 295
Entebbe, Uganda
Tel: 256-41-320178/320264; -77-502907
Fax: 256-41-321070
Email: onape@infocom.co.ug

Dr. Imelda Kashaija
Centre Manager ARDC, Kabale
NARO
P. O. Box 421
Kabale, Uganda
Tel 256-486-23064, -77 465070
Email ikashaija@yahoo.co.uk

Dr. J. Mowo
AHI Site Co-ordinator, Lushoto
ARI-Mlingano
P. O. Box 5088
Tanga, Tanzania
Tel 255-27-2640214 (Lushoto)

Fax 255-27-2642577
Mob: 007 744 285502
Email; jgmowo@yahoo.com; eroahi@tanga.net

Dr. Jean Louis Rakotomanana
AHI Site Co-ordinator, Fianarantsoa
Center Regionale de Recherche FOFIFA
BP 206, Fianarantsoa 301, Madagascar
Tel 261-20-227551093
Fax 261-20-22-7551346
Email ahifnr@simicro.mg; jlrakoto@simicro.mg;
crr-mpiahy@simicro.mg

Dr. Raymond Rabeson
AHI National Co-ordinator
FOFIFA
BP 1690
Antananarivo 101, Madagascar
Tel 261-20-22-30460
Fax 261-20-22 40270
Email raymond.rabeson@dts.mg

Mrs Bodo Rabary
FOFIFA
Leader PRIAM
B. P. 230
Antsirabe 110
Madagascar
Tel 261-20-44-48054
Email fofifa-abe@dts.mg

Richard Ralaiaisoa
Centre Fafiala
Andranomandry
Ambohimangakely
P.K. 13,5
B.P. 5236
Antananarivo 101
Tel 030 23 811 16

Dr.A Nyaki
Director,
ARI Mlingano
P. O. Box 5088
Tanga, Tanzania
Tel
Fax
Email mlingano@twiga.com

Dr. Paulos Dubale
Director Soil & Water Dept
EARO
P. O. Box 2003
Addis Ababa, Ethiopia
Tel 251-1-612633
Fax 251-1-611222
Email iar@telecom.net.et
Dr. Taye Bekele
Coordinator of Soil Fertility Programme
EARO

P. O. Box 2003
Addis Ababa, Ethiopia
Tel 251-1-612633/47
Fax 251-1-611222r
Email iar@telecom.net.et

Tenaw Workaheyu
Head, Agronomy & Crop Physiology Division
Awassa Agricultural Research Centre
P. O. Box 6
Awassa, Ethiopia
Tel 251-6-200224/200045
Fax 2516-201527
Email arc@telecom.net.et

Mr Wassie Haile
Awassa Agricultural Research Centre
P. O. Box 6
Awassa, Ethiopia
Tel 251-6-200224/200045
Fax 2516-201527
Email arc@telecom.net.et

Dr. Yohannes Uloro
Alemaya University
P.O. Box 138
Dire Dawa, Ethiopia
Email: Yuloro@hotmail.com

Dr Daniel Dauro
Center Manager ARC
Awassa Research Centre
P. O. Box 6
Awassa, Ethiopia
Tel 251-6-200224
Fax 251-6-201527
Email arc@telecom.net.et

Dr. Henry Ssali
KARI/NARO
P. O. Box 7065
Kampala, Uganda
Tel 256-41-567622
Fax 256-41-567635
Email landuse@infocom.co.ug

Dr. Habtu Assefa
SIDA Watershed Management Project
Amhara Region
P. O. Box
Bahar Dar, Ethiopia
Email

**D. IMPLEMENTING AGENCY Associated
Staff, IARCS and others**

Implementing agency
Dr Dennis Garrity
Director General
ICRAF

P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email D.Garrity@cgiar.org

Dr. Glenn Denning
Director Development Division
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email G.Denning@cgiar.org

Dr. Dianne Russell
Leader Advancing Innovation and Impact Program
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email D.Russell@cgiar.org

Dr Steve Franzel
Economist
ICRAF
P.O. Box 30677
Nairobi, Kenya
Tel: 254-2-524000
Fax: 254-2-521001
Email: S.Franzel@cgiar.org

Dr. Frank Place
ICRAF
P. O. Box 30677
Nairobi, Kenya
254-2-524000
254-2-524001
F.Place@cgiar.org

Dr. Bashir Jama
Regional Co-ordinator ECA
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
B.Jama@cgiar.org

Dr. Anne-Marie Izac
Director Research Division
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email A.Izac@cgiar.org

Dr. Brent Swallow
Leader for NRM & Impact

Assessment Program
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email B.Swallow@cgiar.org

Dr. Keith Shepherd
Senior Systems Agronomist
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 521-2-521001
Email K.Shepherd@cgiar.org

Dr. Markus Walsh
Landscape Ecologist
Decision Support Services
ICRAF
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email M.Walsh@cgiar.org

Mr. David Siriri
AFRENA/ICRAF
Uganda Agroforestry Research Project
P. O. Box 311
Kabale, Uganda
Tel 256-486-23931
Fax 256-486-23931
Email icrafkab@starcom.co.ug

Dr. Jean Marc Boffa
AFRENA/ICRAF
Uganda Agroforestry Research Project
P. O. Box 1752
Kampala, Uganda
Tel 256-41-231611
Fax 256-41-231611
Mobile: -77 755488
Email: boffa@africaonline.co.ug

Robert Zomer
Landscape Ecologist
ICRAF House
UN Avenue, Gigiri
P. O. Box 30677
Nairobi, Kenya
Tel 254-2-524000
Fax 254-2-521001
Email R.Zomer@cgiar.org

Other IARCs

Dr. Dennis Friesen
CIMMYT, ICRAF House

P. O. Box 25171
Nairobi, Kenya
Tel 254-2-524607
Fax 254-2-522879
Email D.Friesen@cgiar.org

Dr. John Pender
IFPRI
2033 K Street N. W.
Washington D.C. 20006, USA
Tel 1-202-862-5600
Fax 1-202-467-4439
Email J.Pender@cgiar.org

Dr. Bill Thorpe
ILRI
P. O. Box 30709
Nairobi, Kenya
Tel 254-2-630743
Fax 254-2-631499
Email W.Thorpe@cgiar.org

Dr André Bationo
TSBF-AfNet Coordinator
c/o ICRAF
PO Box 30677
Nairobi, Kenya
Tel: +254-2-524755 / 524000
Fax: +254-2-622733 / 524001
Email: a.bationo@cgiar.org

Dr. Kwasi Ampofo
CIAT Bean Programme
P. O. Box 2704
Arusha, Tanzania
Tel 255-27-2502268/2508557
Fax 255-27-2508557
Email K.Ampofo@cgiar.org

Dr Anthony Esilaba
CIAT RRF
P.O. Box 6247
Kampala, Uganda
Tel 256-41-566721; 077-519998
Fax 256-567635
Email : A.Esilaba@cgiar.org

Dr. Cliff Gold
Entomologist
IITA/ESARC
P. O. Box 7878
Kampala, Uganda
Tel 256-41-567356
Fax 256-41-567635
Email c.gold@imul.com

Dr. Michael Smalley
Director of Strengthening Partners
ILRI
P. O. Box 5689

Addis Ababa, Ethiopia
Tel 251-1-613215
Fax 251-1-611892
Email M.Smalley@cgiar.org

Dr. Mohammed Jabbar
Agricultural Economist
ILRI
P. O. Box 5689
Addis Ababa, Ethiopia
Tel 251-1-613215
Fax 251-1-611892
Email M.Jabbar@cgiar.org

Dr. Phil Thornton
Systems Analyst
ILRI
P. O. Box 30709
Nairobi, Kenya
Tel 254-2-630743
Fax 254-2-631499
Email P.Thornton@cgiar.org

Dr. Simeon Ehui
Coordinator – Livestock Policy Analysis
ILRI
P. O. Box 5689
Addis Ababa, Ethiopia
Tel: 251-1-613495 (Direct); 251-1-613215
Fax 251-1-611892
Email S.Ehui@cgiar.org

Dr. Soniia David
Sociologist
CIAT- Kawanda Research Station
P. O. Box 6247
Kampala, Uganda
Tel 256-41-567814/567670
Fax 256-41-567635
Email ciatuga@imul.com

Dr. Robin Buruchara
Pathologist
CIAT
P. O. Box 6247
Kampala, Uganda
Tel 256-41-567814/567670
Fax 256-41-567635
Email R.Buruchara@cgiar.org

Dr Rob Delve
TSBF/CIAT
P.O. Box 6247
Kampala, Uganda
Tel 256-41-566415; 077-506122
Fax 256-41-567635
Email R.Delve@cgiar.org

Professor Mike Swift
Director

TSBF Programme
C/o UNESCO, Block B-132
P. O. Box 30592
Nairobi, Kenya
Tel 254-2-622584/622659
Fax 254-2-622733/521159
Email mike.swift.@tsbf.unon.org

Dr. Bill Thorpe
ILRI
P. O. Box 30709
Nairobi, Kenya
Tel 254-2-630743
Fax 254-2-631499
Email W.Thorpe@cgiar.org

Dr. Don Peden
ILRI
Head, Highlands Programme
P. O. Box 5689
Addis Ababa
Email: D.Peden@cgiar.org

Dr. Jean Hanson
ILRI
Head, Genetic Resources
Email: J.Hanson@cgiar.org

Joshua Ramisch
Social Science Officer
TSBF
P. O. Box 30592
Nairobi, Kenya
Tel: 254-2-622338
Fax: 254-2-622733
Email: joshua.ramisch@tsbf.unon.org

Bernard VanLauwe
TSBF
P. O. Box 30592
Nairobi, Kenya
Tel: 254-2-622338
Fax: 254-2-622733
Email: b.vanlauwe@cgiar.org

Dr. Bruce Scott
ILRI
P. O. Box 30709
Nairobi, Kenya
Tel 254-2-630743/632014 (Direct)
Fax 254-2-631499
Email B.Scott@cgiar.org

E. NGOs & Universities

Dr Francis Gichuki
Moderator Mountain Forum for Africa
C/o ICRAF

P.O. Box 30677
Nairobi, Kenya
Tel: 254-2-524000
Fax: 254-2-521001
Email: F.Gichuki@cgiar.org

Dr. Fred Wang'ati
Consultant, Agriculture Research & Development
P.O. Box 15233, Nairobi, Kenya
Tel/Fax: 254-2 891273
Email: wangati@form-net.com

Dr. Mateete Bekunda
Makerere University
Dept. of Soil Science
Email mateete@imul.com

Dr. N Hatibu
Ag Engineering Dept.
Sokoine University of Agriculture
P. O. Box 3001
Morogoro, Tanzania
Tel 255-56-4649
Fax 255-56-3718
Email swmrg@suanet.co.tz

Jens Aune
Agricultural University of Norway
Centre for Intl Environment and
Development Studies
Noragric
P.O. Box 5001
N-1432 As, Norway
Email: jens.aune@noragric.nhl.no

Phillipa Crosland-Taylor
Economic Development Manager
CARE International Uganda
17Mackinnon Rd. Nakasero
P. O. Box 7280
Kampala
Tel : 005 41 258568/9 ; 077-221103
Fax : 005 41 344295
Email : phillipa.carehq@imul.com

Tom Blomley
Conservation and Environment
CARE International Uganda
17 Mackinnon Rd. Nakasero
P. O. Box 7280
Kampala
Tel : 005 41 258568/9 ; 077-221103
Fax : 005 41 344295
Email: carehq@imul.com

Meenu Vadera
County Director
Action Aid Uganda

P.O.Box 676
Kampala, Uganda
Tel/fax : 256-41-267738/267863
Email : meenuv@infocom.co.ug
meenuv@actionaiduganda.org

Lawrence Tiyyo
Project coordinator
Action Aid Project, Kapchorwa
P.O.Box 47, Kapchorwa
Tel/fax : 045-51136 Mob : 077 720023
Email: kapchorwa@actionaiduganda.org

Engorok Obin
Project Manager
Farmer Innovations Project (FIP)
Plot 11/13 Archer Road
P. O. Box 702
Kabale
Te : 256-486-23517/8 ; 256-77-472226
Fax : 256-486-22307
Email : carekba@africaonline.co.ug
carekba@imul.com

Feyera Abdi
Program Director
SOS Sahel International
P. O. Box 3262
Addis Ababa, Ethiopia
Tel: 251-1-615582 (Addis); 6-205276 (Awassa)
Fax: 251-1-613744 (Addis); 6-204753 (Awassa)
Email : sos.sahel@telecom.net.et

APPENDIX 2: AHI Publications

AHI TECHNICAL REPORT SERIES

1. Esilaba AO, Ransom JK. 1997. Striga in the eastern and central African countries: a literature review. AHI Technical Report Series No. 1.
2. Okech S H O, Gold CS. 1996. Relationship of the banana weevil with its host plant and soil fertility: literature review with emphasis on studies in Eastern and Central Africa. AHI Technical Report Series No. 2.
3. Berga Lemaga. 1997. Integrated control of potato bacterial wilt: literature review and work plan, 1995-1997. AHI Technical Report Series No.3.
4. Nderitu J, Burachara RA, Ampofo JKO. 1997. Relationship between bean stem maggot, bean root rots and soil fertility: literature review with emphasis on research in Eastern and Central Africa. AHI Technical Report Series No. 4.
5. Esilaba AO, Reda F, Mulatu T, Ransom JK, Woldewahid G, Fitwy I, eds. 1997. A diagnostic survey of striga in the Northern Ethiopian Highlands. AHI Technical Report Series No. 5.
6. Braun AR, Smaling EMA, Muchugu EI, Shepherd KD, Corbett JD, eds. 1996. Maintenance and improvement of soil productivity in the highlands of Ethiopia, Kenya, Madagascar and Uganda: an inventory of spatial and non-spatial survey and research data on natural resources and land productivity. AHI Technical Report Series no. 6.
7. Imbernon J. 1997. Properties, changes and links of land uses in the Kenyan highlands: upper and lower Embu zones. AHI Technical Report Series No. 7.
8. Beyene H. and Mulatu T. 1999. A selection of diagnostic and characterisation studies conducted between 1986 and 1994 at Ginchi and Nazret, Ethiopia. Technical Report Series No. 8
9. Salasya B. and Ajanga S. 1999. A selection of diagnostic and characterisation studies conducted between 1986 and 1995 in Western and Central highland areas of Kenya. Technical Report Series No. 9
10. Tukahirwa J. M. 1999. Diagnostic and characterisation studies conducted from 1945 to 1995 in southwest Uganda. Technical Report Series No. 10
11. Gachene C.K.K., Palm C.A., Mureithi J.G. 2000. Legume cover crops for soil fertility improvement in the eastern Africa region. Technical Report Series No. 11
12. Soniia D. 2000 (ed). Planning for farmer's seed requirements. Proceedings of Workshops at AHI benchmark sites in eastern Africa. AHI Technical Report Series No. 12.
13. Stroud Ann 2001: AHI Technical Report End of Phase I (1995-1997).

JOURNAL PUBLICATIONS

1. Esilaba AO, F Reda, T Mulatu, JK Ransom, G Woldewahid, A Tesfaye, I Fitwy and G Abate. 1997. Participatory rural appraisal on *Striga* in the northern Ethiopian highlands. African Crop Science Conference Proceedings, vol. 3. 895-902.
2. Gold CS, Okech S, Karamura E, Abera AM. 1997. Banana weevil population densities and related damage in Ntungamo and Mbarara Districts, Uganda. African Crop Science Conference Proceedings, Vol. 3.
3. Okech SHO, Gold CS, Speijer P, Karamura E, SSali H. 1997. Relationships between soil fertility, banana weevil, nematodes and agronomic practices in Ntungamo, southwestern Uganda. *Acta Horticulturae*.
4. Okech SHO, Karugaba A, Gold CS, Nyakuni A, SSali H, Karamura E. 1997. Influence of soil conservation bunds, compost manure, coffee and bean intercropping on weevil incidence, banana pseudostem size and bunch weight in Bugamba sub-county, a hilly environment in Mbarara District, southwestern Uganda. African Crop Science Conference Proceedings, Vol. 3.
5. Otsyula RM, SI Ajanga, RA Buruchara and CS Wortmann. 1998. Development of an integrated bean root rot control strategy for Western Kenya. African Crop Science Journal. 6(1): 61-67.

TRAINING AND EXTENSION INFORMATION

1. Berga L. 1996. Potato bacterial wilt and its control by integrated management. Training manual for AHI Training Workshop on Integrated Pest Management, 6-7 May 1996, Kakamega, Kenya.
2. Berga L, Ajanga S. 1996. Yield loss assessment, sampling, scoring and identification of bacterial wilt of potatoes. Training manual for AHI Training Workshop on Integrated Pest Management, 6-7 May 1996, Kakamega, Kenya.
3. Bernard M, Nderitu JH. 1996. Bean stem maggot management in the Kenyan highlands: a cultural approach to control. AHI-CIAT. Extension leaflet.
4. Bernard M, Nderitu JH. 1996. Bean root rot management in the Kenyan highlands: a cultural approach in control. AHI-CIAT. Extension leaflet.
5. Nderitu JH, Buruchara RA and Ampofo KO. 1997. Integrated pest management of beans. AHI Coordinating office, ICRAF. Extension leaflet.
6. Otsyula RM, Nderitu JH, Buruchara RA. 1997. Growing climbing beans (Maharagwe tamabarizi) in Kenya. AHI-CIAT. Extension leaflet.
7. Stroud A. Participative Rural Appraisal Training Materials for training conducted in Ethiopia and Kenya.
8. Stroud A. Guideline and methods for preliminary diagnostic work in the AHI benchmark locations.

9. Kimei, 1997. Regional literature review on the potential use of legume germplasm conserved at NARS and IARCs sites and stations as food, fodder, biological nitrogen fixation, cover crop, green manure and for erosion control.
10. Okech SHO, Gold C. Integrated control of banana weevil (*Cosmopolites sordidus* Germar). Paper presented to the AHI Training Workshop on Integrated Pest Management, 6-17 May 1996, Kakamega, Kenya.

ANNUAL PROGRESS REPORTS and PROCEEDINGS

1. AHI. 1995. AHI Programme of Work and Budget 1995/96.
2. AHI. 1995. AHI Kenya Annual Report.
3. AHI. 1995. AHI Uganda Annual Report.
4. AHI. 1996. AHI Annual Report 1995. A report submitted to ASARECA and AHI Consortium of Donors, Nairobi, Kenya.
5. AHI. Annual Report 1996.
6. AHI 2001. AHI Annual Report 1998.
7. AHI. 1996. Integrated natural resource management research for the highlands of east and central Africa. AHI External Review Report and Response of the Task Force.
8. AHI. Uganda. 1997. Proceedings of the Planning Workshop for Kabale benchmark site for Phase II of the African Highlands Initiative, 21-24 May 1997, Kabale, Uganda.
9. AHI. Kenya. 1997. Proceedings of the Planning Workshop for Kakamega benchmark site for Phase II of the African Highlands Initiative, 26-28 May 1997.
10. AHI. Kenya. 1997. Proceedings of the Planning Workshop for Embu benchmark site for Phase II of the African Highlands Initiative, 21-24 May 1997.
11. AHI-MISP. 1996. AHI-Kenya Consolidation Workshop, Report prepared by MISP Working Group, March 1996.
12. Atta-Krah K, Wakhu P, comps. Proceedings of AHI Regional Workshop, 9-13 June 1997, Nairobi.
13. Atta-Krah K, Wakhu P, comps. 1996. Proceedings of AHI-Kenya Research Planning Workshop, 18-20 March 1996, Embu, Kenya.
14. Atta-Krah K, Wakhu P, comps. 1996. Proceedings of AHI-Ethiopia Research Planning Workshop, 23-26 January 1996, Nazareth, Ethiopia.
15. Atta-Krah K, Wakhu P. comps. 1996. Proceedings of AHI-Uganda Research Planning Workshop, 4-7 September 1995, Kabale, Uganda.

16. Berga L. 1996. Integrated disease management (IDM) of potato bacterial wilt. Paper presented at the Inter-regional Workshop on "Potato Late Blight Management and Seed Production", 18 Nov. - 1 Dec 1996, Nairobi, Kenya
17. Berga L. 1997. Bacterial wilt: CIP's link with the African Highlands Initiative. Paper presented at CIP's Annual Review and Meeting, June 1997.
18. Berga L, Hakiza JJ, Alacho FO, Kakuhenzire R. 1997. Integrated control of potato bacterial wilt in Uganda. Paper presented at the conference of the African Potato Association, February 1997, Pretoria, South Africa.
19. Biratu Z. 1997. Areka benchmark site, AHI Ethiopia. Proceedings of Phase II Planning Workshop, 2-4 June 1997, Sodo, Ethiopia.
20. Biratu Z. 1997. Ginchi benchmark location, AHI Ethiopia. Proceedings of Phase II Planning Workshop, 26-28 May 1997, Holetta, Ethiopia.
21. Nderitu JH, Ampofo JKO. 1996. Incidence and severity of bean stem maggot in western Kenya. Paper presented at the 3rd Pan-African Working Group Meeting on Bean Entomology, Arusha, Tanzania, 3-7 November 1996. CIAT Arusha.
22. Wang'ati F, comp. 1993. Integrated natural resource management research for the highlands of east and central Africa. Report of the AHI Consultative Workshop, 6-8 January 1993, Entebbe, Uganda.

MISC. AHI PUBLICATIONS

1. Beyene H, Mulatu T. 1996. Compilation and summary of diagnostic surveys conducted in Ginchi and Nazareth, Ethiopia.
2. Breyer J, Larsen D and Acen J. 1996. Land use cover surveys in southwest Uganda. The case of Katuna and Mpalo watersheds in Kabale District. AHI, ICRAF, Kampala.
3. Imbernon J. Land use cover surveys in Embu District, Kenya (forthcoming).
4. Kimei, 1997. Regional literature review on the potential use of legume germplasm conserved at NARS and IARCs sites and stations as food, fodder, biological nitrogen fixation, cover crop, green manure and for erosion control.
5. Nderitu JH, 1997. Farmers' perceptions and constraints to adoption of soil improvement technologies in western Kenya. AHI coordinating office, ICRAF, Nairobi.
6. Nderitu JH, Otsyula RM, Buruchara RA, Ampofo JKO. 1997. Survey of bean root rots, bean stem maggot, soil fertility and management practices in farmers' fields in Vihiga District, Kenya. AHI coordinating office, ICRAF, Nairobi.
7. Olson J. 1996. Land-use cover surveys in southwest Uganda. The case of Katuna and Mpalo watersheds in Kabale District.

8. Rabeson R. 1997. Literature review on the causes of soil erosion control technologies in Ethiopia, Uganda, Kenya and Madagascar.
9. Salasya B, Ajanga S. 1996. Compilation and summary of diagnostic surveys conducted in western Kenya and Embu, Kenya.
10. Tukahirwa J, Kabanankye K. 1996. Compilation and summary of diagnostic surveys conducted in south-western Uganda.
11. Wang'ati F. 1994. The African Highlands Initiative: A conceptual framework. Nairobi, Kenya. ICRAF.
12. Hurni Hans and Ramamonjisoa (eds) 1999. African Mountain Development in a Changing World. African Mountain Association (AMA), United Nations University (UNU), and African Highlands Initiative (AHI).

APPENDIX 3: Budget by Category

1997 budget

Category	Entity	Amount (\$)
Country allocations	Uganda	102,000
Coordination	Kenya	123,000
Planning workshops	Madagascar	85,000
Characterization	Tanzania	18,000
NRM research (small grants)	Ethiopia	100,000
Vehicles		
		Subtotal: 428,000
RRFs	CIP, CIMMYT, CIAT, IITA, ICRAF	156,000
Capex		45,000
		Subtotal: 201,000
Coordination	ICRAF	54,958
Workshops (regional & TAPs)		62,500
Training		88,390
Information		52,800
		Subtotal: 258,648
C&D	ICRAF	104,000
NRM research (TAPs)		20,000
		Subtotal: 124,000
		TOTAL \$1,011,648
Country research (small grants) ¹	Uganda – MISP	17,469 (96)
	IPM	31,800 (96)
	Kenya – MISP	32,184 (Maseno 97 only)
		24,250 (Embu 95/96)
	IPM	14,200 (both sites)
	Ethiopia – MISP	36,700 (96)
	IPM	24,000 (96)

¹Funds were released to conduct 3-year small grants in 1995/96; thus carry over of funds by receiver into 1997. The amount released in 1995/96 is provided here.

Allocation - 1998

Category	Actual allocation	Budget available 1998
Countries:		
For coordination, meetings, research, personnel		
Ethiopia	11,430	91,000
Kenya	88,266	91,000
Madagascar	0	91,000
Tanzania	43,729	39,000
Uganda	9,100	52,000
	subtotal 152,525	subtotal 364,000
RRFs		
CIAT	50,000	50,000
CIP	55,000	50,000
IITA	42,042	50,000
CIMMYT	25,000	25,000
TSBF	25,000	25,000
ICRAF	32,000	32,000
	229,042	232,000
IARCs		
For backstopping, research, working groups		
CIAT	49,164	50,000

CIP	12,626	15,000
CIMMYT	7,500	7,500
IITA	0	15,000
ILRI	0	30,000
TSBF	25,000	25,000
ICRAF	88,000	48,000
	182,290	190,500
Coordination For: staff, communications, travel, operations, recruitment, consultancies	163,193	179,000
Capex	88,268	47,800
Meetings:		
RSC/Task Force	9,945	12,000
TSG	10,000	10,000
Training	1,900	10,000
Info & documentation	26,670	18,000
GRAND TOTAL	846,333	1,085,300

Note: Given time of disbursement of funds to Madagascar & Ethiopia, the funds are not depicted on this table.

Allocation by category 1999

Category	Amount allocated	Amount budgeted
Countries (sites) For coordination, meetings, research, personnel		
Embu	33,600	37,500
W Kenya	34,500	37,500
Kenya NC	3,700	
Kabale	59,560	55,000
Areka	32,500	79,375
Ginchi	32,765	79,375
Ethiopia NC	2,400	
Lushoto	40,000	47,000
Tanzania NC	15,974	
Antsirabe	18,168	24,000
Fianarantsoa	18,167	24,000
Madagascar NC	3,000	
	subtotal 294,334	383,750
RRFs		
CIAT (1.5)	45,000	75,000
CIP (2)	75,000	100,000
IITA	0	0
CIMMYT	0	0
TSBF (1)	50,000	50,000
ICRAF (3)	68,222	116,000
	238,222	341,000
IARCs For backstopping, research, working groups		
CIAT	48,000	50,000
CIP	8,000	10,000
CIMMYT	0	0
IITA	0	0
ILRI	0	15,000
TSBF	59,438	52,000
ICRAF	15,000	30,931
	130,438	158,000
Coordination For: staff, communications, travel, operations, recruitment, rent, consultancies	219,969	201,000
Cap. Exp	35,640	57,000
Meetings:		
RSC/Task Force	19,333	20,000
TSG	25,980	42,750

Training	130,740	131,000
Info & documentation	42,306	61,516
ICRAF overhead		160,481
GRAND TOTAL	1,140,997	1,395,947

Allocation by category – 2000

Category	Amount allocated to date		Amount budgeted	
Countries (sites)				
For coordination, meetings, research, personnel				
Embu	23,500		43,000	
W Kenya	45,000		45,000	
Kenya NC	3,350		3,350	
Kabale	46,601		55,000	
Areka	45,709		57,710	
Ginchi	46,709		55,710	
Ethiopia NC	16,000			
Lushoto	57,000		60,000	
Tanzania NC	incl in Lushoto			
Antsirabe	24,500		23,000	
Fianarantsoa	23,000		23,000	
Madagascar NC	8,700	subtotal 340,068		subtotal 365,770
RRFs				
CIAT (2)	50,000		70,000	
CIP (1)	17,000		42,000	
IITA	0		0	
CIMMYT	0		0	
TSBF (1)	50,000		50,000	
ICRAF (2)	46,066		62,000	
Acacia operations	26,157	189,223	152,620	224,000
IARCs & ARIs				
For backstopping, research, working groups				
CIAT			68,000	
consultant	44,250		54,000	
CIP	5,000		12,500	
CIMMYT	0		0	
IITA	0		0	
ILRI	8,550		0	
TSBF	39,400		59,400	
ICRAF	86,500		86,500	
Noragric (Ethiopia)	148,200	331,900	150,000	430,400
Coordination	232,954		244,200	
For: staff, communications, travel, operations, recruitment, rent, consultancies, External evaluation				
Capex	78,873		98,882	
Meetings:				
RSC/Task Force	10,211		20,000	
TSG	12,779		40,000	
Training	60,022		71,000	
Info & documentation	3,500		34,000	
ICRAF overhead			178,400	
GRAND TOTAL	1,259,470 (disbursed to date)		1,528,150	

Allocation in 2001 by category:

Site research	339,634
M&E	60,583
Special projects	334,937
Capacity building	40,026
RSC and design meetings	27,703
Coordination	158,210
Overhead	110,783
Note: Salaries incorporated into categories	

Budget to 2002 program of work

Budget Category	Budget (US\$)
Project 1.1 Integrated watershed research in pilots	133,350
Project 1.2 Improving district policies and strategies	20,000 (scaling up) 44,000 (policy-Kabale) 55,000 (rural ICT -Kabale)
Project 2.1 Institutionalization	65,000
Project 2.2 Outreach	50,000
Regional personnel & operations	190,000
Regional management (RSC, M&E, consultancies)	35,000
Funds to overseas collaborators	112,000
Capex	25,000
Overhead to ICRAF (estim)	96,000
TOTAL	825,350

This budget does not include: EU ASARECA, Rockefeller GIS, IDRC Knowledge systems grants as these are in process of being secured.

Appendix 1: Directory of Activities

Table 1: Directory of Ongoing Activities under Various Categories Coordinated by _____ (NPP) as of (date) 2002

Category or Activity	Title of the Activity	Countries where it is implemented	Implementing Agency ⁶	Date	
				Starting	Ending
a. Studies	1. Status of biophysical conditions of watersheds including interactions, resource flows, and causal factors	ET, KE, UG, TZ	EARO, KARI, CARE, CIAT, ICRAF, DRD	2002	2003
	2. Social and institutional dimensions of NRM and productivity issues	UG, KE	CIAT, ICRAF, CARE	2002	2004
	3. Lessons and experiences emanating from past phases	UG, KE, ET, TZ	ICRAF	2002	2004
b. Surveys	1. Participatory mapping, analysis, planning and priority setting methods for watershed work	ET, KE, TZ	EARO, CIAT, KARI, DRD, ICRAF	2002	2003
	2. Understanding spontaneous spread of technological solutions and their conditionalities including social dimensions	ET, KE, TZ, UG	EARO, NARO, CIAT, ICRAF, DRD, KARI	2002	2003
	3. Identify INRM issues for advocacy and lobbying at various levels	UG, ET, TZ	CARE, CIAT, ICRAF, EARO, DRD	2001	2005
c. Research Activity	1. Generate community-led watershed management action plans	ET, KE, TZ	EARO, KARI, CARE, CIAT, ICRAF, DRD	2003	2003
	2. Develop methods to increase inclusiveness of women & the poor	UG	CARE, ICRAF	2003	2004
	3. Methods developed to enhance local scaling up including establishment of intra- and inter-village networking	KE, TZ, UG	ICRAF, CIAT, CARE, DRD, KARI	2003	2004
	4. Modalities for improving market dimensions & links to improving NRM	KE, UG, TZ	CIAT, ICRAF, DRD, KARI, CARE, TSBF	2002	2005

⁶ Listed are several implementing agencies. ICRAF and CIAT may be research fellows or other international staff.

	5. Farmer experimentation, innovation and integration methods developed and under test for farm-level improvement with examples of application. 6. Partnership Monitoring and assessment tools developed.	KE, TZ, ET	KARI, EARO, CARE, DRD, CIAT, TSBF	2002	2004
		KE, TZ, UG, ET	?, KARI, EARO, ICRAF, DRD, NARO?	2003	2005
	7. Process management system for research	regional	Hagmann, Stroud	2002	2005
	8. Process to understand institutionalization of participatory/INRM approaches	ET, TZ, UG?	Hagmann, Stroud	2001	2005
d. Training	1. Capacity building of local farmer organizations and leaders, facilitators	UG, KE, TZ, ET	KARI, EARO, CIAT, ICRAF, TSBF, DRD, CARE	2002	2004
	2. Periodic regional workshops/training on aspects of INRM	regional		2002	2005
	3. Process documentation and monitoring system	regional		2002	2005
	4. Study tours for various actors	various		2002	2005
e. Technology Transfer	1. Publish materials	Regional, various	ICRAF	2002	2005
	2. Web site design, launch and update	Regional	ICRAF, ASARECA	2002	2005
	3.				
f. Backstopping Activity	1. Mentoring of site teams by consultants and regional/international staff on various aspects of INRM	UG, KE, TZ, ET	ICRAF, CIAT, others	2002	2005
	2.				
	3.				
g. Other Activities	1. Identification and/or formation of discussion platforms will eventually identify topics and contributions from research to policy, development strategies and technical aspects.	UG, ET, TZ, KE	KARI, EARO, DRD, ICRAF		
	2. Regional steering committee meeting	Regional		2002	2005
	3. Regional research management team meetings	regional		2002	2005
	4. Set up network and communication links on mountain issues and INRM	regional	ICRAF	2002	2005