

Consultative Group on International Agricultural Research (CGIAR)
Task Force on Integrated Natural Resource Management

Proceedings of the 5th Workshop of the
Integrated Natural Resource Management (INRM)
Stakeholder Group
20th – 21st October, 2003
World Agroforestry Centre, Nairobi, Kenya



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Sponsored by:
IDRC, Canada

Cover Photo:
Land Mosaic in Thailand- ASB
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Acknowledgements

On behalf of On behalf of the INRM Task Force, ICRAF wishes to gratefully acknowledge the support of IDRC that enabled participation by representatives of African research institutions.

We would also like to acknowledge Mahmouda Hamoud, Grace Ngugi and Elizabeth Were who handled the logistics, travel and administration during the workshop.

ICRAF would also wish to acknowledge the contributions of all of the workshop participants for all of the energy, ideas and enthusiasm that they brought to this workshop. Many of the participants gave priority to this workshop at very late notice.

Summary

The World Agroforestry Centre on behalf of the CGIAR Taskforce on INRM convened a workshop on Integrated Natural Resource Management from the 20th -21st October, 2003 in Nairobi, Kenya. A total of 39 participants from 15 countries participated in the workshop. The meeting aimed at delivering Knowledge to leaders of the challenge and scientific programmes within the CGIAR, national agricultural research institutions and organizations from Africa.

The workshop was aimed at a) mainstreaming INRM into major agricultural research programs and the challenge programs - identify needs, discuss strategies for moving forward, provide specific inputs for selected programs (such as a framework booklet), and plan next steps, b) building productive relationships between the major agricultural research programs in Africa, including the challenge programs and c) assessing the impact of NRM, building a strategy for the CGIAR and supporting the latest SPIA round of case studies.

The agenda of the workshop was structured as follows: (1) presentations on the main issues and opportunities for moving forward for each of the objectives, (2) parallel working group discussion for each objective, and (3) plenary report back to agree on next steps and responsibilities.

Discussions focused on developing concrete and feasible strategies for making progress in the integration of INRM concepts into research programmes, institutional Concerns for INRM, lessons learnt from INRM experiences and the role of INRM in poverty reduction and food security.

To be of greatest application to the integration of INRM to research programmes, there is need to operationalize INRM elements into all programmes, establish and implement means of disseminating the taskforce outputs, foster links with national agricultural research stations and other development partners, include agro-biodiversity scientists in the next meeting and promote capacity building among INRM Practitioners to enable them focus on new methods and INRM.

1. Introduction

Opening Address by Joachim Voss

Genetics research and integrated natural resource management (INRM) research are two pillars of research to raise agricultural productivity in a sustainable manner.

One of the goals of the CGIAR is to strengthen capacity of research and development organizations to undertake agricultural research. In integrated natural resource management research and development, the CGIAR has an important role to play in strengthening institutional capacity. This requires leadership.

One of the areas in which we can provide leadership is in impact assessment, a subject of this meeting. INRM research to date has produced a number of recognized impacts. Many related to improved research and development processes have been recorded and published. Other impacts are concentrated around an improved knowledge / understanding of how to manage natural resources for improved productivity and sustainability. However, the impacts of INRM on income and poverty are rarely documented. In general, we have some methodological tools for impact assessment, but attribution to specific interventions is difficult.

Another important need for the CGIAR is to identify and produce global public goods in INRM. Contextualizing of research is important in INRM. But broader lessons need to be produced by international centers like ours. A challenge and need is how to get the reductionists and systems thinkers together.

Discussion

If we go back to the Maurice Strong review, there aren't two pillars because genetics research is part of INRM. The meta evaluation highlighted the lack of evidence on the value of INRM research as a major gap or weakness. We need to find a roadmap to address this.

A big challenge is scaling up and out from the research approach and on the ground processes. We must move to interdisciplinary teams not just multidisciplinary teams and address the impact of INRM.

The CGIAR at 31: An Independent Meta-Evaluation of the CGIAR by Dennis Garrity.

(Comments on Chapter 13 of the Meta Review of the CGIAR, Natural Resources Management Research in the CGIAR)

NRM research is central to sustainable productivity, increases in agriculture and to improvements to rural livelihoods worldwide. The CGIAR is correct to emphasize integrated natural resource management, along with integrated genetic resource management as its twin pillars supporting agricultural productivity enhancement.

NRM research has the potential to generate global public goods in the form of new knowledge, especially on core processes and on methods of analysis and measurement, as well as in meta-data sets with global coverage. However the CGIAR's NRM research programs sometimes venture beyond the system's core competencies without providing a compelling case for the strategic importance of the research.

The CGIAR has made significant, productive investments in training individual scientists from developing country NARS and, in a few cases, in helping develop NARS institutional capacity, regional networks, and sub-regional organizations relating to NRM. Importantly NRM-related capacity building is a serious challenge that demands system-wide attention and donor finance.

As noted in the meta review, the natural resources-oriented centers may be doing more and better work in integrated NRM than are the more established, commodity-oriented centers, with the eco-regional centers falling somewhere in between.

While legitimate concerns have been raised about the NRM research portfolio, NRM has attracted increasing interest and resources over the past decade, though these may not have focused on the topics and functions where the CGIAR can make tangible, high-return contributions to global public goods, that is, in contributing to sustainable agricultural productivity increases and improving the livelihoods and reducing the vulnerability of the rural poor.

In summary, the CGIAR's NRM research can be justified by the system's impressive, well-established agricultural impacts, but only so long as the NRM research portfolio stays true to the system's core agricultural productivity agenda.

It is understandable why impact assessment of the NRM portfolio becomes a reasonable demand of donors bearing a fiduciary responsibility for wise use of their resources. We need leadership in process research to build capacity at institutional level.

2. Presentations

2.1 Introduction to INRM by Richard Thomas

Integrated Natural Resources Management (INRM) is an approach that integrates research of different types of natural resources into stakeholder-driven processes of adaptive management and innovation to improve livelihoods, agro-ecosystem resilience, agricultural productivity and environmental services at community, eco-regional and global scales of intervention and impact.

INRM has emerged as a necessary approach to solve problems of agricultural communities. This was through the realization that germplasm improvement alone is not enough and there is a need to conserve/enhance natural resources to gain benefits of improved germplasm.

The farming systems approach was too descriptive, looked in from the outside and did not fully understand resource enterprise feedback processes, making extrapolation difficult.

In parallel there have been paradigm shifts in agricultural research from agronomy to ecology, analytical research to system dynamics, top-down approaches to participatory action research, prescriptive approaches to adaptive learning and management and finally from factor-orientated management to integrated NRM.

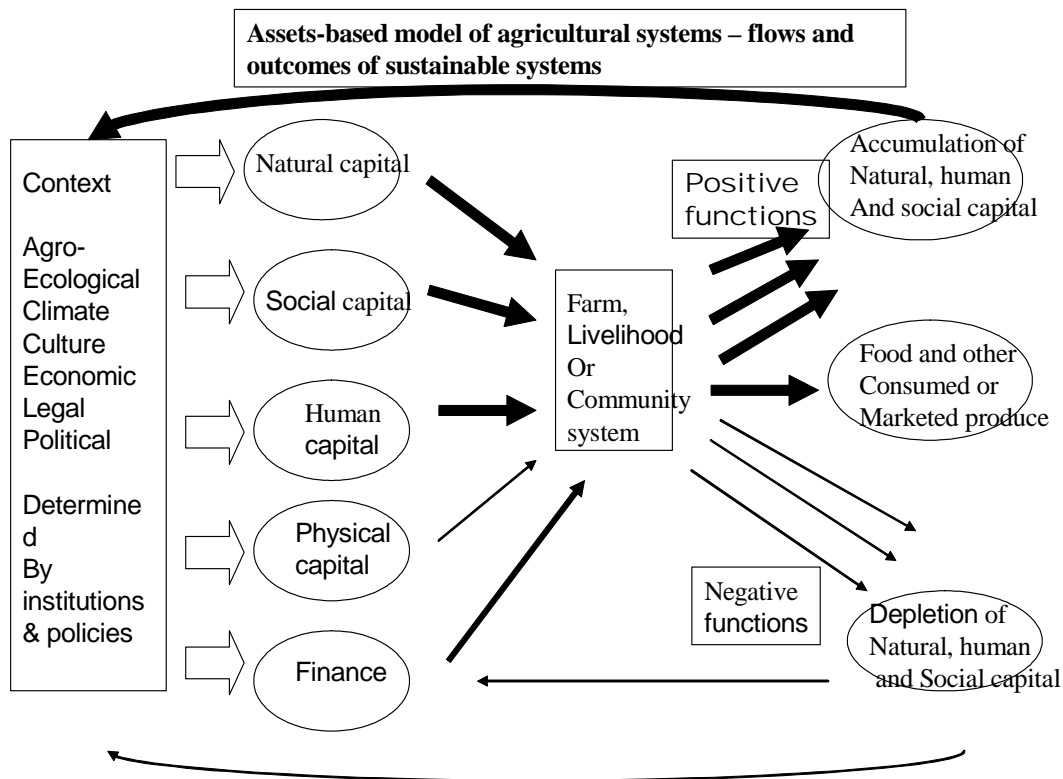
Success in NRM will be achieved when there are improvements in livelihoods, system resilience, system productivity and environmental services that benefit many people over a large area.



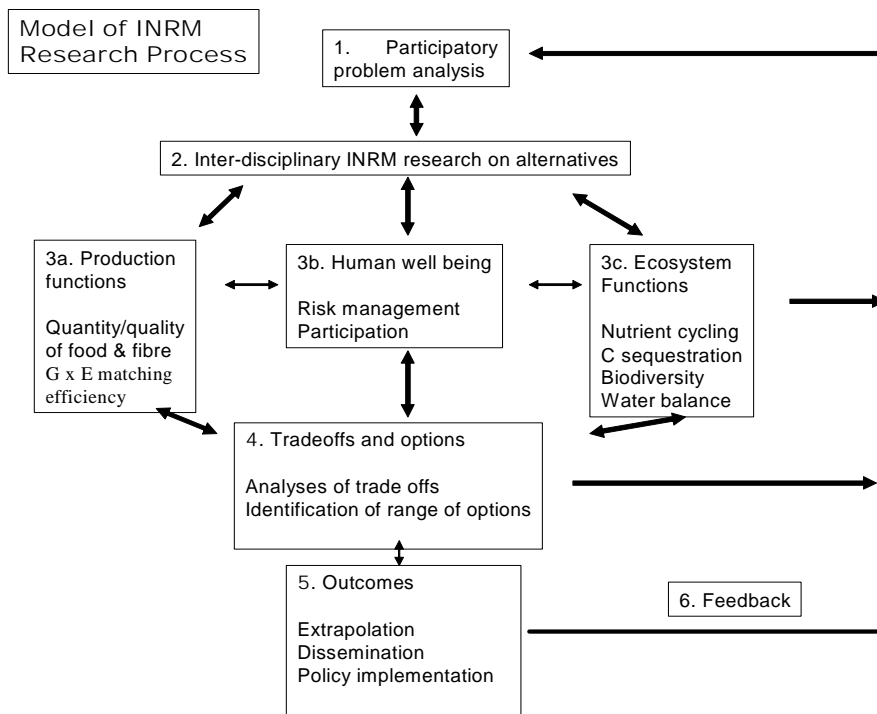
In defining the challenges, the spatial and temporal complexity and paradigm shifts call into question the traditional single-disciplinary and single-scale perspectives

and raise the issue of whether natural sciences are well equipped to address poverty and sustainability problems

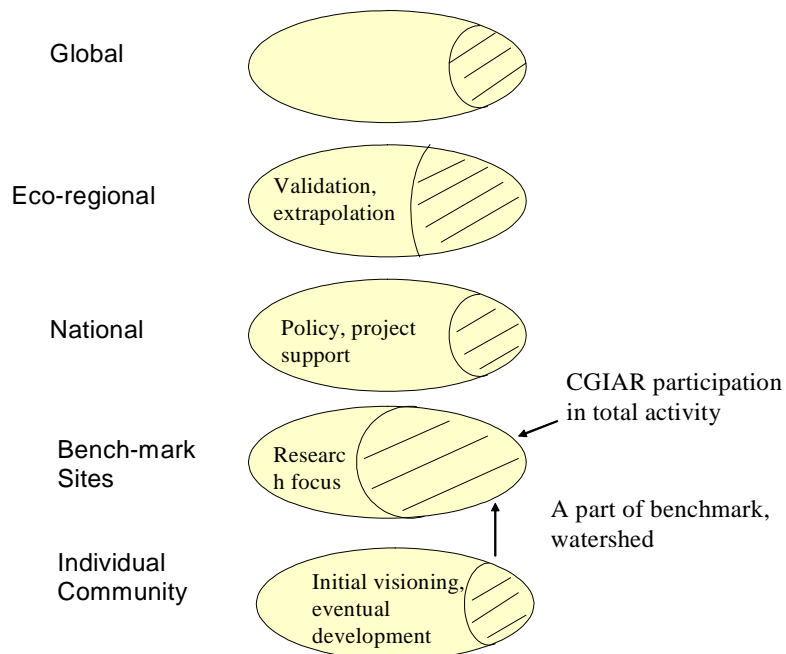
Consequently new advanced tools from different disciplines have emerged to tackle these diverse but interlinked issues. To this end there is need for a new conceptual and overarching framework to integrate these different tools and cope with the complexity of real-life NRM problems.



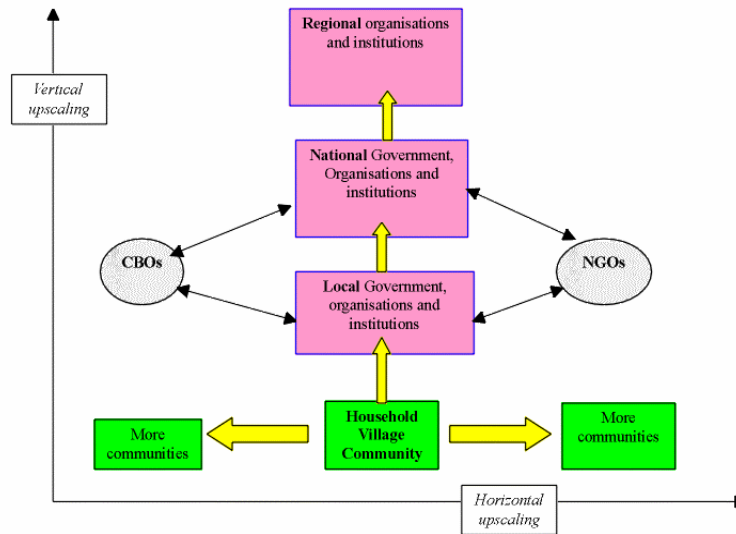
INRM is rendered effective through a) empowering relevant stakeholders and fostering adaptive management capacity, b) resolving conflicting interests while focusing on key causal elements (reducing complexity) c) integrating levels of analyses, e.g. by merging disciplinary perspectives, d) making use of wide range of technologies, e) guiding research on component technologies and f) generating policy, technological and institutional alternatives.



Where should we place our eggs?



Areas of challenges



Further major challenges will be moving from discipline-based groups to interdisciplinary teams with better competencies for process-orientated action and systems research and means of quantifying impact of INRM

2.2. Operationalising INRM: Principles and Challenges. By Bruce Campbell, Jürgen Hagmann, Ann Stroud, Richard Thomas and Lini Wollenberg

This presentation analyses the trend of INRM research, its principles, operational cornerstones and how to manage the INRM processes.

We are shifting paradigm from Farming Systems Research, Participatory Rural Appraisal, Participatory Technology Development to Integrated Natural Resource Management with emphasis on integrated conservation and development, community-based natural resource management, land care, ecosystem approach and eco-agriculture.

INRM research has three main principles namely a) identifying the type of science to do and where to do it, achieved through multiple scales of analysis and intervention, integration and /or approach systems from an organizational and institutional perspective b) culture and organization of science developed through effective leadership and facilitation, and c) hanging incentive systems and blurring the research development continuum.

Theoretical underpinnings for INRM research include the following considerations: the importance of getting the balance of positivism and constructivism right and getting it into the system (Douthwaite et al., 2002) while Gunderson and Holling (2001) on the other hand opines that that we should expect surprises amidst complexity (perhaps 2-5 drivers may explain much), beware of slow variables, and promote adaptive capacity while identifying new ways of organising for INRM.

INRM processes can be managed as stipulated in the systems theory illustrated in a) multi-scale databases and models (Jones and Thornton, 2001) b) ‘throw-away participatory models’ (Lynam et al. 2002) and c) negotiation support tools (van Noordwijk et al., 2001)

Secondly, the sustainable livelihoods approach calls for the effective use and integration of the capital assets namely: a) financial capital (credit, savings remittances, b) natural capital (soil fertility, land quality and quantity, water forests and grazing resources c) physical capital (household assets, agriculture equipment, infrastructure) d) social capital, and e) human capital.

INRM can also be managed through governance such as organisations for NRM (Ostrom, 1993) and knowledge management e.g. use of tacit knowledge (e.g. Bellanet International) and or/–learning organisations (Senge 1990)

Elsewhere, adaptive management (Holling 1978; Lee 1993), social learning (Daniels and Walker 2001) and action research can provide a valuable basis for the effective management of INRM.

In order to scale up and out there is need to integrate and strengthen linkages as well as partnerships among the local, national regional and global institutions. Intervention will be at the community, district, national and international levels.

In scaling out, there will be more key stakeholders in the more community thus increasing the area of coverage, consequently the impact of effective INRM on the livelihood of poor. (Innovation systems (Röling and Jiggins, 1998)

Impact assessment literature

Monitoring and self-evaluation of projects involves the analysis of inputs, activities outputs, use of output and direct benefits of the project.

An independent evaluation is also undertaken to identify possible indirect benefits of the project and calculate the aggregate development progress.

OPERATIONALISING NRM



Clear partnerships and collaborative arrangements built on trust, ownership and joint commitment to vision and impacts forms a vital cornerstone on the basis of co-ordination driven by a shared problem and desired impact that supersedes any single group's aims and capacities. This in turn improves project quality as partners openly negotiate their interests to develop a shared vision and goals. Partnerships

are based on complementary roles and responsibilities enhance confidence and capacities building.

The steps in forming partnerships include a) assess the need for partnership, then identify and assess potential partners, b) maximize synergies and complementarities with clear roles and balanced competencies, c) establish shared ownership and identify common values and principles, d) establish and maintain conditions and processes for decision-making and reaching agreements that are fair and equitable, and for monitoring the partnership, e) create mechanisms to uncover differences so they do not fester, and f) establish ways to deal with unequal partners and power relationships as well as ways to negotiate and/or deal with differences.

Key aspects in managing INRM evolve around the effective utilization of cornerstones as a frame to design new programmes, monitor & evaluate on-going programmes in a strategic way, for knowledge management, and to create a common understanding and vision. Secondly, it calls for managing a process of continuous and iterative learning and action research, use of effective means to steer the process based on desired impact and reflection as well as process monitoring.

So far, some INRM principles have been established, case studies of some current practices documented, first draft of INRM operational cornerstones and some implications for research spelt out. However there is the question of role of ex post impact assessment/ question of attribution.

Way forward

Analysing processes in projects and sharpening the operational cornerstones within the SSA-CP, Rainforest Challenge Partnership (WWF, IUCN, CIFOR, ICRAF), Desertification CP (ICARDA, ICRISAT, IUCN...), through self-forming communities of practices.

There is need to work on specific tools (e.g. impact assessment, participatory modelling, scaling up...) as well as cross-institution research groups (e.g. SPIA).

Methods and means of stimulating Conference of Parties and other specialist groups should be identified and put into use. Last but not the least the INRM task force should promote electronic discussion on a series of key INRM topics, and encourage individual CGIAR scientists to take the lead in moderating/leading such discussions.

Discussion

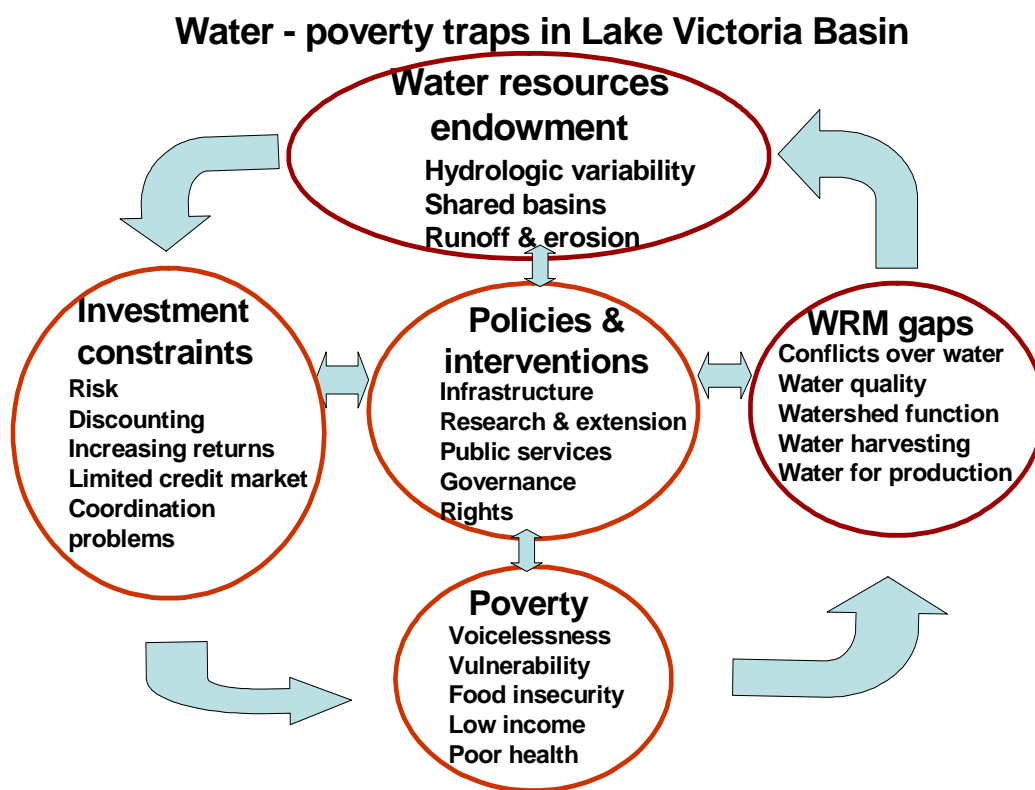
- How do we appear relevant to the wider agricultural community?
- The CP-SSA process seems to have made a wedge with the traditional agricultural germplasm research going to the NARS and INRM. For the CP-SSA there was a lot of discussion, a compromise was reached, and then the ISC balked at the participatory nature and wanted more specifics before approving the project.

- Policy makers and donor groups are important. We need a meeting with them at some point.
- How can we produce the short-term impacts that take into consideration the long-term strategic research needs?
- Another challenge is how to assess the impact of the “power of ideas”.
- CIDA has just proposed that impact assessment be done in an independent program (unit) of theirs and not by grant recipients. What will this mean for projects?
- What do farmers and policy makers (clients in general) understand about INRM and what can be done?

2.3. TRANSVIC: Improved Land Management across the Lake Victoria Basin. By Brent Swallow, Antonia Okono, Chin Ong and Frank Place.
Presented by Frank Place

“Chapter in “Research towards Integrated Natural Resource Management”

The objectives of the TRASVIC project are to: a) identify and evaluate land management hotspots in the Lake Victoria basin and identify interventions points for preventing or mitigating those hotspots b) identify and evaluate technologies, institutional arrangements and policies for alleviating poverty while protecting the local and regional environment of the Lake Victoria Basin c) quantify the actual and potential impacts of promising land management interventions on human welfare and the environment and d) enhance research and extension linkages for improved land management in the Lake Victoria Basin



Source: Substantially modified from Grey and Sadoff, 2002, Figure 1.

Transvic has a consortium of partners and collaborators namely: Ministries of Agriculture, Water Resources, and Natural Resources, National Environmental Management Authority of Kenya (NEMA), Provincial and District Governments, National Agriculture and Livestock Extension Programme (NALEP), Regional Land Management Unit (SIDA) Vi Agroforestry, LVEMP, Ocienala, KEFRI – Kenya Forestry Research Institute, African Centre for Technology Studies, Universities:(Moi, Nairobi, Kenyatta, Egerton, Maseno, Stockholm, Uppsala Florida, Utrecht, Bonn and Southampton)

Integrated Natural Resource Management in Transvic has a multi-scale approach encompassing problem assessment, institutional arrangements and policy discussions, and impacts of interventions. It is problem driven giving consideration

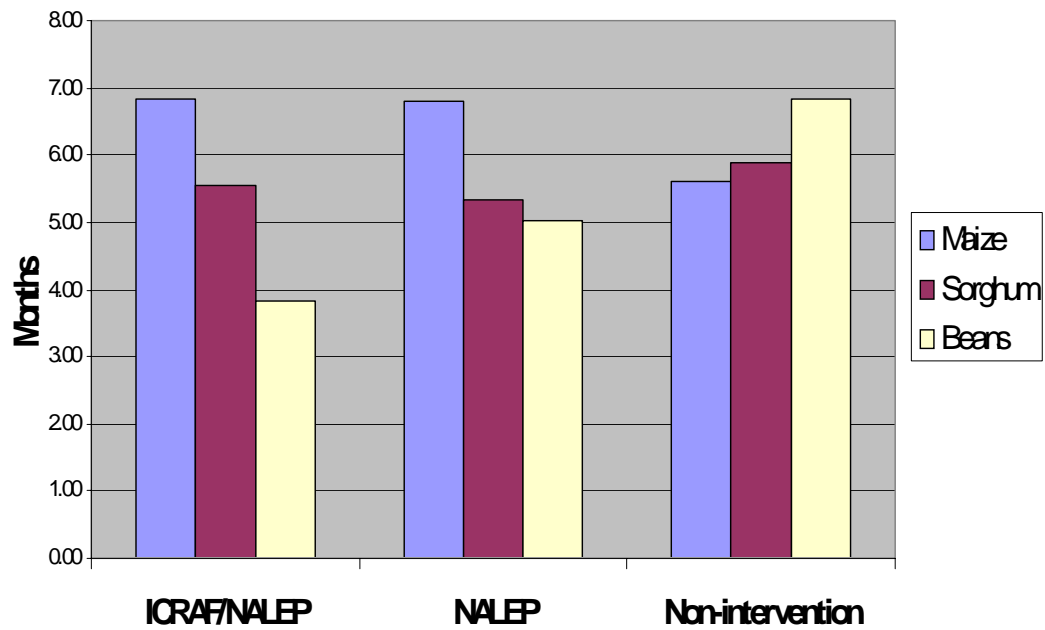
and integration of technical, institutional and policy interventions; it emphasizes tradeoff analysis i.e. technical and institutional solutions must be attractive to smallholders in short-term poverty reduction as well as benefiting the environment. It employs development-led strategic and applied research for instance in the stratification across and within river basins to select sites and protocols that would enable transfer of knowledge. Finally, it advocates building of research design and institutional relationships for scaling up and out.

Transvic has four major outputs. First there is problem characterization. Here it has been noted that a) Nyando River is most turbid and has highest total of deposition of all rivers in the Kenyan basin b) the sedimentation rate at the mouth of the Nyando River has increased 5-fold over last 100 years c) land tenure challenges as there is almost no land reserved for public uses or interests and elder men reluctant to cede rights to sons, and d) people living in lower parts of basin are poorer, are less dependent on agriculture, and have more acute water problems

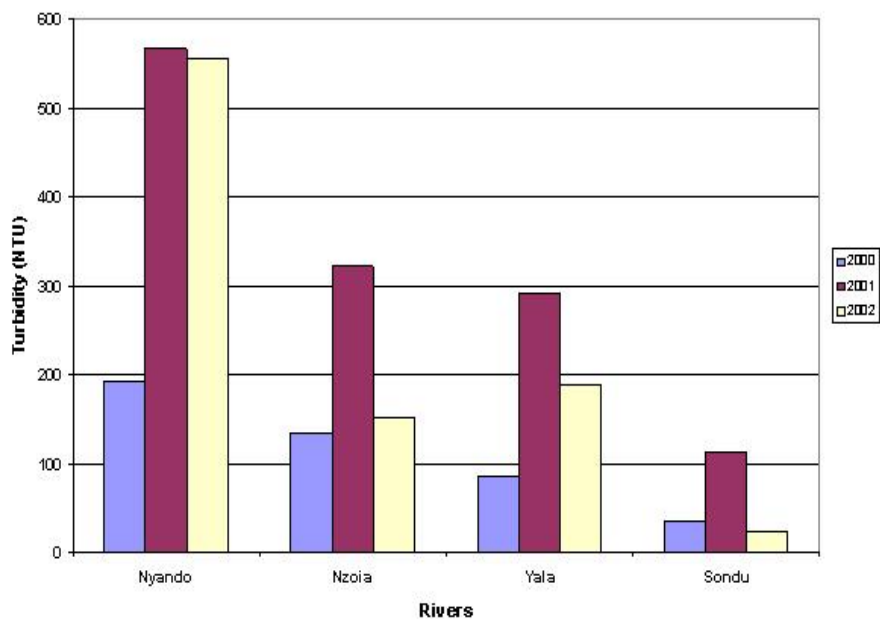
Secondly in assessing the potential for agroforestry and watershed management approaches it is important to note that recommendations for tree management are complex, differing across the landscape; water management is an apparent win-win, but must be adjusted to hydrology and soils; small groups can work together to manage water and address watershed issues; and civil servants are reluctant to enforce environmental laws and extension programmes not well suited to manage the environment.

The third output entailed baselines for impact assessment which involved socio-economic baseline information for about 800 households in intervention and non-intervention sites, new approaches for linking participatory monitoring and evaluation with impact assessment and use of digital social atlases for 20 districts in Western Kenya.

Average Food Sufficiency in Months



Comparison of turbidity rates in major Lake Basin rivers 2000-2002



Lastly, the following are some of the institutional arrangements & partnerships governing the project: a) worked with Ministry of Agriculture staff in 17 focal areas located across 7 districts b) MOUs and strengthened collaboration with Vi Agroforestry, the National Environmental Management Authority of Kenya, Ministry of Water Resources c) local authorities and district offices as key clients for knowledge products and d) Nyando River Basin seminar and follow-up in 3 districts

There were successful changes in behavior as NALEP modified the focal area approach, integrating research with farmers, targeting hot spots, using GIS, integrating PM&E and impact assessment. Thousands of farmers so far have adopted new techniques in farm management and have joined common interest groups.

A higher priority is being given to environmental issues in local government with more inter-institutional discussions and more use of research information in reports and plans. There is a strong interest in results and new research techniques, which in turn has influenced locations, methods, and topics of other research projects in Kenya and around the world. Major challenges include how information and processes can be disseminated most effectively, who can effectively use such information and replicate the processes, how best to balance research vs. development imperatives and determination of institutional relationships that can facilitate impact yet enable strategic research to persist.

In conclusion it was noted that Transvic project was active only in Kenya due to limited funding.

2.4. Crop Livestock Integration in Mashreq- Magreb (M&M) Region: Community Approach for M&M Phase II. By Richard Thomas

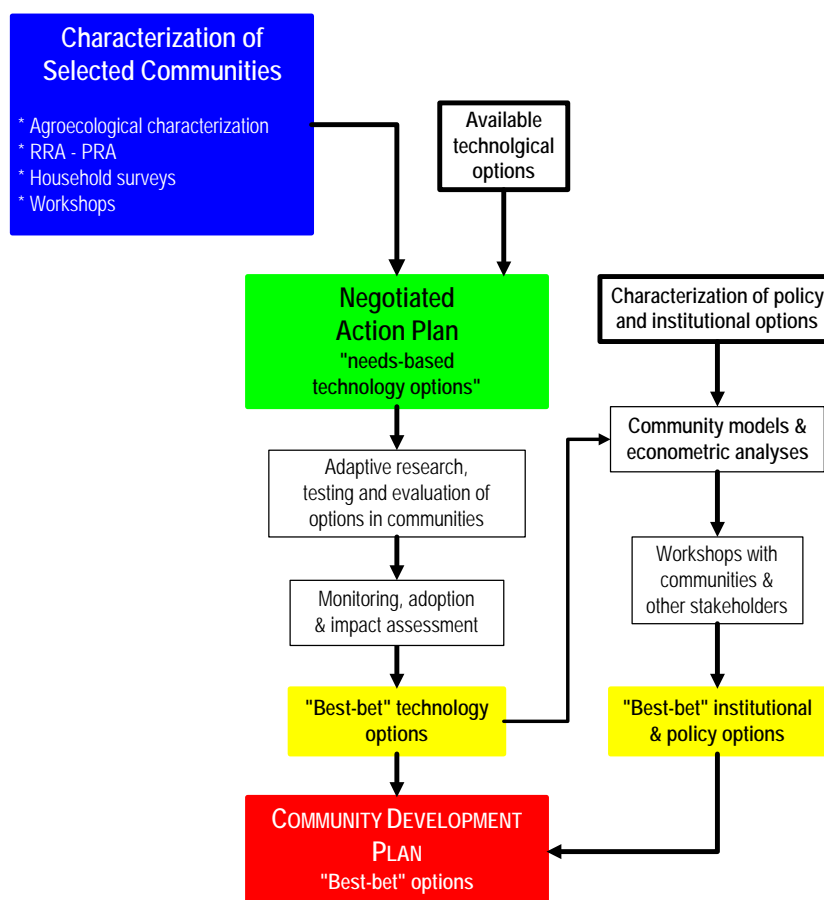
The M&M Community Approach is holistic, multi-disciplinary, community-centered and action-oriented.

In marginal areas, livelihoods depend on trade-offs between crop-livestock integration and off-farm opportunities and landholdings are highly fragmented with common rangelands and/or collective resources (i.e. water). To this end the heterogeneity of rural communities implies a gradual adoption of innovations when appropriate.

The recognized failures of "quick-fix" models and "one-size fits all" technologies have necessitated a search for environmentally, socially & economically sustainable solutions.

A community approach will improve livelihoods efficiently and rapidly by stimulating farmer and community participation in steering the development process while promoting collective action, fostering integration between different disciplines, actors, etc and by facilitating technology transfer through a participatory technology development

Approach



Moving from the Phase I results, and based on Participatory Rural Appraisal / Rapid Rural Appraisal exercises and Agroecological Characterization, alternative technologies were made available to the community, discussed with community

representatives, and selected options constituted the Negotiated Action Plan that was tested by the community. Also, some of Phase I results represent “failed” technologies.

In the second stage of implementation process, the selected options were evaluated by community representatives, local partner institutions, other stakeholders as well as the M&M team.

Evaluation methods used included impact assessment, community modeling and institutional analysis. This evaluation process was continuously monitored by the M&M team to determine the "best-bet" options that will constitute the basis for the Community Development Plan.

The community approach was implemented through selection of a community upon agreed criteria, establishment of a close contact with the community, undertaking of a PRA/RRA exercise to identify community constraints, suggested solutions, etc resulting in the design of a Community Development Plan.

Various technological options were tested by the community following the formulation of a Negotiated Action Plan facilitated by the national M&M team. This was followed by the implementation of a community modeling exercise.

A study of the community's institutional and policy and linkages as well as an agro-ecological characterization of the community territory were carried out. Last but not least, a household survey was undertaken after careful selection of a sample of households.

Achievements

Main achievements included strengthening working mechanisms through the establishment of working linkages with existing local institutions, strengthening the role of a facilitator, increasing the responsiveness of community members in executing critical activities (role of the Community Steering Committee) and setting up a "community day" (in the case of Lebanon). There was increased “networking” of all projects intervening in the environment of the community as well as strengthening existing linkages with all local institutions and stakeholders

Secondly there has been increased strength and confidence by the communities enabling them to succeed in attracting additional funding to implement some developmental actions. Examples of this were Sidi-Boumehdi (Morocco) that succeeded to raise more than 500,000 US\$ from two NGOs (one Moroccan and one Italian) and Deir El Ahmar (Lebanon) that secured funding from USAID to create a feed block unit. Both communities in Tunisia secured funds from Sidi-Bouزيد

Thirdly, linkages were strengthened between communities and public development agencies some of whom then proceeded to scale-up the process. Others opted for the empowerment and the "pushing" of technology adoption by communities; this was experienced among the Moroccan community, which has signed an agreement with Sidi-Boumehdi (an M&M community) to extend the project activities while HCDS (from 1995) is applying the M&M methodological tools with other communities (scaling-up) in Algeria.

Having been part of the project since the beginning, the Office of Livestock and Pasture in Tunisia developed a working mechanism to enlarge the use of feed blocks by sheep-owners. This institution delivers feed block orders to the private sector, collect their production, and gives feed block to the sheep-owners as a kind of subsidies.

Other key achievements are a) characterization of communities, production systems & suggested options, b) working with local institutions and the best institutional option mechanism aimed at catalyzing the execution of the community development plan, and c) the communities were able to execute the Negotiated Action Plan. Gender implications became very important for the project as the importance of women's contribution to the household livelihood was recognized. To promote women's involvement, special RRA/PRA exercises were conducted, female household heads joined in the National Farmers Traveling Workshop in Lebanon, and a female household head was part of the Mahalabia committee in Iraq.

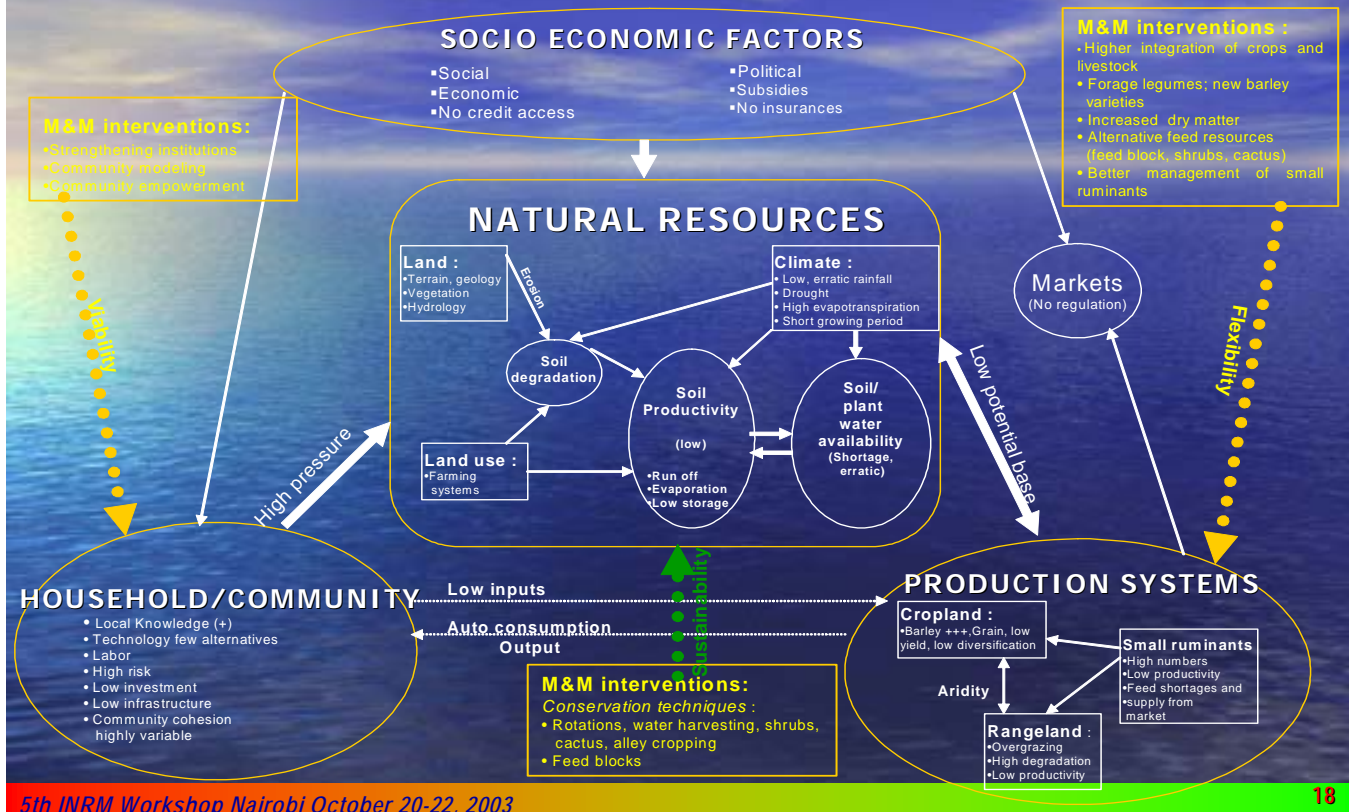
Challenges and Ways Forward

One of the challenges faced is that the community approach gathers different stakeholders with different powers and capabilities (from weak to strong) and with divergent interests. This, coupled with long time-spans between achievements makes the approach expensive in terms of time consumption.

Civil society organizations are not yet developed in all countries and there is a shortage of human capacity (social scientists, social engineers) in some countries.

Extension services are traditional and their reluctance to change further makes generation and transfer of technology very slow.

Figure 1. An overview of the biophysical constraints and interrelations with production systems and households and communities



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There is need to negotiate with policymakers and funding agencies for the control and management of all resources. Adoption and impact assessment of the technology options and performance indicators is vital. An *ex ante* impact analysis will be carried out at farm and community levels. Adoption studies will be undertaken to analyze the rate, degree and intensity of adoption of technology.

Social, environmental and economic indicators will be identified, measured, and reported to decision-makers and other stakeholders

By utilizing the baseline information collected, changes in the impact indicators will be assessed at the household, community, production system and national level, with the view of disseminating the results more widely to policy-makers and other stakeholders

2.5. Recent processes and Challenges of mainstreaming INRM within the CGIAR and beyond (CGIAR Priority Settings Email Panels) By Roger Kirkby and Steven Twomlow.

Introduction

There is a split between genetics research and integrated natural resource management research processes within the CGIAR and often in other research institutions. Attempts to bring the two groups together are ongoing but have not been entirely successful up to now. Regional meetings were called by the African sub-regional research organizations to help develop strategies for agricultural research.

Sustainable Production Systems and NRM

Production systems can be categorized in many ways including crop production systems, livestock production systems, integrated crop/livestock systems, agroforestry systems, urban and peri-urban systems and aquatic resources systems.

Within these systems a variety of NRM strategies may be applied, including a) IPM and IDM, b) Soils and integrated nutrient management (INM) systems, c) Watershed management, d) Water use efficiency, e) Climatic change adaptation & sustainable production systems and f) Wetland conservation and use.

Sample Activities and Sub-Activities in INRM

1. Soils & Integrated Nutrient Management Systems include:
 - a) Soil organic matter management, nutrient flows & balances and land quality at different scales
 - b) Strategies for INM including micronutrients, bio fertilizers & efficient fertilizer use.
 - c) Salinity management and reclamation and utilization of saline lands
 - d) Cover crop management.
 - e) Characterisation and better utilization of below ground diversity, soil biology
 - f) Development of sustainability indicators
 - g) Portable information tools for extension/DSS for INM/IPDM

2. Watershed management mechanism includes:
 - a) Landscape analysis and land use planning for watershed management including tools to locate hotspots of unsustainability,
 - b) Systems of stakeholder involvement and institutional design for landscape analysis,
 - c) Land management and its impacts on hydrology, including land levelling,
 - d) Biodiversity conservation at watershed level,

- e) Assessing trade-offs between production efficiency and ecosystem health and
- f) Optimising fish and water productivity.

Social science and policy issues were discussed in the regional meetings. This entailed looking at the governance and development policy, identification of markets for inputs and outputs, strengthening institutions in support of competitiveness of the rural poor, and identification of opportunities for value added post harvest and processing.

It also involves: a) analysis of policy and institutions related to NRM & sustainable agriculture b) understanding rural households' livelihood strategies and links to poverty, c) evaluating various approaches to rural development d) forecast of future of food, agriculture, natural resources, and rural societies e) understanding the links between international property rights and poverty reduction and f) undertaking impact assessment research and promotion of outreach to policy makers.

In the subsequent regional fora, some valiant efforts were made by individual facilitators to introduce some integration in an imperfect approach.

In reforming science and strategy within the CGIAR, we need to a) respond more actively to the challenges presented by the changing global research context, b) review the Challenge Programme process and projects for INRM content c) Increase funding to INRM research that can inform germplasm enhancement and plant and animal breeding research d) Develop effective system-wide strategies and policies that facilitate businesslike partnerships with NARS, agricultural research institutions, NGOs, the private sector and e) Strengthen the management and use of intellectual property and genetic resources.

Discussion

- While germplasm research is split from INRM, there is need to explore ways of developing/building on key partnerships for INRM with common frameworks
- From NARS we learn needs, experiences and the need for re-organization. The presentation of the meta review makes things confusing – there is misperception within and outside the CGIAR
- How can we pretend to do INRM if the CGIAR is not well integrated?
- How does the CGIAR engage with relief efforts?
- The different pillars need to be brought together. Are there any centres where the priorities in genetic research have been informed by INRM research?
- Some audiences do value the INRM research.
- Regarding INRM and ecosystem approach, is INRM an approach for implementing the ecosystem framework?

- While breeders continue with existing models, what about breeding for other NRM purposes? Isn't it true that many impacts in INRM projects will still arise from improved germplasm?
- Mainstreaming INRM will require ex ante impact assessment and the production of outputs at various time periods (i.e. some need to be short term). Research and development projects/programmes do not need to adopt the whole INRM framework (all cornerstones, e.g.) but can take the parts that are needed.

2.6. Ex-Post Methods to Measure Natural Resource Management

Research Impacts, Paper by Sam Fujisaka & Douglas White. Presented by Frank Place

The objectives of paper are to identify methods and approaches for ex post impact analysis (IA) of natural resource management research within the CGIAR and to provide an overview of Centres' ex post IA research activities. There are four types of NRM/INRM research namely a) NRM research to increase crop productivity, b) NRM research to increase farm productivity and resource use efficiency, c) NRM research to protect, conserve, and / or rehabilitate natural resources and systems and d) INRM research

Different ex-post IA methods/tools are used or at least emphasized for the different types of NRM research

Type of NRM Research	Indicator	Methods
NRM research to increase crop productivity	Crop outputs, profits, adoption	Standard experimental design, cost-benefit
NRM research to increase farm productivity and resource use efficiency	Returns to factors, farm budgets, equity	Standard experimental design, cost-benefit
NRM research to protect, conserve, and / or rehabilitate natural resources and systems	Deforested or rehabilitated area, emissions, biodiversity	(Scenario characterization, ex ante modeling)
INRM research	Similar, multi-scale, plus process impacts	Lack of established methods

Evaluation of Methods

Concerns raised about current practices of impact assessment on NRM Research include:

- Adoption studies used to infer impact or to replace impact studies.
- Lack of convincing evidence of attribution of impact to intervention, and narrow range of impacts considered by IA studies (e.g. they are missing externalities).
- Distinguishing impacts among different interventions (e.g. NRM technique with or without participatory technique) or sets of interventions are rarely done.

- Integrated IA methods are accepted as necessary but have not been common in practice and failure stories are not commonly found in IA literature of the CGIAR.

Views about NRM Impact Assessment from a range of stakeholders on the use of IA on INRM

“The very nature of INRM research has ruled against ex post IA.”

“NRM research outputs are often highly location specific, but monitoring the outputs in the field is expensive.”

Regarding integrated systems research, “the weakest link in the process is nearly always a lack of focus on a clear problem set.”

“Designing control groups for NRM treatments is particularly difficult because of the spatial and temporal dimensions involved.”

Recommendations

Researchers need to clearly identify, target, and maintain their ultimate development or environmental goals.

Good data gathering and analytical skills should be employed in analyzing impacts. NRM research proposals must seek funding for IA.

Case studies of failures would also be useful and thus should be documented. There is need to clearly specify what different people or entities seek and value.

Finally, practical methods for the valuation of different types of goods and utilities of different stakeholders should be found and implemented.

It is worth noting that attribution of impact to output will remain a challenge as there are numerous changes apart from those associated with the research process. Often the ultimate impact desired is easier to measure than the intermediate outcomes i.e. change in assets is easier to document than increased confidence level or functioning of collective action. Qualitative methods will almost certainly be necessary to uncover actual processes that occurred

The key is learning from IA to generate lessons learnt and increase efficiency and effectiveness in generating future impact. For instance, a key lesson would be the understanding of what outputs/ interventions work and which ones do not under various situations

Less important, and almost impossible, is how to attribute impacts across partner institutions

Comments by Frank Place (Presenter)

It is possible to conduct ex post impact assessment on INRM research. Impact assessment for other types of research is equally challenging but progressing for example in policy and poverty research.

Some principles must continue to hold in all types of impact assessment research, regardless of problem, intervention, scale, such as: with / without samples and before / after observations.

Past impact assessment has almost always started with an intervention in mind rather starting with a problem focus.

Identifying and measuring most indicators of goals is not difficult and is being done but intermediary steps can be difficult such as the impact of processes or training on human or social capital. Impact assessment for any type of research can be very expensive

Areas for Moving Forward: a) Liaise with the authors to update some sections that are old (“current” activities section is taken from a 2000 document b) In a previous INRM meeting, a champion for IA (and other areas) was elected. What happened with this structure/function? c) At a previous SPIA meeting (Rome) we nominated IA links in each center. Should these be revived? d) How can we better link with SPIA to devise a strategic plan for IA in INRM and other types of research? And e) There are many interesting approaches being tested by NARS; how can we join forces with them for more strategic M&E and IA?

Discussion

- A small group to develop a strategy for IA of INRM should be formed.
- The CIDA Ethiopia project for the CGIAR will offer an opportunity to conduct M&E and IA on INRM. Collaboration will be operationalized through this project and M&E will be highlighted at the outset.
- M&E during project phase might be more important than ex post IA in INRM research so that the teams can learn from progress and make improvements to processes, designs, technologies, etc.
- Remember that the “I” is the key to INRM.
- There is an IA group within the CGIAR through SPIA and they acts as links between people from each center. There is need to link the INRM IA efforts with these people. (*Joachim Voss nominated nominated Boru and the IA team at CIAT to take leadership on this issue.*)
- The task force should articulate the key issues and there is need integrate other disciplines since the SPIA connections are almost all economists and look at what NARS have in place.
- The task force should do a self-evaluation and synthesize outputs. The task force is the best group to link into the CP-SSA.

2.7. Some reflections based on 10 years of experience in INRM research by the Alternatives to Slash-and-Burn Programme (ASB). By Thomas P. Tomich

The presentation introduces ASB as an INRM example, identifying users and problems, participatory & consultative processes, methods & indicators and knowledge systems.

ASB is a global consortium of over 50 research institutions, NARS, NGOs, government agencies, universities, and community groups; with contributions from about 250 researchers, it is a CGIAR system-wide programme started in 1994, hosted by ICRAF, and governed by a global steering group of 11 institutions (6 NARS and 5 IARCs, including CIAT, TSBF, CIFOR, ICRAF, IFPRI and IITA. CIFOR now chairs the GSG).

ASB is a long-term network of benchmark sites spanning the humid tropics within nested local, national, regional and global structure. It has always sought linkages with regional initiatives in the humid tropics and is currently collaborating with RUPES in SE Asia, the Amazon Initiative, and the Congo Basin Forest Partnership. Albeit not perfect, ASB promotes the use of INRM principles, hence it is: problem focused, driven by user needs, multidisciplinary, and adopts an integrated approach to natural resource management at multiple scales.

ASB is striving to build and institutionalize capacity for INRM research. It hopes to broaden and deepen participation through strategic stakeholder analysis and move from benchmark sites to ecoregions. It is leading the crosscutting sub-global assessment of the Millennium Ecosystem Assessment entitled Forest & Agro-ecosystem Tradeoffs in the Humid Tropics.

Last but not least it strives to add landscape scale research focus to its existing strength at the plot and household scales while being a prototype for INRM research.

The challenge is to identify innovative policies, institutions, and technologies that can reconcile forest conservation and poverty reduction. The research problem has evolved from technological optimism to technology plus policy and finally to the management of conflicts.

INRM research problem is distinguished by the complexity, heterogeneity, tradeoffs, thresholds or linkages across time and space and the nature of natural resource problems, opportunities, human and/or environmental interactions. ASB spatial scales include a) at the local level there is community, landscape, watershed operations at 8 existing ASB benchmark sites: one in Peru, two in Brazil), one in Cameroon (1), one in Thailand (1), two in Indonesia , and one in the Philippines. In addition, there is Para in the Eastern Brazilian Amazon; b) at the national level ASB has projects in six countries (Peru, Brazil, Cameroon, Thailand, Indonesia, and the Philippines), with scope for outreach. All ASB sites are located within the Tropical and Subtropical Moist Broadleaf Forest Biome, delineated in the Global 2000 eco-regions database of the WWF (WWF 2001), with a human population of some 500 million.

At the global level ASB strives to help in the checking of chronic mass poverty, habitat loss from land cover change and climate change mitigation

Tradeoffs in the humid tropics reveal that a) forest conversion is profitable privately and not socially, b) conversion can (sometimes) reduce poverty, c) there is a tradeoff between profits and carbon sequestration and d) probably there is a tradeoff between profits and biodiversity conservation. Consequently from plot to landscape there is need to incorporate a wider range of environmental issues spanning local, national, and global concerns in analysis and debate on agricultural development, land use, and natural resource management.

ASB has been applauded for innovative field research, strong science, and for going furthest within the CGIAR toward implementing effectively a holistic, ecoregional approach. Being founded on in-depth local research linked methodologically across long-term benchmark sites around the world permits effective scaling up to global level.

According to the meta-review of the CGIAR system, “the intellectual value of this work is derived from the synthesis afforded by careful methodological coordination across sites on different continents, and close working relationships with ARIs and NAR”.

ASB influences outcomes by bridging boundaries amongst farmers, local communities, policy makers and public policy shapers, other private sector managers and investors, NGOs and the civil society.

On the integration processes, while focus on users’ needs / problems is key to disciplinary and institutional integration, a problem focus with a tight time frame can impair spatial and temporal integration of research and understanding. It is noted that governance of the programme by institutions from North and South helps integrate across disciplines and interests especially the top-down aspects of global environmental problems and the bottom-up nature of rural development.

Furthermore, the professional and personal relationships that developed from a shared problem focus produced continuity and resilience in the scientific team and the understanding of roles played by individuals and institutions. This was facilitated by the keys to integration across arenas: communication, translation, and mediation.

In developing multi-scale results and principles, the focus on specific benchmark sites facilitated the collection of measurements, which was essential in disciplinary integration. However, the ‘benchmark site’ mindset also can be a barrier to integration across scales. There were lags in integration precisely because ASB implemented its research in an incremental fashion at the outset, with an initial emphasis on the plot scale.

Development and use of quantitative indicators accelerated scientific learning and facilitated communication across ‘boundaries’. Continuity of commitment of key players at specific sites (and their involvement across sites and thematic working groups) has helped greatly in linking the learning process to efforts to achieve impact.

In the learning process, some ambiguity is essential and hence there is need of space for individuals (and institutions) to learn at different rates and to maintain conflicting opinions.

ASB has delivered impacts on national development and environmental strategies through technology, policy & institutional innovation and beyond ASB countries on science, international organizations & global fora and on multinational corporations.

Achievements include a) 'best bet' technologies such as the 'middle path': agroforests, (community-based forest management), tree domestication, pasture rehabilitation and improved fodder/forage, (landscape restoration) but is 'best bet' the best way to express this? b) Institutional innovations and policy reforms in community-based resource management, resource access and property rights, (timber market reform), empowerment through measurement, (germplasm supply, environmental service payments).

ASB has developed new ideas, enhanced organizational capacities by affecting: NARS' priorities and capacities. Among the concepts, methods, or empirical knowledge produced include: landscape issues and models, driving forces for land management, (scenarios, negotiation support), perceptions of natural resource problems, INRM, tradeoffs versus win-win options, origin of smoke problems in southeast Asia (arising from tenure insecurity,) debunking of watershed myths, multi-stakeholder processes, and public-private partnerships.

ASB has developed land and tree tenure policy innovations to encourage sustainable alternatives that enhance biodiversity and carbon storage without sacrificing household income. Impacts through policy research are subject to credibility and ecological evidence, the pilot area of Indonesia: (29,000 ha / over 7,000 HH), potential for replication (hundreds of thousands) and comparative interest (parallels with Cameroon).

The impact of policy change on the human populace in Krui Indonesia was indicated in the 1998 decree which recognized a) environmental and social benefits of an indigenous land use system b) roles of local institutions in sustainability of the system and c) rights of smallholders to harvest and market timber and other products from trees they plant.

Looking at the relationship between livelihoods, trees and markets one notes the impact of trade and marketing restrictions on INRM and poverty reduction. This affects mainly the natural forest species, which are tricky. In Indonesia, for instance, thirty agroforestry species offer opportunity for immediate reform, through removal of over-regulation of their planting and harvesting.

INRM innovations have accelerated the spread of land use practices that maintain environmental services while providing attractive opportunities for poor rural households, Principles for improved land management have been empowered through measurement by developing and testing flexible methods to monitor and understand impacts of ongoing change.

South to south exchange among scientists, policymakers, farmers and other local groups have contributed to the strengthening of developing country institutions.

Beyond ASB countries, on science, public institutions / global fora, and on private sector / multinationals there are potential impacts from the power of ideas supported by evidence on institutional prototypes supported by real world experience. Both must be built on solid science.

Broader policy insights should lay emphasis on issues not just about shifting cultivation, smallholders or about fields -- the 'Pandora's Box' problem but also on methods and measurements for various policy relevant indicators, and the ability of ASB 'Matrix' framework to assess tradeoffs and institutional models.

ASB national consortia can be vehicles for participation by diverse interests e.g. ASB is a 'data point' for Harvard Kennedy School of Government project 'Science and Technology for Sustainable Development'.

Potential impacts via international mechanisms & global fora include: Inter-Governmental Panel on Climate Change (LULUCF special report), UNFCCC, GEF, Convention on Biological Diversity, UN Forum on Forests, World Bank / World Development Report and Millennium Project / Millennium Development Goals.

Coincidence of public and private interests offers big opportunities for cocoa agroforests as a major commodity with a ready market, rich habitat and rich carbon storage potential. However, how should these environmental services be paid for remains a big question?

ASB likely will be the subject of a CGIAR commissioned evaluation in 2004. Hence suggestions and guidance from this group about INRM impact assessment models, methods and indicators for a broad range of impacts would be very useful in framing the TOR and shaping the overall assessment.

Discussion

It was noted that impact assessment within the PRGA is active and there is a model of research institutions hiring monitoring and evaluation experts jointly with NGOs where the dissemination efforts are done. However, questions on the availability of any quantified targets and what constitute natural resource in ASB were raised.

2.8. Building Sustainable Livelihoods through Integrated Agricultural Research for Development. ‘Securing the future for Africa’s children’ By Ralph Von Kaufmann

African livelihoods and food security continue to deteriorate as the number of poor Africans has increased by 50% in 14 last years, and Africa has a disproportionate amount of food aid. This is a threat to peace, trade and the global environment. This trend could however change through NEPAD. The NEPAD-CAADP (Comprehensive African Agricultural Development Programme) has the following priorities for agricultural research a) integrated natural resource management b) adaptive management of germplasm c) development of sustainable market chains and d) policies for sustainable agriculture.

There is need for scientific capacity building as a crosscutting initiative and collaboration between the NARI-NARS-SRO and FARA continuum.

The Sub-Saharan Africa Challenge Programme (SSA-CP) formulation workshop held in March 2003 recognised the importance of land degradation and its relationships with low agricultural productivity and poverty, which are complex and are driven by multiple common factors.

The degradation reflects a dramatic draw down of natural capital and lack of investment in replenishing it. To this end, it was noted that investment in natural resources requires incentives, inputs, information and institutions.

To build on INRM, a new paradigm, IAR4D (Integrated Agricultural Research for Development) was proposed to address the complexity and heterogeneity of farming systems and identify the institutional changes needed to bring stakeholders together.

These will be dependent on methodology development, information and knowledge exchange, capacity building and impact assessment.

Four themes endorsed during the CP-SSA workshop were 1) development of functional agricultural markets 2) intensification of smallholder farming systems 3) sustainable management of natural resources and 4) development of enabling policies.

It was agreed that research on interaction between themes will be as important as on the themes themselves and that research will focus around entry points.

IAR4D will involve multi disciplinary and multi-institutional teams, comprised of representatives from governments, parastatals, universities, IARCs, ARIs, NGOs, farmers, extension systems, and the private sector.

In the facilitation and mentoring roles, IAR4D will bring together partners with complementary objectives but differentially developed skills and motivations up to speed, in knowledge and ability to hear and be heard.

It will ensure the Pilot Learning Teams become learning organisations and make required institutional changes, internalise monitoring and self-evaluation as part of continuous learning process and are coached in how to reach and influence policy-makers. The need to strengthen linkages with other challenge programmes, system

wide programmes, eco-regional programmes, and conventions to reduce duplication and maximise impact was noted.

The Interim Science Council recognised that the SSA CP has basic goals in line with CGIAR priorities, strong emphasis on participatory processes, has wide stakeholder inclusiveness as well as extensive consensus building. It also reflects NEPAD, SROs, and other stakeholder priorities. These attributes place SSA CP at a strategic position as a partner in development initiatives.

Although the ISC wants the SSA.CP to forge ahead with its proposed activities, it could not recommend full funding mainly due to lack of explicit selection of sites. The ISC is thus in search for identified sites with site partners, problems, science to be used, role of CG centers and intended outcomes. It intends to have the inception phase limited to 2-4 Pilot Learning Sites with streamlined management structures.

Following the ISC assessment, the next preparatory step will involve SRO-led stakeholder identification of three initial Pilot Learning Sites (one in each SRO region), programme inception stage with the first module supporting initial actions of 3 Pilot Learning Teams and review by the ISC and recommendation on: a) initial Pilot Learning Sites moving in to full implementation of IAR4D and b) initiation of further modules 2, 3 & 4.

This preparatory step will determine potential Pilot Learning Sites and probable: a) partnerships for those sites b) specific constraints to be addressed c) roles for the CGIAR centres and d) science to be used.

This will comply with sub-regional priorities and criteria, take advantage of modern techniques e.g., poverty mapping & spatial analysis and be applied by partnerships involving the CGIAR.

Module two proposes nine Pilot Learning Sites (3 per region). They will be carefully selected to optimise the learning opportunities created by implementing IAR4D in divergent environmental, economic and policy environments across sub-Saharan Africa and also to bring IAR4D to attention of scientists, policy makers. Implementation of this phase is dependent on being funded.

Module three calls for actions for out-scaling & up scaling, which will encompass methods and outputs, analysed & synthesized, with information and knowledge being made available to the IAR4D teams & other critical stakeholders. It also advocates for intensive and extensive capacity building to meet varying needs of local communities to adopt IAR4D outcomes. Universities are involved as a) sources of whole range of stakeholders b) providing support for teaching IAR4D c) enabling early career scientists to engage in IAR4D d) collaboration between northern & African universities and the CGIAR and finally e) collaboration between African universities.

Module four will focus on impact assessment to assure accountability, determine impact on improved livelihoods, assess the status of natural resource management and assess implementation & institutionalisation of IAR4D.

Alternative ways, including outcome mapping and impact pathways, will be used for monitoring longer-term outcomes, accommodating wide geographic spread and evaluating progress to appropriate and sufficient impact.

It is worth noting that the number of IAR4D teams and out-scaling and up-scaling activities supported will depend on the confidence generated amongst African governments and regional and bilateral donors.

After the first module, the SSA-CP budget will build up project by project and CGIAR funding will be used to leverage new and additional funding for agricultural research in Africa.

In conclusion, the SSA-CP programme will catalyse and promote changes in the regions underpinned by agricultural research to enhance impact without without which the already dire prospects for Africa's children will continue to deteriorate.

Discussion

- In determining scale for the pilot learning sites, impact is key so existing sites where IARCs and NARs are working offer good potential. The current thinking is to have a large site that would command the significant funds being requested.
- There is need to identify and understand the differences between consortia and a partnership.
- SSA-CP should develop initiatives geared towards up scaling (added value)
- Providing the data on poverty by agro-ecosystem could be an input provided by the CG centers to the site prioritization process.
- What is new should link to commodity programmes as they are embraced within INRM – an important part.
- Isn't it possible to negotiate for more sites, as there is a high risk of failure given the lack of interest with only one?
- Ethiopia and Morocco wish to test INRM as a paradigm. Couldn't the CP support them? Maintaining the problem focus is key. What are the specific problems that can be solved by IAR4D?
- Regarding value added, it is good having better integrated research, but then being forced into only 3 sites will greatly limit impact because they will be representative of a small area. That is more reason to have a larger site. To this end we need an agroecosystem intervention to be able to look at the effects of soils, market access, and other factors that vary at landscape and community scales.

2.9. Mainstreaming INRM into the Desertification, Drought, Poverty, and Agriculture (DDPA) Consortium Building Livelihoods, Saving Lands. By Barry Shapiro

The Core Research Question of the DDPA

What are the underlying conditions, drivers and dynamics necessary to counteract desertification and raise productivity in these arid and semi-arid zones (thus reducing poverty), without undermining environmental quality and vital environmental goods and services?

The DDPA game plan focuses on an integrated ecosystem approach, which entails diversifying systems and livelihoods, harnessing genetic resources, improving policies and institutions, sustaining ecosystem goods and services, sharing of knowledge and technology, and understanding and coping with land degradation. These will help in building livelihoods and saving the land.

Livelihood can be ameliorated and land conserved by having dryland crop improvement through participatory biotechnology, increasing crop and animal diversity as well as diversifying the usage of output, e.g. through improved grazing areas by rebuilding degraded rangelands with edible plants, having more livestock on less dryland. Recycling feedstuffs from other zones, bridging the digital divide and ensuring accessibility of small-seed packs to farmers are effective in upgrading of land resources.

New tools to assess and monitor desertification and drought should be identified and utilized as predicting drought months in advance can help people prepare and cope.

Emphasis should be laid on a) improving the understanding of policy and institutional factors affecting desertification b) classifying development domains for selecting benchmark study sites, c) identifying promising policy and community resource management institutional options, d) developing implementation guidelines for policy and institutional interventions, e) developing the capacity of policy makers, policy researchers, and other stakeholders, and f) increasing policy dialogues and building awareness of promising interventions/policies.

On the pathways to impact, it is important to note that integrated ecosystems are complex, so the DDPA outputs are development process models (DPMs) rather than fixed technologies. However DPMs can be flexibly adapted elsewhere, triggering a ripple of impact hence scaling out/up. Also the participatory implementation of DPMs fosters buy-in, builds local capacities and self-reliance to evolve over time, and promotes diversity across locations.

‘Consortium pilot areas’ are the crucibles for integrated experimentation, generating DPMs.

New developments include an improved global framework of the UN Convention to Combat Desertification and Global Mechanism, integrated ecosystem approach including attention to environmental goods and services, giving more attention to policy and institutions, consortium pilot research areas for participatory and

partnership-based programmes as well as through the development of ICT4D for sharing knowledge.

Partnerships includes: the UNCCD and Global Mechanism – pipelines to NARS and national policymakers and development investors; NARS, SRO, NGO, CO, private sector; Environmental investors: IUCN; ARIs (EARS, TIGR, Wageningen, IRI, Columbia University...); Development investors: IFAD, IDRC, UNEP, GEF, UNDP... and Centers: ICARDA, ICRAF, ICRISAT, IFPRI, IITA, ILRI, TSBF/CIAT.

Discussion

- This is a very good approach as it is comprehensive.
- It involved a good process taking three years.
- ICT officers are needed to help with knowledge management. Improved facilitation skills and mentoring would be helpful in INRM projects.
- Coordination of funding is another key issue yet to be resolved.
- On the types and nature of feedback mechanisms existing to communities in these projects, it was noted that mechanisms existed and functioned well in the M&M project and priorities set in West Asia / North Africa region in a participatory process. Pilot area teams will move the programme to the ground.

3. Panel Reports

3.1. Working Group 1: Role of INRM in poverty reduction and food security

Q1. How do we articulate the contribution of research outputs to development outcomes in INRM projects/programs?

Articulating the relevance of INRM in poverty reduction and food security can be achieved by:

- Attaining sustainable poverty reduction and food security.
- Restoring productivity on degraded lands
- Preventing degradation in lands newly opened to agriculture
- Reconciling the needs of conservation (habitat, biodiversity, soil and water)
- Reconciling agricultural genetic resources enhancement with NRM
- Reducing vulnerability and increasing adaptability
- Reducing agro-ecosystem contributors to poor human health
- Diversifying livelihoods

Q2. How can INRM better link research and development processes, and be better integrated into global initiatives (CBD, MDGs, etc.)?

With challenges such as conflicting core values, relevance vs. significance (moving from site specific to global) and complexity vs. simplicity, there is need to focus on negotiating the conflicts; generate shared questions for example around burning issues.

In linking INRM to global initiatives, it is worth noting that global conventions have similar roots, such as ecosystems and livelihoods thus, INRM can be used can be used as a framework to implement the ecosystem approach and to address specifically food security, poverty reduction and environmental issues.

Conservation groups that complement the CG perspective and strength as well as institutions with exclusive development focus (e.g. NEPAD) should be involved.

Q3. How should we use and communicate the INRM cornerstone framework to build linkages between poverty and the environment and their respective constituencies

INRM can be communicated through the practical venues of INRM Task Force at the: BD COP 7 (Feb '2004),UNCCD COP 7 ('2005),IUCN WCC (Dec2004) and at the Millennium Task Force on Hunger (Africa)

Other communication entry points include:

- Millennium Ecosystem Assessment (ASB input)

- Global Environment Facility and Food and Agriculture Organization (GEF/FAO) initiatives on land degradation
- NEPAD Agriculture and Environmental components...for instance through the Sub Saharan Africa Challenge Programme (SSA-CP)
- African Agriculture Technology Foundation and the
- USAID Initiative to End Hunger in Africa

In order to deliver INRM and achieve impact there is need to develop a conceptual framework that: enables scaling up/out, is easier to operationalize participatory research and can articulate and resolve tradeoffs.

There is need to also consider bringing out the limitations of doing business as usual and the importance of exhibiting INRM at the UN CCD.

Discussion

- There is a formal agreement between the INRM task force and the CBD.
- The term INRM doesn't tell us about the problems – perhaps it is best to say we are addressing the problems of poverty and food security through the INRM approach and equally we need to reiterate the potential dangers of not using an INRM approach.
- In the UNCCD COP, the only action on the ground was from NGOs. The CGIAR looked very irrelevant.

3.2. Working Group 2: Lessons learnt from INRM experiences and way forward

Q1. What lessons have we learnt and what messages from our existing research do we want to convey to the partners and investors?

One lesson is that it is not necessary to start with the full INRM approach. What components are employed depends on state of knowledge whether constraints have been clearly identified, whether there is critical mass, whether it is possible to leverage work in other development projects.

Process lessons and methods lessons include:

- Use of developed tools and methods to do INRM better, e.g., GIS, participatory plant breeding among others.
- Recognize the need for broader evaluation and impact assessment methods and not the linear model
- Need for training in systems analysis and INRM approaches
- An audit of what is available in terms of expertise, research and development projects operating in the country is necessary to understand the next steps in implementing INRM.
- It is difficult to create truly multidisciplinary teams. Social scientists are important, but there is value in creating multidisciplinary teams with others such as geneticists. It is important to show the value added by these teams.
- Learned to listen to each other (e.g. NARS-CG centers)
- Learned that we need to involve the political level decision makers.
- Convergence of agreement on best process approach of INRM that can be now used for training
- The process keeps us focused on agricultural productivity.
- Broadening the partnership base beyond one's own institution is important, e.g. ecological sciences.
- While there has been some improvement in methodologies there is still a lack of NRM economists and social scientists within the CGIAR.
- NARS have a key role in monitoring and evaluation especially where NGO's are involved but are severely constrained by lack of personnel skilled in this area as well as financial resources.
- Strategic research is now done mainly through partnerships and leveraging and this represents the production of international public goods (IPG). (Meta evaluation point 2)
- Pitfalls of participation (Point 2)

- Exit strategy, how much participation should CG be involved in?
- The processes lack synthesis. Where are the examples of IPG from INRM? Need to invest in public awareness efforts (Point 2)

Q2. How do we respond to the challenges of the Meta evaluation?

Meta evaluation point 3 was rejected. Focus is on agro-ecosystem, which is fully consistent with the goal of the CGIAR. Core competency of the CG is systems thinking.

Meta evaluation point 4.: Agree that more effort in training is needed. INRM approach has built in learning cycles that involve capacity building. NARS will need to have mentoring after their training. More needs to be done to encourage systems thinking and approaches. There is need for more post-training support.

Meta evaluation point 5. Agree with this point.

Meta evaluation point 6. Not much to add

Meta evaluation point 7.

Transitory phase where increasing awareness is being built with our partners. INRM is a process of introducing methods to partners.

Q3. Are there exit strategies?

We learn lessons from CB-work and can pass this on to others thus lowering the intensity of CGIAR efforts.

Where is the exit from the learning cycle for the CG centers? A lesson learned is that we have not decided on the exit strategy at the start of the project often associated with lack of systems thinking.

ISSUE: Are we talking enough about agro-biodiversity, utilization or conservation in INRM?

Discussion

- Next meeting could focus on how we set up INRM research projects to produce global public goods.
- We need an exit strategy, clarified milestones and avoidance of “model farm” syndrome.
- We are far from political commitment. We need to organize and build institutional capacity among national research centers to be able to engage them in such debates. We need buy-in from country partners before getting political buy-in.
- Are we contributing to goals through global public goods?

3.3. Working Group 3: Integrating INRM into research programmes

Q1. How do we integrate INRM into research programs?

INRM can be integrated into research programmes through:

- a) *Structural Change* that could be either radical, stepwise or through incentives: such as funding /budget and generation of a common research agenda.
- b) *Mind-set and commitment change* at centre management's and researcher's levels
- c) INRM part of research agenda/proposals

Q2. How can genetic resource research be better linked with INRM?

- Good and bad examples of INRM and breeding integration (e.g., low N tolerant maize)
- Change of language, how about IGCRM (Integrated Genetic and Natural Resource Management)
- INRM specialists should show how their work adds value to breeding efforts, diagnosis and characterization and its impact and socio-economic dimensions.

Discussion

- Should we change from INRM to Integrated Genetics and NRM? This would strengthen the fact that a key result of INRM is to improve genetics research.
- In the presentation, the word diversity or the use of genetic resources was not seen. We should see these as being the foundation bricks for the research pillars that eventually create a building.
- There is need to show that NRM investments can greatly enhance the benefits from genetics research.
- More research on impact assessment on packages of inputs /technologies /practices (NRM x seeds) should be undertaken.
- Also noted is that the resilience value of diversity is not so well appreciated and advanced in the centers with commodity focuses.
- There is need to clarify the environment interactions with germplasm, this will assist in the understanding of what germplasm to deploy and where.
- Need more appropriate germplasm as entry points leading to investment in NRM. However very little of this has happened, putting in question whether this model works
- We are still learning, especially in the public – private partnership aspects.

- Farming systems as a stand-alone didn't work but when linked to breeding work, it did catch on.
- We need to be humble and bend over backwards to influence breeding programs.
- At IRRI, the largest program is not breeding but NRM. Problem is with other institutes.
- NARS situation varies. In Malawi and Ethiopia, there remains lots of compartmentalization. In Uganda, there is a proposed new structure to encourage integration.
- There has been progress in progressive release of germplasm by national bean programs.
- Germplasm and biotech people also have difficulty with breeders because the latter are so conservative.
- Asian countries also have those problems but are restructuring their research programs. There are increasing opportunities for INRM with them.

3.4. Working Group 4: Institutional Concerns for INRM

Q1. What institutional arrangements and skills are required for the operationalizing INRM agenda?

- NARS innovations have taken place but have they influenced overall research structure?
- What are the comparative advantages between IARCs and NARS in INRM research?
- What are the boundaries between different institutions (IARC/NARS) and areas of interface?
- What are the bonifide global public goods?

Gaps include a) facilitation of INRM at different levels, b) coordination, c) exploring pathways to poverty alleviation (INRM being a fundamental building block) d) research on social and environmental impacts, health, equity, e) strengthening institutional linkages and f) policy; poor understanding, implementation, vertical linkages in policy formulation.

Brainstorming on Institutional arrangements.

The is need of research on institutional arrangements for a) operationalizing INRM and facilitation of INRM/NARS linkages by IARC person with intensive involvement on site and by regional team with regional agenda working interactively with sites; research with NGO linkages, reworking funding cycles to enable long-term strategic involvement, and c) more strategic design of partnerships based on comparative advantage of different institutions (joint planning).

Partnerships

Shortcomings of the IARCs – NARS partnership include:

- Many innovations and lessons of NARS not well learnt and documented by IARCs
- Poor in joint development of projects from beginning (shared ownership)
- IARCs agenda being addressed in a top- down approach
- IARCs tend to dominate and take credit in NARS –IARC partnership
- Lack of proper recognition of NARS contributions in scientific publications
- Inadequate appreciation for complementary skills

- Different objectives and agenda; lack of common ground in problem solving and implementation
- Inadequate linkages
- Gross imbalance in resource endowment; disparity in remuneration of staff

Complements of partnership

- NARS provides avenue for IARC to reach the communities and address national issues
- Joint funding and implementation of on-farm demonstrations; at least they are seen to be solving farmers' problems together
- IARCs use local NARS staff to carry out research
- Enhances the exploitation of comparative advantages in scientific knowledge
- Complementary in orientation, skills and ecological coverage
- They are complementary in scales of analysis and intervention
- IARCs strengthen NARS capacity in terms of training and equipment
- They both have capacity building in almost all projects as a major component
- Some IARCs are good at mentoring and giving credit to NARS
- Consultation mechanism between the two is well established
- In Asia, NARS have a strong driving agenda

Individual Institutional Analysis

International Agricultural Research Centres (IARCs)

Shortcomings:

- Inadequate horizontal and vertical linkages
- Poor / weak interaction with national staff; they tend to disregard local authority (arrogant)
- Uses top-down approach thus lacks local touch
- Inflexibility in programme implementation in relation to local problems
- Narrow mandate/ focus: too scientific, sometimes obsessed with theories, models and processes and hence missing the local context/misrepresenting real farmers' needs and problems

- Interested more on research publications/journals rather than in adoption of results and impacts at community level
- Continued fragmentation and lack of proper coordination amongst themselves
- They are weak on process research and often in managing partnerships
- Limited knowledge on social and environmental impacts of interventions
- Short of funding
- Overpaid staff

Strengths:

- Good at strategic research in economics and policy through modeling, impact assessment and system approach
- Have effective system approach and innovative research tools
- Have increasing amount of research on INRM related processes
- Strong at macro level / scale analysis and interventions
- Global access to resources
- Adequate/ too much financial resources/ lots of money
- Appropriate adequate physical resources/ well equipped laboratories
- Highly qualified and specialised staff
- Wide focus: address regional, national and global agenda
- Link national, regional and global agendas
- Has a worldwide coverage
- Good at global and regional networking and building horizontal linkages

National Agricultural Research Station (NARS)

Shortcomings:

- Strongly influenced by governments' policies; coupled with bureaucratic and rigid policies and leadership
- Policy making process is long and expensive
- Inability to conceptualize farmers problems
- Limited social perspectives, processes and research approaches (beyond the PRA)
- Limited manpower: very few economists and even fewer social scientists

- Limited knowledge on the social and environmental impacts of interventions
- Due to territorial boundaries there is ineffective communication amongst themselves and with other institutions, both locally and internationally
- Poor linkages among stakeholders (researchers, extension officers, farmers, NGOs, donors, policy makers, etc.)
- Conflict of interest in organizing conflicting land and resource user negotiations
- Inadequate financial resources
- Inadequate physical resources such as poor infrastructure, ill equipped labs
- Lack of innovative ideas and tools to solve complicated and complexity of problems
- Limited technological innovations thus lags behind on global agenda
- Usually not familiar with systems approach: there is need to go beyond 'farm-plot approach to more complex and large-scale factor issues

Strengths:

- Most researchers are in NARS, so they work in various agro-ecological zones
- Addresses both research and development
- Have broad research agenda
- Have qualified staff throughout the country
- Have good science base and skills
- High quality staff and facilities
- Have large human resource for scaling up
- Have knowledge of national policy, historical and cultural context
- Have long-term mandates with regards to sustainability and legally established long term institutions
- Operate well under well established national networks
- Have capacity to develop and deliver technologies
- Have technology development in diverse biophysical disciplines /across farm level components
- There is involvement of farmers in technology development
- Are accurate and timely in identifying local problems
- Familiar with local situation and problems and the political linkages/stakeholders
- Technically good in economics, policy modeling and impact assessment

- Knowledgeable at the national context
- Have research capacity throughout the country and agro-ecological zones
- Have Good science base and ability to generate, deliver technologies and identify local problems

Non-Governmental Organisations (NGOs)

Shortcomings:

- Weak capacity (methods, concepts, systematizing)
- Inadequate capacity to conceptualize research findings
- Lack conceptual and methodological tools for working with complex systems and systems integration
- Lack specialized expertise
- Ill-trained personnel: not good at documenting what they are doing
- Limited and ineffective research and systematization of experiences for scaling up
- Narrow and non-integrated focus
- Lack detail and focus; may deal with too many issues at a time with limited information backup
- Narrow vision/poor scientific base
- Often single factor driven, not integrative
- Short term thinking: have short-term projects and long-term impacts may not be realized
- Short-term solution driven that limits their long-term visioning and integrating
- Increased fragmentation: not open with plans/budgets and secretive. They tend to work in isolation – competition rather than complementarity is the order of the day
- Inadequate human resource base
- Rigid agenda

Strengths:

- Wide access to financial resources from development partners (adequate financial and physical resources)
- In managing development processes it promotes equity, participation and interfaces with communities' conflict management
- Works at the grass root level and in unpopular areas thus reach many communities

- Direct link with end users
- Flexible in implementation and not confined by institutional frameworks and rules
- Good at facilitating community development process; community mobilization and participatory analysis of needs
- Ability to mobilize small rural communities
- Address real problems affecting people/ responsiveness to community needs
- Able to focus on a single issue, but can also adopt a multi-sectoral approach
- Responsive to farmer/community interests and needs
- Commitment to solve community based constraints/problems
- Good at managing development processes

Challenges for all Partners

- NRM is not yet developed even in CGIAR
- Institutionalization of INRM not yet in CGIAR or NARS but seen in islands.
- Research to development continues to be a useful paradigm, but it is important to note the different types of development and types of research, plus different problems needing balance

How to clearly define roles and responsibility vis a vis ownership of impact.
Who puts in resources?

In partnership modalities, the visions of NARS and NGOs do not always match e.g. NGO –pro poor vs. weak technical focus; (how does all link to government objectives/ policies?)

Strategy:

- Involve NGOs in regional planning, priority setting and implementation.
- Create fora to meet with each other, create awareness as a precursor of partnership, however not all institutional framework are working vis a vis national agenda.
- Have more IARC participation in NARS planning processes
- Harmonization of the IARC and NARS planning processes with joint leadership and joint integrated planning and support

- Direct funding to NARS
- Ensure whole structure is responsive to community needs /local ownership through capacity building, facilitation etc.
- Institute incentive structure and leadership within IARCs to enable more demand driven involvement
- Monitoring and evaluation functions should be instituted to ensure basic principles such as equity, sustainability among others are addressed
- For strategic regional and global research, a regional research framework should be created by linking national agendas
- Research output at different scales albeit different, should be linked

General Discussion

- There are no representatives from other continents mainly due to lack of funds.
- The task force needs to look at long-term evolution and not only current situation. Moreover since sustaining processes is tricky, effective means should be used to institutionalize INRM. True benchmark sites if properly defined and identified should involve scientists from the IARCs and NARS.
- IARCS do not get much of the global funds for agricultural research (only 4 %.) Relatively few funds are for research in the first place. There are much more funds in development and the NARS should fight for these rather than only seeking the small pots of funds for research.
- Also noted is that linking NARS and IARC agendas only work when there are common elements across different centers and IARCs do need to have a presence at benchmark sites.
- On the role of networks it was revealed that ASARECA is undergoing a priority setting exercise and may alter what the roles of the networks are. AHI is the most integrated of networks but IARCs should play a stronger role and address strategic issues, focus on regional and global issues. There is a potential dilemma as sites are at national level and must be of priority to the NARS.
- A suggestion was raised about having a workshop to look more broadly at strategic alliances as institutional issues arise all the time and are beyond INRM.
- There is need to know how this INRM task force disseminates its knowledge to others and how it links to organizations involved in other big issues like HIV/AIDS.
- There is need to identify the comparative advantages of different organizations and build on these at the site level. For instance, IARCs have GIS strengths.

- Need to focus on optimizing synergies of partnerships and not look at strengths and weaknesses of organizations per se.
- There is some disconnect between IARCs and NARS due to different constituencies and planning processes. So more sharing of planning is needed and follow up is not as strong as it should be.

In conclusion, participatory monitoring and evaluation (M&E) is required in impact assessment and we call this *ex post* monitoring and assessment. There is need to undertake methods research on the process, focus on changes while tracking indicators as well as be able to document the processes undertaken.

Finally we must remember the three key outcomes namely poverty, productivity, and the environment and the importance of a public campaign in place to challenge the traditional rate of return approach.

4. The Final Wrap Up

4.1. Meta response.

A small group from this meeting is to help Dick Harwood prepare a presentation at the annual general meeting. The presentation should: a) focus on interfaces – synergies, b) not be defensive, c) indicate that we have made progress on evaluation and d) chart a course – where are we going?

4.2. Impact assessment.

- Form a group of practitioners
- The Ethiopia programme is a good opportunity to put a mechanism in place
- There is need to operationalize elements into all programmes; practitioners need to focus on new methods and INRM; initially it may have to be through electronic discussion since we are learning; then we integrate others, have meetings, etc.

4.3. Dissemination of Task Force Outputs.

Campbell et al. paper (conceptual framework)
Public awareness
Methods paper

There should be two shorter booklets related to the longer publications. One will be related to the case studies that are already published; the other related to an INRM framework/methods. The booklets will be short, e.g. 10 pages, for the leaders of institutions to portray what INRM is and its utility. The methods paper would be about 50 pages for practitioners.

The shorter the better for the public awareness piece.

There is talk about a manual of tools/methods for INRM. For instance, fitting tools into the cornerstones. These tools are the global public goods.

How about a two pager on the cornerstones?

4.4. Support to challenge programme.

The CP-SSA should take our suggestions this morning. A challenge is how the IARCs can work together better. The INRM task force could be a good vehicle for linking into the CP-SSA with a unified voice. Soilfertnet has participated by funding regional SRO people to attend the planning meetings. But the scientists have not participated. They feel left out. A new consortium on soil fertility in southern Africa is forming and seems ahead of the CP-SSA. The SROs will elicit letters of interest from research consortiums/groups, which could be led by IARCs or NARS.

Can we send the suggestions to FARA?

Going back to integration of CG meetings, there were some areas where integration made sense. INRM is one of those. There is a concept note for the region – Steve Waddington and Ann Stroud worked on it. It was used in an earlier draft.

Should Ann propose a consortium (run by NARS) for the east African highlands to bid for a site in the CP-SSA?

4.5. Future links to our partners.

Uganda: NRM is high on the Ugandan research agenda. Poverty reduction plan has sustainable NRM as a third pillar. The government has integrated NRM into the Plan for the modernization of agriculture and into the NARO strategy. It is not a policy development issue, but rather an implementation issue.

Who is or should be doing it? Partnerships now come in. They are looking at comparative advantages of different institutions for achieving solutions. Farmer forums have a big role to play in Uganda in representing the demands of farmers. In defining an entry point for NRM, it is important to articulate clearly the problem and not come in with a broader “NRM” speak. As for IARCs, there is need to work in collaboration because we are trying to reach the same farmers.

Malawi: The NEAP outlined the priorities for NRM and the PRSP also addressed NRM. There are several examples of NRM development programmes. USAID funds a programme on NRM conservation. There is also a training programme in NRM for NGOs. Hunger and famine is acute these days, so there is an emphasis on programmes for short term solutions to hunger. NRM is in policy documents but operationalization is slow, taking a back seat to more direct hunger programmes, and overall funds are limited.

Tanzania: The country has just completed an agricultural development strategy. Social sciences, marketing, environment will be much better integrated. There is need to know more about what IARCs are doing, for example, the AHI programme.

4.6. Next meeting.

For the next meeting, can we focus on what are the international public goods for this group (and the IARCs) and the relationship with the NARS? It could be combined with the impact assessment group. Plus new tools.

4.7. Closing remarks by Joachim Voss.

The openness and casualness of the meeting have been appreciated. We have agreed that a small working group will meet on Wednesday to move forward in the meta evaluation response. The theme of next meeting is set. We can make an

effort to raise the participation of the agro-biodiversity scientists in the next meeting. We need a volunteer for hosting the next meeting. Should be in Asia in about a year from now (4th quarter of 2004). IRRI volunteered to host, in Los Banos, Thailand, Vietnam, or India.

Annexes

Annex 1: The Workshop Programme

Fifth Meeting of INRM Task Force – 20-21 October 2003
World Agroforestry Centre
Nairobi Kenya

20 October 2003		
Opening Session		
Welcome & Introductions	Frank Place, ICRAF	9:00 – 9:20
Opening Remarks	Dennis Garrity, ICRAF Joachim Voss, CIAT	9:20 – 9:50
Objective (1) How do we mainstream INRM into major agricultural research programs?		
What is INRM?	Richard Thomas, ICARDA	9:50 – 10:00
Operationalising INRM: Principles and Challenges	Bruce Campbell, CIFOR Ann Stroud, AHI	10:00 – 10:40
Tea break		10:40 – 11:10
Case studies of INRM within the CGIAR and partner institutions		11:10 – 11:40
1. Transvic: Improved Land Management Across the Lake Victoria Basin	Frank Place, ICRAF	
2. The Development of Integrated Crop-Livestock Production Systems in the Low Rainfall Areas of Mashreq and Maghreb	Richard Thomas, ICARDA	
Recent processes and challenges to mainstreaming INRM within the CGIAR and beyond	Roger Kirkby, CIAT Steven Twomlow, ICRISAT	11:40 – 12:10
General discussion and identification of issues to pursue in working groups	Chair	12:10 – 12:40
Lunch		12:40 – 14:00
Working group formation	Chair	14:00 – 14:15
Working group discussions	Roger Kirkby, CIAT Steven Twomlow, ICRISAT Other facilitators	14:15 – 15:30
Tea break		15:30 – 16:00
Working groups continue		16:00 – 17:15
Plenary presentations of working groups		17:15 – 18:15
Cocktail at ICRAF		18:15 – 19:15

Fifth Meeting of INRM Task Force – 20-21 October 2003
World Agroforestry Centre
Nairobi Kenya

21 October 2003		
Objective (2a) How do we build productive relationships between the major agricultural research programs in Africa through the SSA Challenge Program and its INRM perspective		
Towards a new way of operating in Africa: The Challenge Programme and Beyond	Ralph von Kaufmann FARA	9:00 – 9:40
Objective (2b) How do we build INRM into agricultural research systems at the regional level in Africa?		
Integrating INRM into regional research agendas: The DDPA Programme	Barry Shapiro, ICRISAT	9:40 – 10:10
General discussion	Chair	10:10 – 10:40
Tea break		10:40 – 11:10
Objective (3) How do we assess the impact of INRM? What empirical evidence do we have and how do we test the core hypothesis that the INRM approach is superior to others?		
<i>Ex Post</i> Impact Assessment of Natural Resource Management Research: Methods and Activities within the CGIAR	Sam Fujisaka, CIAT	11:10 – 11:40
Issues in assessing the impact of INRM: The Case of the Alternatives to Slash and Burn Program	Tom Tomich, ICRAF	11:40 – 12:10
General discussion and identification of issues to pursue in working groups		12:10 – 12:40
Lunch		12:40 – 14:00
Working group formation	Chair	14:00 – 14:15
Working group discussions	Roger Kirkby, CIAT Steven Twomlow, ICRISAT Other facilitators	14:15 – 15:30
Tea break		15:30 – 16:00
Working groups continue		16:00 – 17:15
Plenary presentations of working groups		17:15 – 18:15

Annex 2: List of Participants

5th Workshop of the Integrated Natural Resource Management (INRM) Stakeholder Group, 20th –21st October 2003. World Agroforestry Centre, Nairobi, Kenya.

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