

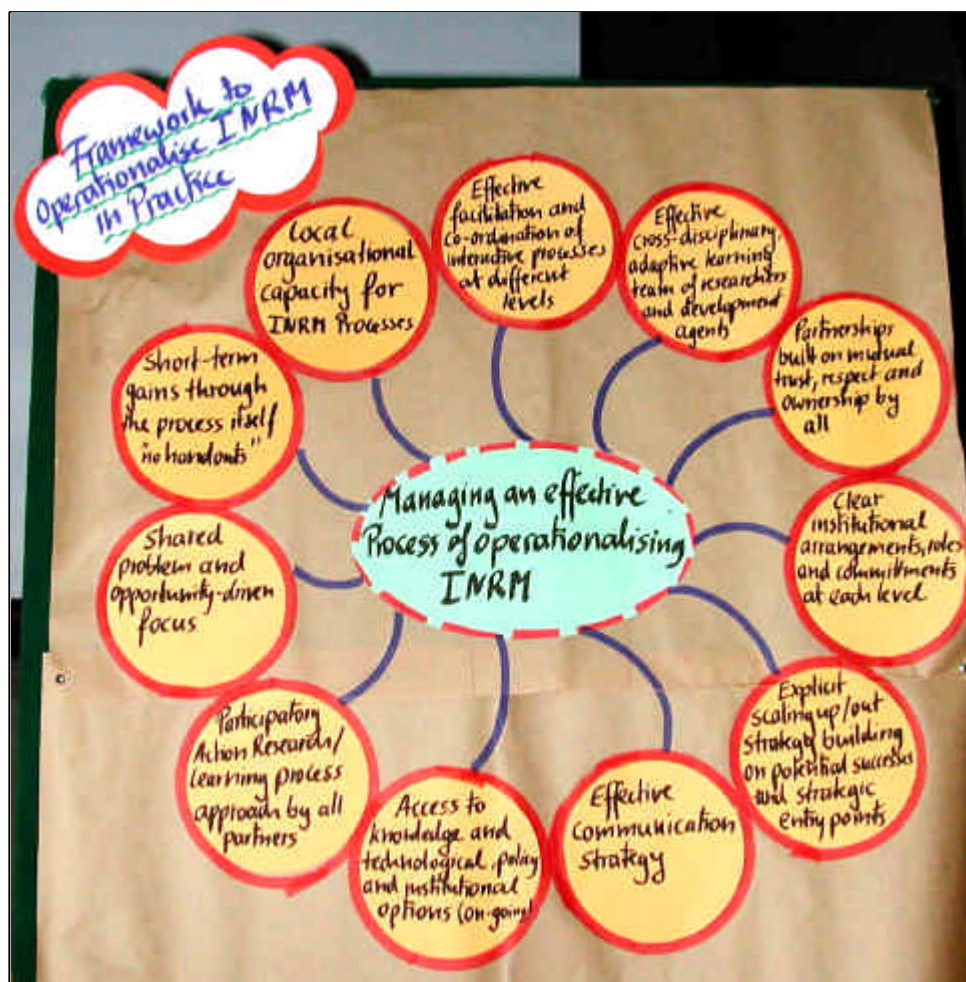
# Putting INRM into Action

**INRM**  
ALEPPO 2002 WORKSHOP

4<sup>th</sup> INRM Workshop held at ICARDA  
in Aleppo, Syria, September 16 - 19, 2002



## Workshop Documentation



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**Sponsored by:** Bmz, Germany, and IDRC, Canada

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**This documentation report documents the workshop, which took place in September 16-19, 2002. The report here is not a final synthesized report, but tries to capture the crude output of the workshop in a non-interpreted way as a base for shaping the final report.**

**THIS DOCUMENTATION IS MEANT TO BE A REFERENCE DOCUMENT for all participants, which intends to provide the desired transparency. Almost all results of the working groups and plenary sessions are documented here. In addition, it includes the summary reports of the synthesisers.**

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## Acronyms and Abbreviations

ARI	Advanced Research Institute
ASB	Alternatives to Slash and Burn Consortium
CBD	Convention on Biological Diversity
CDC	Centre Directors Committee
CEO	Chief executive officer
CGIAR	Consultative Group on International Agricultural Research
CIAT	Centro Internacional de Agricultura Tropical
CIFOR	Center for International Forestry Research
CIMMYT	International Center for the Improvement of Maize and Wheat
CIP	International Potato Center
DFID	Department for International Development (UK)
EIA	Environmental Impact Assessment
EPMR	External Program and Management Review
FPR	Farmer Participatory Research
GCP	Global Challenge Program
GDP	Gross Domestic Product
GHG	Greenhouses Gas(es)
GIS	Geographical Information Systems
GMO	Genetically-modified Organisms
GRM	Genetic Resources Management
GTZ	German Development Cooperation
IA	Impact Assessment
IARC	International Agricultural Research Center
ICRAF	International Center for Research in Agroforestry
ICARDA	International Center for Agricultural Research in Dry Areas
ICRISAT	International Crop Research Institute for the Semi-Arid Tropics
IDRC	International Development Research Centre (Canada)
INM	Integrated Nutrient Management
INRM	Integrated Natural Resource Management
IPCC	Intergovernmental Panel on Climate Change
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
KM	Knowledge Management
M&E	Monitoring and Evaluation
MoU	Memorandum of Understanding
NARI	National Agricultural Research Institute
NARS	National Agricultural Research System
NGO	Non-Governmental Organization
NRM	Natural Resource Management
PR	Participatory Research
R & D	Research and development
R,D&E	Research, Development, and Extension
SES	Social-Ecological Systems
SGRP	System-wide Genetic Resources Programme (CGIAR)
SLA	Sustainable Livelihoods Approach
SPIA	Standing Panel on Impact Assessment (CGIAR)
SWNM	System-wide Program on Soil, Water and Nutrient Management
TAC	Technical Advisory Committee (CGIAR)
TSBF	Tropical Soil Biology and Fertility Institute
UNCED	United Nations Conference on Environment and Development

## Foreword by the Organisers

INRM within the CGIAR system has been steadily progressing since the initial meeting of a Task Force held in Bilderberg, the Netherlands in 1999. The group has involved participants from within and outside the CGIAR system in all of the meetings held to date in order to gain from the experiences of practitioners, to introduce INRM to new participants and to introduce new concepts particularly those that focus on ecosystem management.

The first three meetings grappled with the evolution of a conceptual framework for a comprehensive approach to INRM that could be mainstreamed into the work of the CGIAR centers and its partners. At the end of the third meeting, held in Cali, Colombia at CIAT headquarters the Task Force decided that the group needed to move ahead and discuss how the INRM approach can best be put into practice. Thus this was the main theme of the fourth meeting held at ICARDA's headquarters in Aleppo, Syria August 16-19, 2002.

The meeting discussed, and made significant progress towards, developing a framework for the operationalization of INRM for use in projects of the CGIAR and especially into challenge programs. Of the 14 challenge programs under review at least four have the INRM approach firmly embedded in the pre-proposal documents. This is an indicator that the INRM approach is gradually being mainstreamed into the system but the group believes that this rate of progress is too slow. We hope that those challenge programs that are moving ahead will also incorporate the INRM approach as they develop and implement their research activities.

A key outcome of the meeting was the development of a framework for the operationalization of the INRM approach. This is comprised of eleven "cornerstones" to be used as a guideline for the implementation of INRM. The group also decided that such a framework would be useful for reviewers of INRM within projects and within the CGIAR centers. The framework to operationalize INRM complements the conceptual framework developed in previous meetings.

The workshop used the field visit to test the usefulness of the framework in the INRM work that ICARDA's Natural Resources Management Program is re-vamping in the Khanasser valley near Aleppo. As a relatively new activity the ICARDA team found the framework to be very useful but suggested some refinement and consolidation of the "cornerstones". The INRM Task Force welcomes comments from other groups on this topic.

The noted congeniality of the INRM group is infectious and we hope that others will carry the spirit forward into their own communities of practices. It is still a relatively rare occasion when scientists from many disciplines meet and "cross" their disciplinary boundaries and generally the result is one of synergy and increased understanding. This is one reason why we believe the group should continue. The next meeting is tentatively planned for next year in Nairobi when there may be a focus on Africa, INRM, and the challenge programs. This has yet to be finalized however.

We thank all those who contributed to a successful meeting with special mention to the local organizing committee of Marica Boyagi, Afif Dakermanji, Zuka Mousattat, Mohammed Hamwiah, who handled the logistics of travel and visas, Rima El-Khatib, Kinda Jazeh for their work on the website and collation of the workshop documentation. Laurice Abdul-Majid did a fantastic job to get most of the presentation material on CD before the end of the meeting. The Khanasser field day team included Francis Turkelboom, Roberto La Rovere, Zuhair Masri, Malika Martini, Aden Aw-Hassan, George Arab, Ahmed Hachum, Ashraf Tubeileh, Hisham Salahieh, Haitham Halimeh, Salwa Salem and the farmers and families who permitted us to trample all over their land. Even though a bus broke down this team plus the drivers ensured that there was a smooth movement of people and no one got stranded in the desert although it was a close thing!

The workshop process group (Dick Harwood, Kamel Shideed, Steve Twomlow, Fritz Penning de Vries, John Poulsen, Richard Thomas, Jürgen Hagmann) met after each day putting in extra time and are thanked for their unstinting dedication to the cause.

We thank Jules Pretty for the keynote speech and look forward to further interactions with him in the future. Formal presentations were kept to a minimum to allow for discussion and group activity. This inevitably resulted in disappointment for some who came prepared but we hope the open space that was created in the evenings allowed for discussion on all burning topics.

Jürgen Hagmann is again thanked for his patience and perseverance as the facilitator under difficult circumstances when the process appeared to be stalled and his guidance to lift the workshop was very much appreciated.

We look forward to future activities of the group and thank you all for your visit to Aleppo and ICARDA.

***Joachim Voss***

Chair of the INRM Task Force  
Director General of CIAT

***Adel El-Beltagy***

Director General of ICARDA

***Richard Thomas***

Meeting and Local organizer  
Director NRMP, ICARDA

## Foreword by the Facilitator

This was the third INRM meeting which I facilitated for the INRM task force. All the three meetings were characterised by a high level of energy among participants as the meetings were all touching new ground and many new ideas, theories and practical insights came up. From the point of view of facilitator as well as INRM practitioner I have enjoyed to facilitate these meetings a lot. This workshop in Aleppo was particularly great as we dealt with the 'nuts and bolt' issues and we had a practical case to look at and to reach a common perspective. Again, like in the other meetings, the major challenge in all the meetings has been the full integration of lots of people who attend for the first time. I think we succeeded and could learn a lot from the newcomers with fresh ideas. Now the challenge even more is to demonstrate the impact in practice and to put more nuts and bolts on INRM. If the group manages to use the operational framework as a frame for learning and bringing back new experiences into this frame, it will be relatively easy to enhance the 'decentralised learning' across many cases and bring the best practices back into a coherent operational guide – an exciting perspective.

I would like to thank all the participants for their active participation and dedication during the workshop. The rapporteurs and synthesizers took on an important extra work to capture all the creative ideas and the process steering group also spent a lot of extra time to jointly design and plan the workshop. Without their 'steering' and ideas, it would have been much more difficult make the 'loose ends meet'. The effective work of Richard Thomas and his team in the background in organising logistics was really appreciated by all. Roberto La Rovere and Francis Turkelboom did a great job in documenting the outputs of the workshop – many thanks!

Wish you all the best!

**Jürgen Hagmann**

Independent Process Consultant / Facilitator

## Foreword by the ICARDA Director General

Opening talk for INRM meeting Monday Sept 16 at 9.15 am by Prof. Dr. Adel El-Beltagy, Director General

**Ladies and gentlemen, distinguished scientists and colleagues,**

Welcome to ICARDA and to the 4<sup>th</sup> Workshop on Integrated Natural Resources Management of the CGIAR.

INRM became the second pillar of the CGIAR system following the criticism in the 1998 CGIAR system review that the Green revolution had failed to address environmental and social issues associated with the introduction of new technologies and crops. The emphasis on protection and enhancement of our natural resources was timely given the increasing evidence that because of increasing demographic pressure human beings are damaging the global environment and especially our soils, water and biodiversity.

The response of the CGIAR was to establish a Task Force for INRM that is currently headed by Dr. Joachim Voss from CIAT. A series of consultation meetings was held in the past: in Bilderberg, the Netherlands in 1999; in Penang, Malaysia in 2000; and in Cali, Colombia in 2001; and we are now holding the 4<sup>th</sup> meeting here in Aleppo.

We have defined what INRM is and what it is not after these meetings although some are still debating this! At the Cali meeting several definitions were proposed and finally it was decided that INRM should be defined as

“ an approach that integrates research on different types of natural resources into stakeholder-driven processes of adaptive management and innovation to improve livelihoods, agroecosystems resilience, agricultural productivity and environmental services at community, ecoregional and global scales of intervention and impact”. This very long definition can be encapsulated by using the phrase coined by the Desertification Challenge Program of

“ Building livelihoods – saving lands”

In Cali the INRM group challenged itself to demonstrate measurable benefits from INRM research to large numbers of people within reasonable time frames.

We have with us today a special guest who has worked on the documentation of successful case studies of sustainable agriculture that involve similar approaches to that of INRM, from around the world. Dr. Jules Pretty is well known to this school of thought and has published extensively on the topic. We are very pleased that Dr. Pretty could take time from his busy schedule to be with us at this workshop to share with us his findings and we also hope that he will critically examine us and pressure us to move forward and to demonstrate that the CGIAR is a valid player in this arena.

The aims of this workshop are in fact to examine case studies and to learn from our experiences, the successes and failures, so that we can speed up our efforts to build livelihoods and save lands as these are indeed the most pressing issues facing the world's communities as we strive to reduce poverty without further damaging the ecosystem services that our natural resources provide. Here in this region we are acutely aware of the effects that poverty and environmental damage have on poor disenfranchised people. We see it every day in the news and we know that we cannot remain inactive and that we do in fact have a lot to offer if only we can achieve donor and political support to move us forward.

We need to move our approach forward to produce tangible results as quickly as possible. Many skeptics believe that the INRM is too complicated and takes too long to achieve results. Your deliberations here are necessary in order to answer these criticisms. We need to be bold and to be prepared to discuss other approaches and to ask ourselves if indeed we are the appropriate body to work in this area.

The challenge program concept currently being introduced by the CGIAR is another avenue to broaden the scope of the CGIAR, to address the early criticisms and to link us with more institutions with other comparative advantages. This meeting should examine what role the INRM approach should have in the challenge programs. Can we mainstream the approach into Challenge programs?

These are the key issues for the future of this group and for the CGIAR in general.

I therefore wish you success in this important workshop. For some of you this might be the first visit to ICARRDA. We should therefore find time during the course of the workshop to provide you opportunity to become familiar with different activities of the Center.

I would like to thank you all for making the effort to travel long distances, at a very uncertain time, to this part of the world. We can assure you that in our host country Syria, you will be safe and that you will receive a warm welcome by all. Please try and find some time to visit the city of Aleppo and take in some of its splendid history.

Thank you

# 1 Workshop Opening and Introduction

The workshop was opened by Prof. Dr Adel El-Beltagy, DG of ICARDA, who welcomed participants and handed over the workshop to Dr. Jürgen Hagemann, who was tasked to manage the workshop process as a professional facilitator. Jürgen also facilitated the two previous INRM workshops in Penang/Malaysia and Cali/Colombia.

## 1.1 Participants' Introduction

The facilitator first briefly explained his task and the core values, principles and methods of his style of facilitation. In workshop like this 4<sup>th</sup> INRM event, where facilitation will be geared towards systematisation and conceptualisation of experiences, the task for the facilitator was clarified as the design of the process of conceptualisation and to manage the group dynamics to create a good and productive atmosphere.

Jürgen then asked the participants to introduce each other around the table they were seated on the basis of the following task:

### ***Participant's Introduction***

#### ***Guidelines***

Introduce yourself at your labels

- a) Who you are, where your roots are, and where you are stationed.
- b) Explain how other people who know you well, would describe you (positive + negative)
- c) Find out as a "table group"
  - What you would like to see happen in this workshop.
  - What should not happen in this workshop (3 - 5 cards max).

The people in the table groups made discoveries about each other in an interactive way. Given the large number of workshop participants, the small groups could not present their discoveries about each other to the larger group but just introduced their names.

The introduction of participants created an open atmosphere and revealed interesting details about the personal and professional characteristics of the participants.

An exercise on differentiation of the group revealed that:

- The group composition was heavily male-dominated
- Less than half of the participants were at the meeting in Cali Last year, more than half of the people were the first time in an INRM meeting
- Only few (approx. 5) people were part of the INRM process from the beginning

This posed a major challenge as the newcomers had to be integrated and brought 'on board'.

## 1.2 Expectations and fears

The expectations and fears were identified through the following questions:

### *What I would like to see happen in this workshop is:*

<p><b>Synthesis of lessons and knowledge</b></p> <ul style="list-style-type: none"> <li>• Learning common lessons from shared experience in the room (good and bad lessons)</li> <li>• I identify: why is watershed management not delivering?</li> <li>• Clear cases of successful I NRM with impacts</li> <li>• Build on the Cali / Penang and Bilderberg experience</li> </ul>	<p><b>Implementation and Action</b></p> <ul style="list-style-type: none"> <li>• feel motivated to try new techniques which have been shared</li> <li>• learn new techniques, approaches, methods</li> <li>• movement from mouth to meat</li> <li>• implementation of I NRM approaches</li> <li>• examples of I NRM in practice</li> <li>• specific studies of specific impact</li> <li>• cost-benefit analysis of I NRM learn how to identify realistic goals for I NRM</li> <li>• I NRM to better link science and farmers</li> <li>• Framework to link research with farmers</li> </ul>
<p><b>I N R M and CPs</b></p> <ul style="list-style-type: none"> <li>• be able to better interface I NRM with the challenge programmes</li> <li>• I NRM incorporated in CPs</li> <li>• I identify soil / land degradation strategies to include in all relevant challenge programmes</li> </ul>	<p><b>Telling the story / link with partners.</b></p> <ul style="list-style-type: none"> <li>• Output should be attractive and relevant to donors</li> <li>• I identify messages for I NRM for governments and implementing agencies</li> <li>• To record a collection of interviews which can bring out the relevance / importance of I NRM</li> </ul>
<p><b>Future of I NRM</b></p> <ul style="list-style-type: none"> <li>• Clear action plan until next meeting</li> <li>• What is the mechanism for future I NRM conceptualisation?</li> <li>• Keep learning and sharing it</li> </ul>	

and the fears:

### *What should not happen in this workshop is:*

Nothing new (fear).	Should not redefine I NRM / avoid spending time on definitions.
Avoid drowning in complexity.	Should not take a long time to write up the workshop processing.
Too much dwelling on old grounds and issues.	Workshop should not be dominated by the thinking of a small clique.
Too many definitions.	I mproper assessments of I NRM project.
Not to see competition between CG centers when dealing about I NRM.	Can't we use last year's cards?

Expectations and fears revealed some of the key concerns of the participants and issues to be discussed. The strongest concerns were the issues of repeating the same issues than last year. Some of the warnings which came out of the expectations and fears served as reminders for the group.

### 1.3 Objectives and the ‘Flow’ of the Workshop

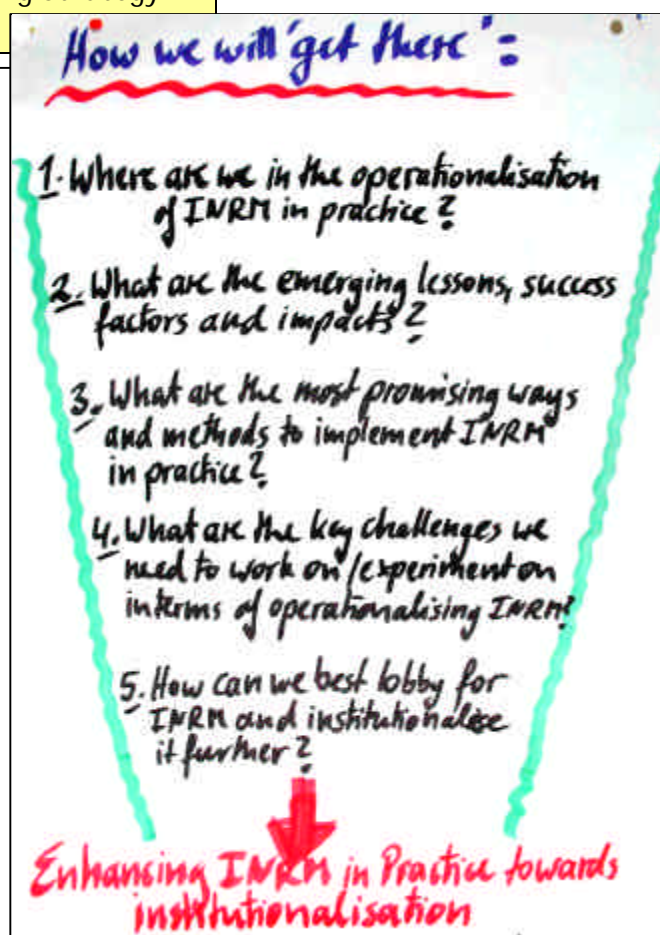
Once participants expectations were clarified, the facilitator presented the anticipated outputs and products of the workshop as agreed by the workshop process steering group beforehand:

#### *Anticipated Outputs / “Products”*

1. The workshop aims to enhance the integration on I NRM in CG centers and partner institutions not as I NRM projects, but as mainstream institutional approach.
2. To identify key lessons and success factors for the operationalization of I NRM.
3. To analyze promising strategies and methods.
4. To distill an agenda of key challenges to work on over the next 1 - 2 years as on I NRM-community of practice.
5. To enhance the building blocks for a lobbying strategy for I NRM.

These anticipated outputs worked out by the organising committee were levelled with participants’ expectations. No major differences were assessed and the workshop objectives were agreed upon by all the participants.

The workshop flow, or: How we will get there:



## 1.4 Anticipated Workshop Programme

The facilitator presented a programme, based on the objectives and anticipated outputs. However, it was stressed that the workshop process might require adaptations that will be done flexibly from day to day.

	Monday	Tuesday	Wednesday	Thursday
Session 1 8:00 - 10:00	Opening Setting the scene	Field Visit	Group work	Group work
Session 2 10:30-12:30	Keynote presentations	Field Visit	Group work	Plenary presentation of group results
Session 3 14:00-15:30	Keynote Presentations	Field Visit	Presentation of group results	Planning for future activities
Session 4 16:00-18:00	Presentation and Discussions	Field Visit	Presentation of group results	Next Steps Workshop Evaluation Closing

Participants agreed on this broad outline and on the fact that the programme will be handled flexibly.

## 1.5 Workshop organisation

Some issues on the workshop organisation were clarified. The 'workshop process steering group' had a very important role to play. Together with the facilitator, they elaborated the detailed agenda for every day based on the objectives and the general group dynamics. This ensured that the process fully considered the needs and concerns of all participants. The steering group was composed of a cross-section of participants and the organising group.

### **Workshop Process Group**

#### **Task**

- To get feedback from participants on the workshop process
- To plan together with the facilitator in the evenings, the next day, based on the desired outputs and participants feedback.

#### **Members**

Dick Harwood, Kamel Shideed, Steve Twomlow, Fritz Penning de Vries, John Poulsen, Richard Thomas, Jürgen Hagmann

The workshop documentation was also clarified. Besides this documentation of the crude outputs as a reference document for participants a number of other outputs were anticipated:

***Workshop Documentation:***

- All crude outputs of the workshop will be documented and distributed soon after the workshop
- Rapporteurs will summarize group work sessions
- Synthesis groups will prepare synthesis on major topics
- Editorial committee

Other outputs / publications will be agreed upon in plenary

Another tool for sharing experiences in a self-organised manner was introduced in form of the open space and the information market.

**Open Space**

This was conceived as a tool for self-organized exchange and sharing of experiences.

<b><i>I would like to share/present experiences on:</i></b>	<b><i>I am interested in that and would like to discuss</i></b>
Discuss future of soil, water, natural management research in CGIAR (Short session on water CP)	Mike Swift _ SWNM Steering-Co. - ALL Invited pm? M. Samariba/Wednesday 15
Simon: The water and food challenge program: What it means for INRM.	
Nathalie: Learning to work together	

A number of offers and 'interests' were recorded and organized their sharing themselves (see table)

## 2 *Lessons from Practice: Presentations of Cases*

Once the 'ground was levelled' with regard to the workshop setting, the topic of INRM in practice was entered through a set of keynote presentations from different organisations and initiatives.

The following texts are the original presentations as they were presented as power point slides. Due to the file space, they were imported into word. The original files can be obtained from ICARDA (Richard Thomas).

After each of the presentations, participants were asked to note down a few main points which they consider crucial for the discussions. These were to be taken up through a group reflection at the end of the presentation sessions.

The task was:

After each presentation, discuss at your table  
(15 min)

What are the 3 - 5 main issues lessons /  
success factors / challenges emerging  
from this presentation?

please use cards

After the presentations, the issues were taken up and clustered and further processed.

## 2.1 Agri-Culture and Integrated Natural Resource Management' by Jules Pretty:

Prof. Jules Pretty, University of Essex, UK, gave an overview presentation of the state of the art of the discussions

### Agricultures

For most of our history daily lives of humans played out close to land

But since we diverged from apes

- hunter gatherers 350,000 generations
- agriculture 600 generations
- industrialised 8-10 generations

we are dependent on industrialised agriculture for 2 generations

Many agricultures developed with close connections between people and land but - today disconnections are growing.

### Roman perspectives

- Marcus Cato: *Di Agri Cultura* (200 BC)

Quotes: "And when our ancestors would praise a worthy person, their praise took this form: good husbandman, good farmer (*bonum agricolum bonumque colonum*); one so praised was thought to have received the greatest commendation"

- Cato, Varro, Columella,... all spoke of *agri* and *cultura*•the fields and the culture

### Chinese perspectives:

- Mensius (400 BC) "*if the forests are timely felled, then an abundant supply of timber and firewood is ensured, if the fishing net with relatively big holes is timely cast into the pond, then there will be no shortage of fish and turtle for use*".

- Li Shi Qiu (239 BC) and Qi Min Yao Shu (600AD) celebrated fundamental value of agriculture to communities and economies documented rotation methods, green manures, animal manure, fish raising in rice paddies, rules for collective management

### Great Progress in the past 50 years:

- more cereals and animals per ha
- more meat and milk per animal
- more food produced per person employed

Increases inscale of production; concentration in food chain

- -Productivity increases, commodity prices fall, food stays cheap - so we must be succeeding?
- -But to succeed - farmers have to get bigger and externalise costs
- •UK 200,000 farms lost in 50 yrs (11/day)
- •USA 4 million farms lost in 50 yrs (219/day)

-But modern industrialised farming looks good precisely because it measures its own success narrowly and ignores the costly side-effects

## World context

- World now produces 354 kg cereal per person - enough for all (in theory)
- But in 2002: 790 million people hungry (31% in E and SE Asia; 31% in S Asia; 25% in Sub-Saharan Africa); significant food poverty in USA (largest food producer in world): 11 million hungry; 23 million food insecure, 500+ million now clinically obese... the food they eat is making them ill

## What is farming for?

- Agriculture is for more than just for producing commodities - many new terms:- multifunctional; multipurpose; jointly produces goods and services; has many side-effects and externalities

**Positive side-effects** e.g. landscape aesthetics, biodiversity, clean water, flood protection, amenity, carbon sequestration, rural economy, community cohesion

- • Negative side-effects-water pollution (e.g. pesticides, nutrients, soil, farm waste, *Cryptosporidium*), loss of landscape and biodiversity, food-borne diseases, gas emissions.

The idea of multi-functionality and integrated resource management raises important questions:

-How much are the positive side effects worth to farmers?

-How much do the negative ones cost?

-*"if individuals have a warm personal understanding of the land, they will perceive of their own accord that it is something more than a breadbasket "* (Aldo Leopold)

## Negative Externalities: UK

- • Total annual costs £1.54 billion per yr (1990s)
- • ~£150 per ha of UK arable and permanent pasture
- • Elements of costs • £120 m yr<sup>-1</sup> pesticide removal from water
- • £69 m yr<sup>-1</sup> soil, nitrate and phosphate removal
- • £23 m yr<sup>-1</sup> *Cryptosporidium* removal
- • £124 m yr<sup>-1</sup> losses of biodiversity, hedgerows, stonewalls
- • £96 m yr<sup>-1</sup> off-site costs of soil erosion and C-losses
- • £169 m yr<sup>-1</sup> bacterial outbreaks in food
- • £300 m yr<sup>-1</sup> effects of greenhouse gases on climate
- • £607 m yr<sup>-1</sup> BSE
- • not costed antibiotic resistance, acute and chronic pesticide effects on human health
- • Hidden subsidy from public to polluters, water consumers, food consumers

## Positive Externalities

- • Value may exceed income from food in some systems
- -Landscape services
- • 550 million day visits per year to UK countryside
- • £14 billion income into rural communities-Wetland values
- • Inland wetlands valuable for flood protection, waste treatment and nutrient amelioration, and habitats

- -Soil health and carbon sequestration
- •Agricultural systems can accumulate 0.3-0.6 tonnes carbon ha<sup>-1</sup> yr<sup>-1</sup>, rising to 1-3 tonnes C ha<sup>-1</sup> yr<sup>-1</sup>•New income options for farmers

**Need to ask** – what are the best options for the poorest and for the environment?

- Not increased production in industrialised countries
- Not expanding agric frontier (lose environmental services)
- Key questions:
  - to what extent can farmers improve food production with low-cost and locally-available technologies and inputs
  - can they do this without causing further environmental damage, or even by improving natural resources?

### **Sustainability in Agriculture**

- •A more sustainable agriculture seeks to make the best use of nature's goods and services
- •Integrates natural and regenerative processes, (nutrient cycling, nitrogen fixation, soil regeneration and natural enemies) into food production processes
- •Minimises use of non-renewable inputs that damage the environment or harm health
- •Makes best use of knowledge and skills of farmers
- •Make productive use of social capital - people's capacities to work together to solve common management problems, such as pest, watershed, irrigation, forest management
- •Also contributes to public goods
- -clean water, wildlife, carbon sequestration in soils, flood protection, landscape quality, rural jobs

### **Farmers and hectares**

- •University of Essex study of 208 sustainable agriculture projects and initiatives
- •8.98 million farmers have adopted sustainable agriculture practices and technologies
- •28.92 million hectares equivalent to 3.01% of the 960 million hectares of arable and permanent crops in Africa, Asia & Latin America

### **Food production increases**

- •intensification of a single component of farm system
- •with little change to the rest of the farm ~ home garden intensification, vegetables on rice bunds, introduction of fish ponds or a dairy cow;
- •addition of new productive element to a farm system such as fish in paddy rice, or agro-forestry, which provides a boost to total farm food production;
- •better use of natural capital to increase crop intensity
- water harvesting and irrigation scheduling
- •land reclamation of formerly unproductive land
- •improvements in per hectare yields of staples
- •through introduction of new regenerative elements into farm systems (e.g. legumes) and new and locally-appropriate crops and animals

### **The velvet bean in Central America**

- •Velvet bean (*Mucuna pruriens*)
- •Multiple cropped with maize

- Fixes 150 kg N/ha per year
- Produces 50-100 tonnes biomass per ha/year
- Improves and regenerates soils
- 45,000 families in Guatemala, Honduras & Nicaragua growing mucuna
- Crop yields up from 400-600kg/ha to 2000-2500 kg/ha
- Social capital critical -
- -farmers' groups, experimentation, and extension

### **Zero-Tillage in Brazil & Argentina**

- Zero-tillage
- No ploughing of soil
- Brazil - 15 million hectares
- Argentina - 9.2 million hectares
- Benefits
- better input use, water retention, diverse rotations, increased organic matter in soils (thus more carbon sequestration)
- reduced erosion and water pollution
- yields: maize up from 3 to 5 t/ha (Brazil); wheat up from 2 to 3.5 t/ha (Argentina)

### **Catchment approach to soil and water conservation, Kenya**

#### **Better land husbandry, Kenya**

- ABLH using double-dug beds with composting, green and animal manures last 4-6 seasons
- Better water holding capacity and higher organic matter ~ beds more productive, more diverse and are able to sustain vegetative growth into the dry season
- Benefits for women and children
  - 75% of households free from hunger during the year;
  - HHs buying veg during year fell from 85% to 11%;
  - Proportion selling vegetables up from 20% to 77%;

#### **Water harvesting in the drylands, Tamil Nadu**

- Simple water harvesting technologies
- More water harvested in upper watershed = two crops rice per year

#### **Integrated Pest Management in rice**

- Learning to make best use of beneficial insects
- Farmers attend farmer field schools ('schools without walls') during whole rice season ~ meet each week to learn new agro-ecological principles for rice and pest management
- 6000 farmer field schools in Bangladesh ~ 150,000 farmers adopting sustainable rice on 54,000 ha
- Rice yields up 5-7%; costs of production down ~ 80% of farmers use no pesticides
- Fish-rice-vegetable systems produce synergistic benefits

#### **Common themes**

- Functional biodiversity for pest management
- Growing the soil
- organic matter and carbon sequestration
- Water dry lands and irrigation
- Social organisation

- connectivity, trust, obligations, confidence
- Food production in patches works
- Add value & direct market for rural economies

### Threats?

- Critical trade-offs between assets
- roads for markets and loss of forests?
- land closed for rehabilitation - poor sell livestock?
- more work for women?
- additional incomes go to men? • Increasing assets
- may tempt the powerful to take over? • Aspirations
- rural people may want to get away from rural parochialism? • Backlash • strong social capital (groups and networks) become new power bases - and tempt backlash?
- Changing markets for inputs • reduced demand for agro-chemicals?

### Policies out of step?

- Much evidence of transformed thinking
- everyone in favour of "sustainability"
- some willing to change words alone
- some willing to change practices
- Most policy structures still encouraging 'old' modernist agriculture
- Need to go beyond 'greening the edge' to 'greening the middle' of farming
- Supportive policies
- Core challenge for next decade
- Only 2 countries with explicit national policies for sustainable agriculture
- -Switzerland, Cuba

### Language under threat

- Language & land
    - part of people's identities
  - both under threat
  - 5000-7000 oral languages spoken today
    - only half have >10,000 speakers each
    - rest spoken by only 8 million people (0.1% of world's population)
  - local language does not translate easily into majority languages
- What does language loss mean to our understanding of the land?

### Stories and memories of land • Landscape full of stories and meanings

- Industrial landscapes - lost many of their meanings
- We have forgotten so much about human linkages with the rest of nature
- We have come too easily to believe another story; that we have the earth under our control
- -Ben Okri: *"everything is a story... spiders, the wind, a leaf, a tree, the moon, silence, a glance, a mysterious old man, an owl at midnight, an egg by the river, are all impregnated with stories."*

**A Land Ethic** • Aldo Leopold, *Sand County Almanac and Sketches Here and There* proposed ecological, ethical and aesthetic science to shape human interactions with nature "We abuse land because we regard it as a commodity belonging to us. When we see land as a community to

*which we belong, we may begin to use it with love and respect... That land is a community is the basic concept of ecology, but that land is to be loved and respected is an extension of ethics"* **A land and food ethic**•Implies

- -thinking of land and community, farming and food, as a connected network of parts
- -limits, obligations and responsibilities
- •Each time we buy food our choices make a difference to nature and communities somewhere
- •David Orr (Oberlin College, Ohio)
- *"Now we have to learn entirely new things... that we are inescapably part of what Leopold called `the soil-plant-animal-man food chain'... which is to say we must embrace a higher and more inclusive level of ethics"* **Crossing the internal frontiers**•Peter

Senge (The Fifth Discipline)

*"when things are going poorly, we blame the situation on incompetent leaders, thereby avoiding any personal responsibility... Through all of this, we totally miss the bigger question `what are we, collectively, able to create?" "... to think that the world can ever change without changes in our mental models is folly".*

And to conclude with the words of David Suzuki: *"we are still settlers on this earth"* .

## 2.2 Igniting Rural Prosperity in sub-Saharan Africa through INRM Research by Dyno Keatinge

J.D.H. Keatinge, B. Asafo-Adjei, R. Carsky, J. Diels, B. Douthwaite, A. Emechebe, S. Ferris, L. Halos-Kim, W. Hammond, B. James, A. Kamara, V. M. Manyong, A. Menkir, N. Sanginga, S. Schulz, B.B. Singh and S. Tarawali. He started by reporting the 2002 definition of INRM by R. Thomas:

***“INRM is an approach that integrates research on 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, ecoregional and global scales of intervention and impact”***

Continuing with elaborating on the ways for **Coping with System Complexity by Identification of the Key Drivers Effecting System Resilience**

**Key Drivers in the Savannah System** Soil fertility decline

- Heavy weed and insect pressure
- Lack of mechanization
- De-valued research & extension
- No input & credit support
- Inadequate market infrastructure

Several field experiences were reported; these are listed below with some key data:

Against **Soil Fertility Decline**, there has been increased use of Fertilizer and Organic Matter in Selected Villages in the DS and NGS Benchmark Areas

	Village Fertilizer	Organic matter	Fertilizer
	(% of farmers)		(kg N ha <sup>-1</sup> )
Zouzouvou	86	57	26
Eglimé	99	1	28
Danayamaka	100	46	43
Kayawa	95	35	38
Mean	97	41	40

With annual SOIL LOSS that in Africa CAN EXCEED 26 kg N, 3 kg P and 19 kg K / ha

**Noxious Weeds & Insects:** *Striga hermonthica* on sorghum, Integrated *Striga* Control

- year 1 Leg. trap crop, year 2 *Striga* res. Maize
- Effect of Integrated *Striga* Control on Maize Yields

**Botanical Insecticides:** promoted by 12 NGOs and NARS extension agents in Benin, Ghana, Niger, Nigeria and Senegal **On-farm participatory trial** comparing neem and papaya leaf extracts with insecticide treatment

**Devising and Adopting Sustainable Crop Rotations** Improved Rotational Systems

- Improved Maize Varieties
- Improved Grain Legume Varieties

- Improved soil fertility
- Improved IPM adoption
- Improved use of labour through mechanisation

**Improved Dual Purpose**

**Promiscuous Soybean-** results on Residual Effect Maize after Soybean at Mokwa 1995, 1996

**Dual-purpose Soybean for High Grain and Biomass Yields**

**Integrated Crop Management** (Organic / inorganic Fertilizer + Improved Maize Variety)

Effects on Maize Grain Yield in the NGS

**Best Bet Technology Seed Multiplication**

Farmer Informal Multiplication of Cowpea IT90K-2772

**Control Maize Striga Resistant, Maize Tolerant to Low N in Savanna**

**Cowpeas:** that show vulnerability to pod borers

An example of an **IITA Multi-crop Thresher** was shown through a picture

**Implementing Sustainable Cropping Systems at Ecozonal level:**

GPS Transect Walks Village Level KONUS LU Classification LGA / Watershed Level LANDSAT

Land Cover Classification State to National Level

- LANDSAT/SPOT Land Cover Classification Regional Level

**Empowering Communities through Knowledge Transfer**

Demonstration of BNMS Technologies

NARES Empowered: FFS for IPM

3,500 farmers through 15 NGOs and NARS extension agents in Benin, Burkina Faso, Cameroon, Ghana, Niger, Nigeria, and Senegal.

1999: 27 extension trainers, 125 farmers at 5 cowpea IPM farmers' field schools,

2000: 85 trainers, 185 farmers in 5 countries

**Facilitating Communities through Improved Input Supplies and Services**

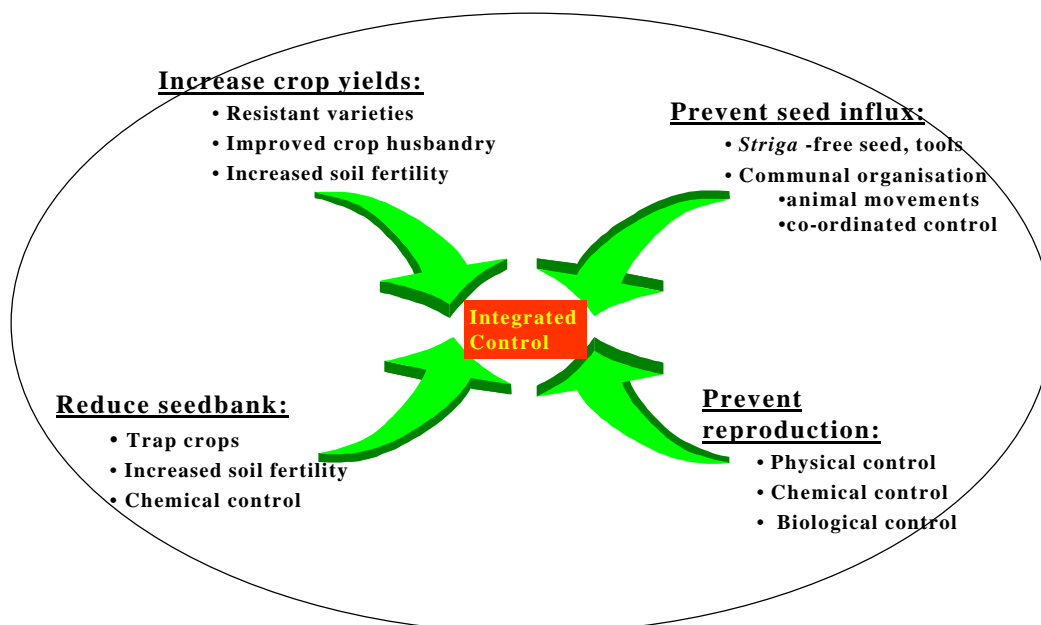
and a Policy Environment Conducive to Intensified Agricultural Practices

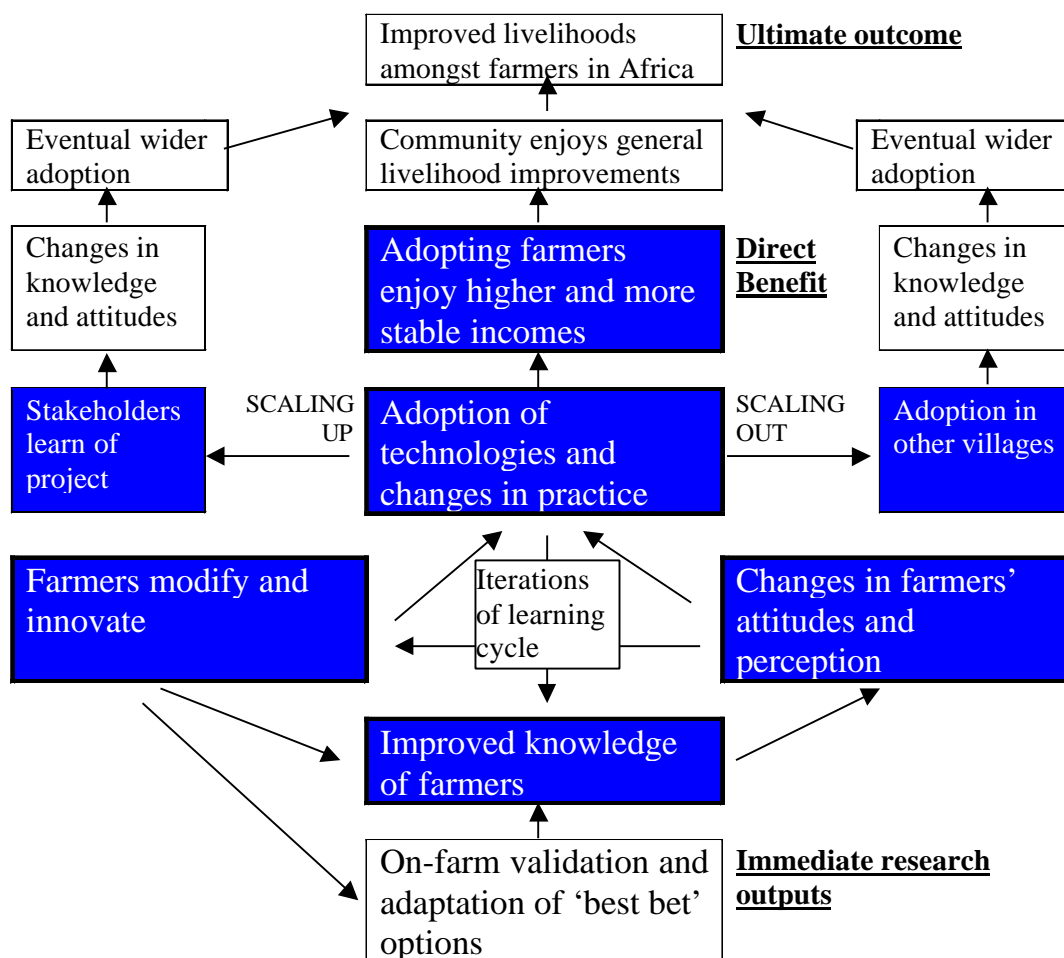
**Stimulating Competitiveness through Improved Market Services**

**Market Information Systems: Empowering Producers & Traders**

**Assessing the Impact of INRM**

**Best Bet Options for Integrated Striga Control**





**The following points were raised in the discussion of the paper in plenary:**

- some genotypes that cannot use N efficiently are still widely used: is this not unsustainable agriculture?
- before employing the thresher technology, was gender analysis properly performed?
- 'we' cannot empower, we can just create the conditions, build capacity, and social capital.
- the process of empowerment seems not to have covered the NARS.

## 2.3 Contending with Complexity: The Role of Evaluation in successful INRM; An output from the CoP on M&E. By Steve Twomlow

Paper by Boru Douthwaite, Rob Delve, Javier Ekboir, Steve Twomlow & Partners / Farmers, IITA  
CIAT CIMMYT, ICRISAT

**The Issues on Impact Assessment** Current best practice for economic evaluation in CGIAR is a reductionist approach that tries to establish linear links between project outputs and impact.

**When is traditional impact analysis valid?** There is a direct causal link from research to impact indicators

2. The link dominates all other relationships affecting adoption
3. These two assumptions are valid over the whole period that goes from the start of research to measurement of its impacts
4. Chance has no influence on the relationship between research and impacts  
The assumptions define a simple deterministic system

- Researchers want to maximize production and this can lead to technologies that require a high degree of management (high level of precision). Whereas farmers tend to want robust technologies and are prepared for lower potential returns for reduced risk and vulnerability

**But technology generation and adoption is an adaptive complex system**

- High precision technologies
  - Management specific (Ramisch, 2001)
  - Low precision farming systems
  - Broad range of management ability
- Traditional impact analysis asks the wrong**

- questions**
1. Lack of impact reflects limited adoption but adoption depends on many variables (not only research)
  2. Allocating impacts to research requires separation of causes but impacts cannot be allocated when many causes interact
  3. Impact assessment depends on the measurement of research inputs and outputs but these cannot be measured with a minimum accuracy

**What is a Complex Adaptive System?** The process has many agents interacting with limited information

Has several feedback loops

The process self-organizes by the interaction of agents following their individual plans

The process evolves by the interaction of trends and chance

**What is a technology space?** 1. The traditional analysis of technical change has focused on stability, separability of causes and control.

- In this framework, agents only interact through stable and predictable markets
2. Complexity theories emphasize multiple market and non-market interactions, change and unpredictability
- Because of these interactions, causality can only be attributed to the whole set of causes and not to its individual elements

**The Issues on Impact Assessment** Current best practice for economic evaluation in CGIAR is a reductionist approach that tries to establish linear links between project outputs and impact.

- - INRM takes a holistic perspective that sees technology change as a social process in which networks of agents (e.g. farmers, R&E, Government, Markets, NGOs etc) generate and diffuse technologies. Hence rural development is a complex process that follows a non-linear pathway. M&E is therefore essential to monitor impacts

**Three Case Studies on M&E** 1. Farmer participatory evaluation of legume cover crop and biomass transfer technologies for soil fertility improvement in eastern Uganda TSBF-CIAT

2. Impact pathway evaluation of integrated *Striga* control in Northern Nigeria IITA

3. Monitoring and evaluation of the dissemination of crop management options in Zimbabwe and Malawi ICRI SAT **Four Phases of the Innovation Process** Development - Innovators search for new technologies or economic alternatives

2. • Problem diagnosis and development of 'best-bet' integrated solutions
3. Start-Up - Innovators take 'best-bets' options with plausible promise to individuals and networks
4. • Experimentation
5. Adaptation - Adapt and refine into something better
6. Expansion - Adoption levels expand as communities adopt locally-constructed solutions
7. • Part or all of 'best-bets'

I am sure that this is not new to you but I wanted to highlight the importance of all stages of the research cycle. Any component of the process in isolation is meaningless and unless the linkages between research, adaptive research and farmer innovations are continuously fed back into each other in an iterative process we will never be able to move forward in any area of our work and address successfully the production constraints and opportunities of our smallholder farmers.

We all talk about FPR but are we really doing FPR?

Here is a slide from Pascal Sanginga showing the types of participation that exist

We are still working mostly in this area (circle on left appears) that is in contractual and consultative FPR - this is mainly the way we conduct germplasm evaluation and adaptation. We want to work in this area (circle on right appears) and this is collaborative, collegial, and true farmer experimentation

We are moving towards the integration of knowledge systems. Scientific knowledge has high certainty but in many cases low relevance to the farmers, whereas local knowledge has high relevance and low certainty. We want to integrate the two and move in this direction.

Farmer participatory evaluation of legume cover crop and biomass transfer technologies for soil fertility improvement in eastern Uganda TSBF-CIAT

- Problem diagnosis and development of best bets.
- Farmer assessment
- Identify farmer innovations
- Identify farmer evaluation criteria
- Conduct matrix ranking exercises based criteria

- Quantifiable results from qualitative data

**Examples are provided of:**

- **Matrix ranking of the LCCs and BT species based on farmers criteria** Representing Qualitative data transformed into quantitative

- **Distribution of acceptance frequencies: Number of times a species is ranked in particular position** To show how many times a particular species is ranked in a given position, for example, Mucuna was ranked first by 7 farmer groups, and second by another 5 groups. This data can be transformed into cumulative probabilities of how often a species will be ranked in a certain rank.

In another example we could see the cumulative probabilities of six species, as before we can see Mucuna is first 7 out of 14 times i.e. 50% and 7+5 times in position 1 or 2 i.e. 12 out of 14 = 90%. Further interpretation of these graphs can identify the probability of acceptance of a technology

Statistical analysis of the graphs using a probit analysis shows that for all species except Canavalia there are significant differences in the ranking by farmers (null hypo = the slope is no different from zero)

- **Farmer innovations with the LCCs and BT technologies** Farmer issues arising from legume research:

- Site to site and season-to-season variation

Management of legumes

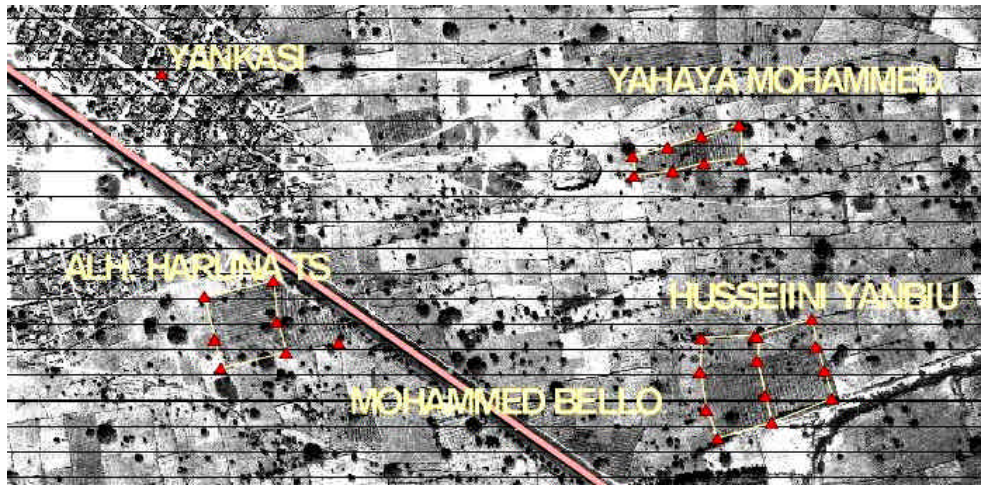
- testing new germplasm (multi-purpose)
- niche production on-farm
- labour requirements
- economic analysis
- time of cutting (herbaceous legumes)
- incorporation vs. mulching
- amounts to add (herbaceous legumes)
- rotation effects (multiple benefits)

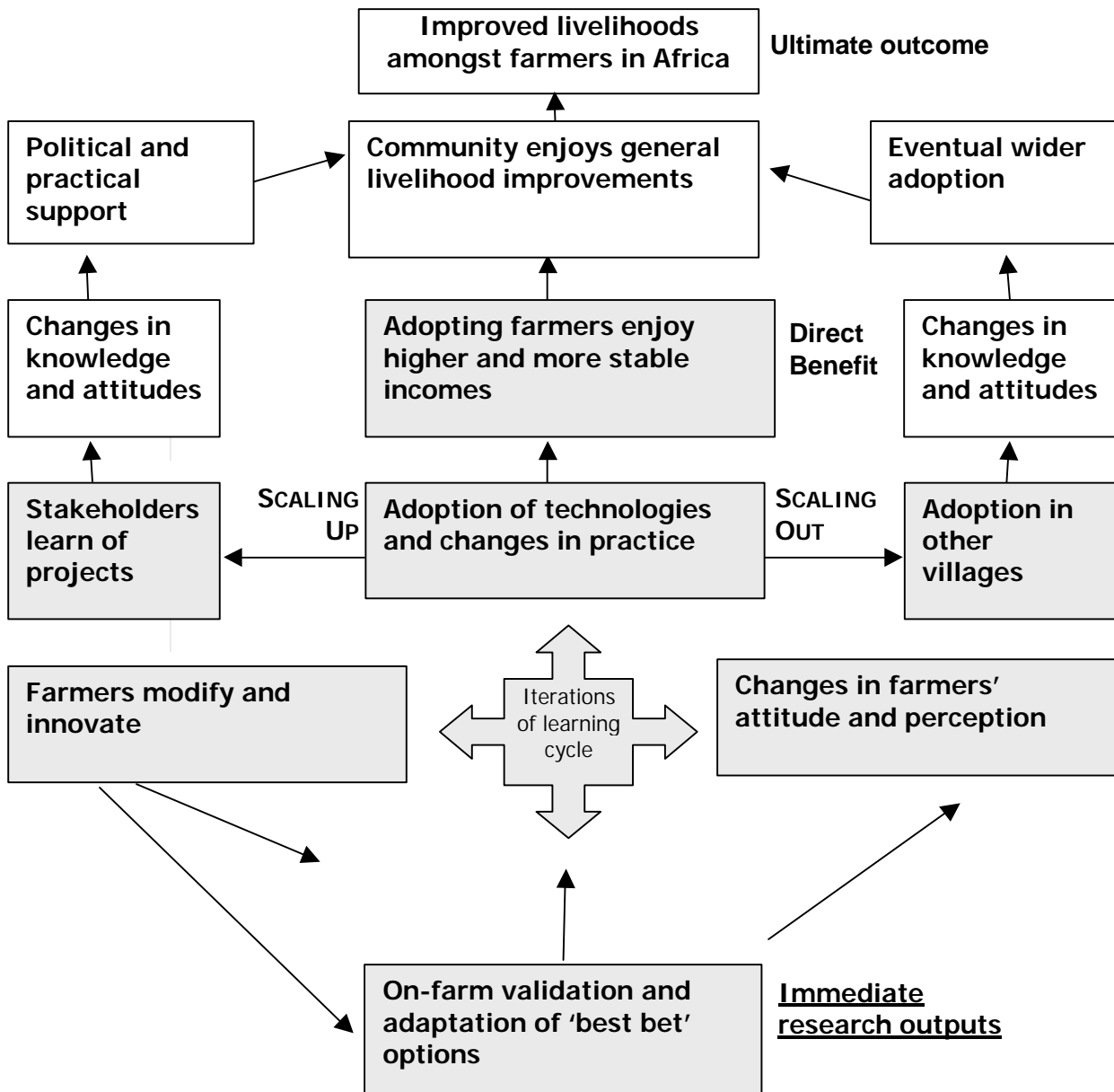
Quotation: *'It's better to have one gorogoro tin of maize than to be guaranteed no maize at all this season by planting a cover crop we cannot eat'*

### **Impact pathway evaluation of integrated *Striga* control in Northern Nigeria**

• Action research

- •Map actual adoption–Expansion in participating farmers' fields
- –Farmer-to-farmer diffusion
- –Questions (Who? Why? What? Where? When?)
- •Farmer modifications?
- •Selection decisions?
- •Promulgation?





**Follow the Technology (FTT)**

**Monitoring and evaluation of the dissemination of crop management options in Zimbabwe and Malawi ICRI SAT**

- •Provision of a broad range of SWMN options is better than a single recommendation
- •Hypothesized that female-headed households adopt manure and legumes in favor of inorganic fertilizer
- •Uptake would vary with wealth
- • Adoption follow learning by doing and learning by using
- • Agronomic Data
- • Economic Data
- • Farmer Preferences

### - Intensive training

- Comparison of acceptability of Technologies: Agronomic, economic, from the farmer
- Small quantities of fertilizer and manure-fertilizer combinations have high pay off
- Input-output markets drive legume adoption and intensification
- Legume intensification needs to target small households for food production and wealthier for cash income

**Conclusions**• Technologies exist that increase soil productivity/fertility and reduce the impact of *striga*, but many other factors prevent farmers from adopting them

- In a dynamic technology environment farmers assess the different management options available and adapt them to fit their own circumstances and production goals
- Criteria used for species selection and farmer innovations provide essential feedback to the participatory action research approach and identify new research areas

**What are the Lessons?**1. Recognition that innovation processes are uncertain

2. These processes cannot be controlled by any single agent

3. Impacts result from strong innovation networks

4. Uncertainty and instability are expected and failures as essential to learning and rapid adaptation

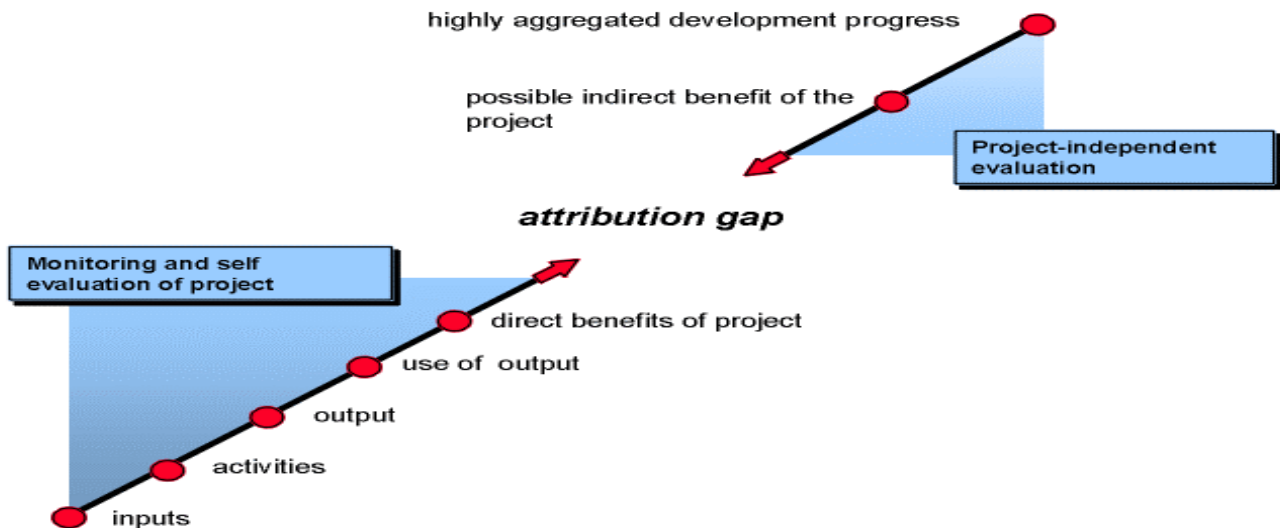
5. Balancing near and faraway searches

**Policy recommendations**1. Focus less on point estimations and more on learning processes

2. Focus less on dubious quantitative measures and more on qualitative assessment of research inputs

3. Focus on interactions with other agents in the innovation system

4. Review the whole set of incentives offered to researchers



### Plenary Discussion

- The donor community is not likely to be impressed by the list of impact assessment actions that have been presented.
- There are different types of uncertainty, however often his CG center used to focus on those that are easier to identify.
- How can we measure the process of impact assessment: by means of economic tools it is easy, yet ecological assessment is more difficult, as well as the social one?
- How do you cope with farmers disrupting experiments and trials? A fact that is often driven by lack of ownership of the research progress.
- A recent paper has proved that returns to investments on germplasm during one impact assessment exercise turned to be much higher than those resulting from assessing INRM research. There is need to assess the returns to investments at the integrated level.
- How did M&E use to provide feedback to researchers? Has M&E and impact assessment results changed researchers?
- How is impact assessment linked to ecosystems theory and evaluation?

## 2.4 The Experience of *Mashreq/ Maghreb* Project in Integrated Natural Resource Managements; by Kamil Shideed:

Kamil Shideed, on behalf of all MM teams, gave a presentation on the experience of the M&M framework, its current phase and future prospects.

**M&M Project Phase II: Implementing a New Vision of Development** Moving from individual farmers... to communities towards...

### Why a community approach?

- Strengthening decentralization by transferring decision-making power to local actors.
- Resource-based approach rather than a commodity one.
- Integration at various levels (i.e. technology and P&PR components).
- Multidisciplinarity and inter-institutionality

### Why a community approach for M&M Phase II?

- Stimulate farmers and communities participation in steering the development process;
- Facilitate technology transfer through a participatory technology development
- Promote collective action on the basis of a shared consensus;
- Help improving efficiently and rapidly life conditions.

### Implementing the Community Approach

What are the objectives of the adopted approach?

- Identify and evaluate key technology, policy and institutional options for sustainable development;

Draw insights on influence of policy and institutions on farmer response to new and improved technologies

#### 1. Selection and characterization

Criteria of community selection

- Annual rainfall (200-350 mm)

Barley- or range-based systems

Potential of crop-livestock integration

Representativeness of LRA

Existence of local institutions

Participation in the 1st phase (as individual farmers)

Potential to achieve a noticeable impact within the project life

Access to a common natural resource in the form of communal pastures or rangelands

#### 2. Process of community selection

- Visits and meetings with farmers and local institutions.

Understanding and characterizing of local institutions.

Four potential communities initially selected among which two were finally selected.

#### 3. Selected communities

#### 4. Conducting RRAs

Gender implication in RRA exercises  
 Conducting RRA exercises with farmers

**5. A characterized community**

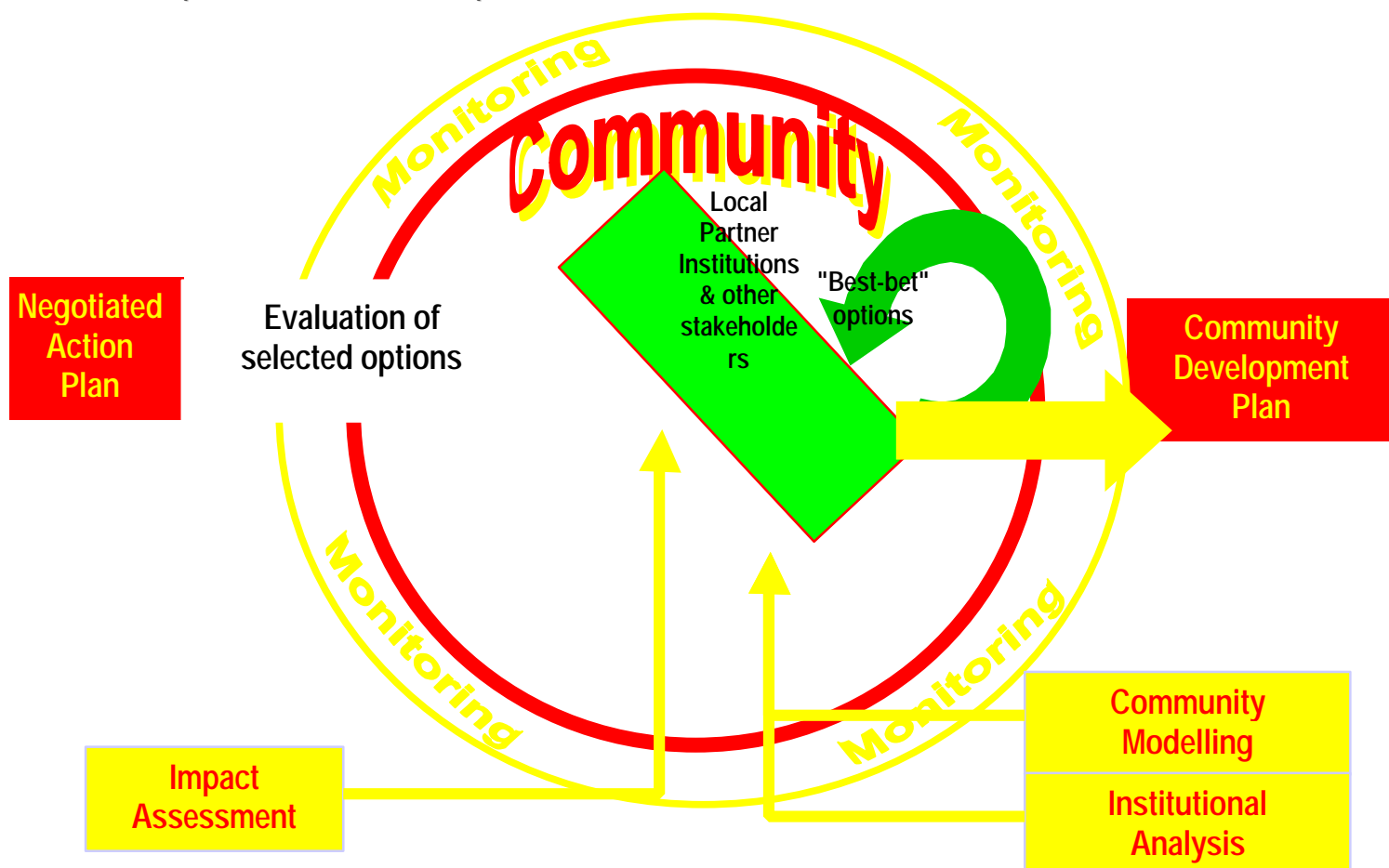
**6. Mechanisms for implementation**

- Setup of a M&M national team
- Establishment of a community-level team (farmers, ag. authorities, local institutions, M&M team, etc.)
- Identification of needs-based technologies and other intervention measures
- On-farm research for technology adaptation
- Monitoring & evaluation
- Collection of baseline information
- Impact assessment

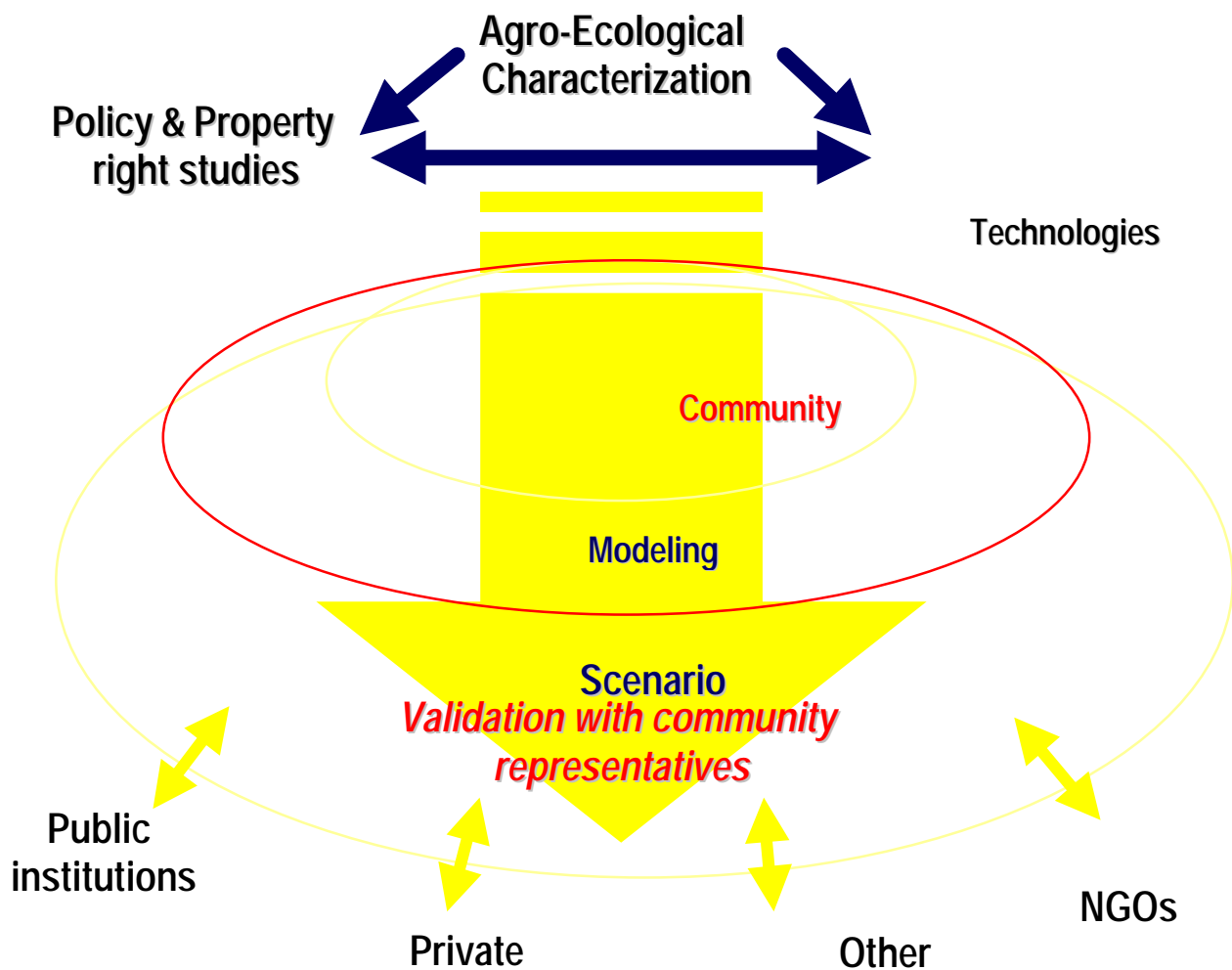
**6. Mechanisms for implementation**

- Undertaking of a PRA/RRA exercise to identify community constraints, suggested solutions, etc...
- Agro-ecological characterization of the community territory.
- Study of the community's institutional and policy-linked settings.
- Selection of a sample of households.
- Undertaking of a household survey.
- Implementation of a community modeling exercise.
- Design of a Community Development Plan.

**M&M Implementation Process – Step 2**



Summing up the community approach



Achievements, Lessons, and Constraints

1. Crop-livestock integration
2. Integration at various levels

- Crop-livestock integration
- Multi-disciplinary and multi-institutional team
- M&M team-community integration
- Intra-community integration
- National level integration
- Sub-regional integration
- Regional I ntegration

3. Strengthening working mechanisms

- Establishing working linkages with existing local institutions or help set up a partner local institution.
- Strengthening the role of the facilitator.
- Increasing the responsiveness of community members in executing critical activities (role of the Community Steering Committee).

- "Networking" all projects intervening in the environment of the community.
- Strengthening existing linkages with all local institutions and stakeholders.
- Setting up a "community day" (case of Lebanon).

#### **4. Bringing strength and confidence to the communities**

Due to their interaction with M&M project, many communities succeeded in attracting additional funding to implement some developmental actions.

- Sidi-Fredj (Algeria) is part of the Government Program on Poverty Alleviation and Exclusion Tackling (5 pilot communities).
- Sidi-Boumevdi (Morocco) succeeded to drain more than 500,000 US\$ from two NGOs (one Moroccan and one Italian).
- Deir El Ahmar (Lebanon) secured funding from USAID to create a feed block unit.
- Both communities in Tunisia secured funds from Sidi-Bouzid Governorate to build small feed block units.

#### **5. Strengthening linkages between communities and with (public) development agencies**

Due to their involvement in the M&M project activities, many (public) development agencies strengthened their linkages with the communities and proceeded with scaling-up. Others were a good mean of "pushing" technology adoption by communities.

- A Moroccan community has signed an agreement with Sidi-Boumevdi (an M&M community) to extend the project activities.
- Having joined the project in 1995, HCDS in Algeria is applying the M&M methodological tools with other communities (scaling-up).
- Having been part of the project since the beginning, OEP in Tunisia developed a working mechanism to enlarge the use of feed blocks by sheep-owners. This institution delivers FB orders to private sector, collect their production, and give FB to the sheep-owners as a kind of subsidies.

#### **6. Characterize Communities, Production Systems, Suggested Options**

#### **7. Working with Local Institutions**

#### **8. M&M Community Approach and Gender Implication**

- Gender implication got very important as women contribution to household livelihood
- Conduct RRA/PRA exercises for women.
- Nominate a female facilitator for women in the community.
- Organize workshops for women to complete data collection for base line information.
- A female household head is part of the Mahalabia community in Iraq.
- Female household heads joined in National Farmers Travelling Workshop in Lebanon.

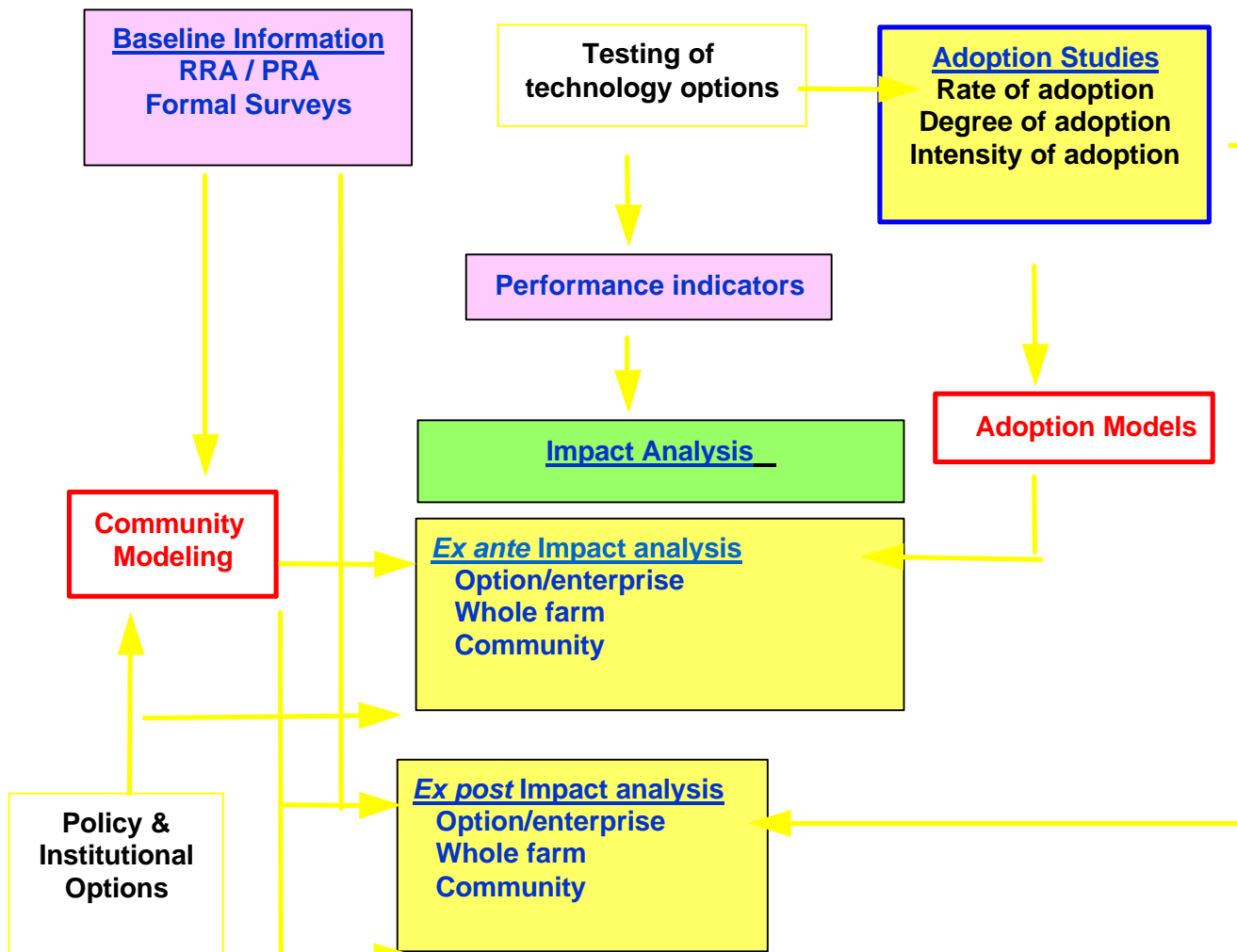
#### **9. Range management & rehabilitation**

#### **10. Range management & rehabilitation**

Side Fredj Community: Dissemination process, On-farm demonstration, Exchange of experience between communities

#### **11. Improvement of degraded rangeland by cactus plantation**

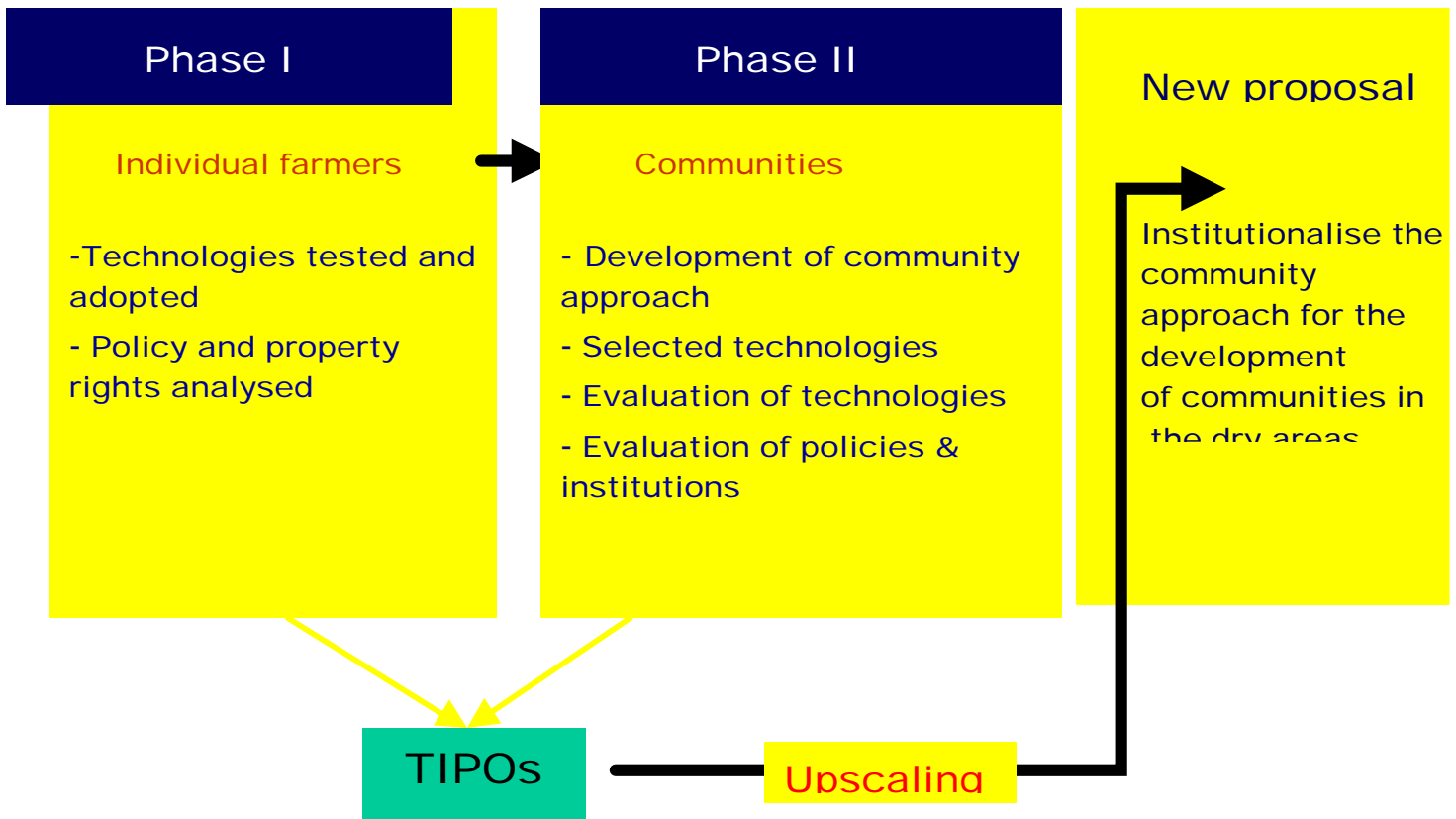
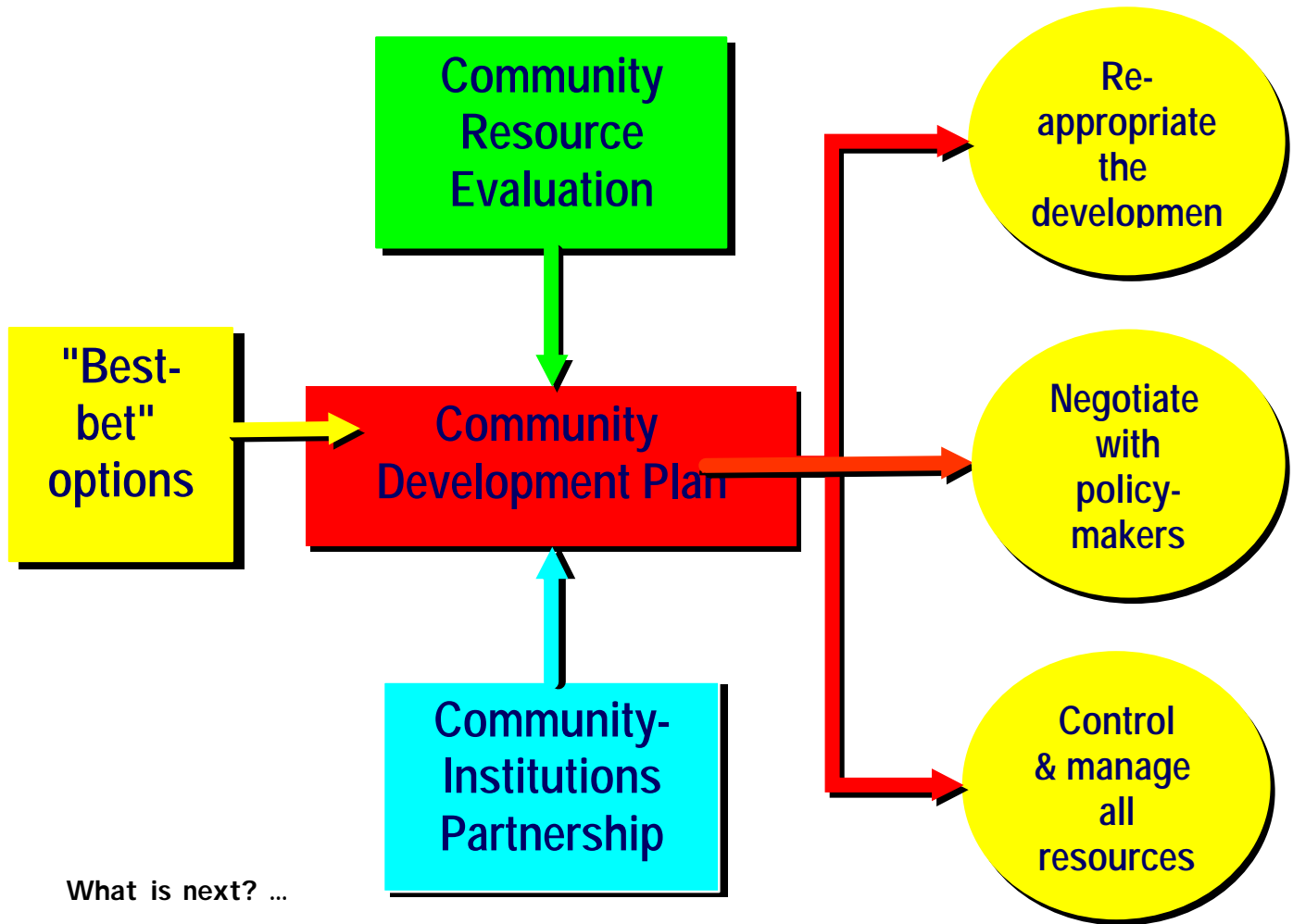
12. Combating desertification and provides valuable fodder bank
13. Transformation of the farming system
14. Adoption and Impact Assessment



**Difficulties & Constraints?**

- In some countries, community members are very reluctant to work with public institutions because of centralized decision-making process and other reasons.
- Community Approach- gathers different stakeholders with different "weight" (from weak to strong), with divergent interests.
- Civil Society organizations are not yet developed in all countries.
- Community approach is a time-consuming work because of long-time-span achievements.
- Shortage of human capacity (social scientists, social engineers) in some countries.
- Non-adapted extension services and reluctance to change.
- LRAs with high risk and uncertainty: Generation & transfer of technology is very slow

Where Are We Heading? Towards delivering a CDP for each community



## Plenary Discussion

- Can municipalities play a role in disseminating this approach by their own sub-plans?
- What was the role played by ICARDA and IFPRI in setting up the process. (A: coordination and technical backstopping)
- It is a diamond project, totally run by national programs. Communities and national programs took over the process quickly.
- Are there examples of countries that are ready to upscale the institutional component of the M&M. (A: example were provided: one on range rehabilitation in Tunisia, and another one in Iraq)
- Cactus, wind erosion, desertification: why not testing Cactus spinosa? (A: the national programs are deciding on that)
- The negotiating plan approach was appreciated. In the middle of the model that was presented there the role of local institutions was spelled out: yet clarifications are required on problems faced in involving local institutions (A: key farmers play major roles in the community: first we should ask farmers what in their view we should be doing there, then we should contact provincial authorities. Then, how can you sustain these efforts? By asking the local actors to taking the responsibility.
- There must be a way to quantify the impact of the approach.
- Is institutional and decentralization a precondition for success?
- How can Nigeria be exposed to this M&M experience? In Nigeria it is customary to work with many institutions such as FAO, etc. but the way to involve institutions and communities is new to the contributor of the question.
- It is believed that the cross-disciplinary concept may be more appropriate than multi-disciplinary.

## 2.5 “Integrated Land and Water Management for Food and Environmental Security” by F. Penning de Vries:

Frits Penning de Vries, from IWMI, gave a presentation entitled:

“Integrated Land and Water Management for Food and Environmental Security” from research to action with special attention to degradation and rehabilitation. Jeff Sayer and Bruce Campbell very well captured the INRM approach: “Research to integrate productivity enhancement, environmental protection and human development.” Conservation Ecology, 2002.

“Towards adaptive capacity” The Approach: learning together for change

The key Principles:

- going to scale but remaining practical
- multiple scales of analysis
- decision making processes
- plausible promises
- scale up: going beyond the specific

The Tools:

- confront complexity
- systems modeling
- decision and negotiation support tools
- multi-scale databases
- impact assessment

The Analyses take place at two levels:

- regional degradation: main topographies and issues; output: INRM policy and research advice
- local degradation, communities with ‘bright spots’; outcome: how to create more ‘bright spots’ (INRM in practice)

Integrated overview, leading to advice for policies and research

1. Regional analyses: Background:

- IWMI: water AND land resources
- WB, GEF, WSSD
- Comprehensive Assessment
- 15+ authors and contributing institutes

Components:

- data on soil and land degradation
- degradation reduces livelihood options
- ‘strip mining’ the land suitable for farming
- in 20 years, lack of groundwater turns ‘green’ to ‘red’
- Headwaters, plains, coastal zones, (peri-) urban zones

The case of ‘Headwaters’:

- erosion, nutrient depletion, water pollution, de-vegetation, less regular streamflow
- degradation reduces household food security and environmental security

The case of the ‘Plains’

- processes: groundwater depletion, salinization, nutrient depletion, water pollution, de-

vegetation and wind erosion

- threatened: national, regional food security, environmental security.

The case of 'Coastal zones':

- processes: sea water intrusion, desiccation of rivers, pollution, sedimentation
- consequences: reduced regional and household food security, environmental security

The case of 'Urban and peri-urban zones'

- processes: changes in hydrology, subsidence, soil and water pollution, use of water and land for other purposes
- consequences: reduced environmental security (health) and household food security

The major Lessons learned

- Learn from 'bright spots'
- benefit of integrated analyses of degradation problems and solutions
- Need for lower cost technologies and management practices
- Importance of incentives for investments in land and water resources
- Value of participatory planning and implementation
- Critical role of enabling public policies

Categories of detailed policy suggestions:

- Mainstream integrated approaches to land and water management
- Strengthen the enabling environment for integrated land and water management
- Adopt more widespread good management practices and environmentally sound technologies
- Strengthen partnerships as a means to implement priority actions

Approaches for research:

Sayer & Campbell: "deal with full complexity of INRM, but realize that complexity is not boundless"

CA-RP1 on research approaches:

- priority to be given to marginal areas, hotspots
- it should be holistic, people centered
- integrated, multiscale perspective
- interdisciplinary, inter-institutional research
- utilizing existing knowledge
- long term monitoring
- landscape scale experiments to understand
- modeling to be employed to explore scenarios

Issues for research:

CA-RP1:

- food security: capabilities of less favorable areas?; basic data; intensify sustainably; rights to access
- poverty reduction: linkages farm and upstream to non-farm and downstream?, accelerate technology adoption; farmer investment strategy?

- environmental security: impacts of degradation on the larger scales?, thresholds values?, alternative purposes?
- legal frameworks: ownership of natural resources; providing instruments for implementation.

### BUT THERE ARE ALREADY MANY SMALL "BRIGHT SPOTS"

Marginal lands are often highly variable in natural resources, and variability also provides opportunities! Marginal areas may have a high potential in production value!

#### Local level analyses

- 'Bright spot' is a community in a degrading situation that reverses the downward spiral
- What was the cause of a 'bright spot' in a degraded area?
- How can you repeat that many times?

#### Tasks

- Identify 'bright spots' in marginal areas
- Describe what makes it a 'bright spot', and how it started (e.g. leadership, skills)
- Create a guideline for creation of 'bright spots' in degraded areas
- Map 'bright spots' for geographic targeting
- After 2004: promote more 'bright spots', with CP-WF, NGO's and GO's

#### Project group, since August

- CIAT (Ayarza)
- IFDC-Africa (Breman invited)
- ICRI SAT (Wani)
- IRD (Valentin)
- IWMI (Noble, Cofie, Bossio, Mehmood, FPV, ...)
- Scherr (UMD)
- TNAU (Thiagarayan)
- UB (Hurni)
- WAU (Van Keulen)

**The presentations provided a good perspective where INRM in practice is at present. The discussion on the issues and lessons in the small groups brought out interesting challenges**

## 2.6 Lessons and insights from Practice - Synthesis Report

By Frits Penning de Vries and Francis Turkelboom

New lessons learned from the introductory presentations and case studies.

1. Measuring of success of INRM should be done in 5 (sets) of dimensions, which can be expressed assets. The five assets relevant for INRM are: natural, physical, human, social, and natural capital. More than a coarse quantification of those assets is still difficult. Successful INRM implies: use of all assets by the farmers and their communities is sustainable and productive.

2. Nearly 10 million farmers in developing countries have adopted 'sustainable farming', most of them since Rio 1992. Improvements are generally seen in better functional knowledge, 'growing the soil', 'more crop per drop', more organizations in the community, higher profits from products by direct marketing. While their number is still relatively small, the sudden acceleration is a very positive sign that the needs for a new way of use of natural resources are recognized, and that the conditions to do can indeed be met. We should study what has lead to these 'bright spots', and apply this understanding to other areas, and thereby further accelerate adoption of sustainable farming. The Mashreq/Maghreb project in WANA is a nice example of a bright spot.

3. We should recognize that further development of bright spots in time and in space may pose new problems, such as: one stakeholder group may grab power beyond its 'fair share', use of much natural resources may limit neighboring communities to do the same (as in use of animal manure derived from grazing on common lands), new roads that help direct marketing also allow faster deforestation. Where possible, such secondary backlashes should be anticipated.

4. For INRM-projects, it is important to have a vision where the project is and where it aims for in time (where it comes from and goes to), in space (how other parts of the environment may interact in the future) and in the political/social dimension (future of the village, households, population density, etc). While this vision, developed with the community, may have to be revisited from time to time, it gives a good basis for communication with organizations outside the project.

5. Aspirations of many young persons in farming communities include having a more attractive job than their parent-farmers. Development of off farm employment in rural and urban areas accommodates already many youths; a few choose positively to find a future in farming. This poses the challenge to the sustainable development of social capital. One answer to this appears to be the accelerated introduction in rural areas of modern methods of information provision (through computer, internet) and the introduction of modern and resource-efficient and environment friendly technologies.

6. While indigenous knowledge (part of the human capital) can be a very valuable complement to scientific knowledge, particularly for local situations, we should also recognize that in many cases, households came to the land they now farm only in the last generation and have not yet build up a high level of this knowledge. The same applies to social capital (i.e. organizations, rules): this is typically much smaller in 'new' communities than in 'old', and this

has important consequences for the community's ability to adopt 'sustainable farming' practices.

7. While methods for scaling out to 3-10 villages are available, we do not have them for the next level of scaling out to 100 or 1000 communities. Networking from bright spots may be an option.

8. Traditional impact analysis applied to INRM asks the wrong questions by trying to connect a cause to a few outputs. This focuses on one or two 'assets' rather than the full set. Reality is so different that the answers obtained are not meaningful.

9. We need to include more explicitly genetic resources in land & water talks.

10. The discussions among participants on the presentations of the first day gave rise to several sets of issues for further research and action. Most of these were addressed in working groups later in the meeting. These sets of issues were:

- a. how to build social capital, empowerment, negotiation, facilitation skills?
- b. need for further synthesis of 'lessons learned'.
- c. need for more linkage to practitioners of INRM.
- d. need for more connection to the Challenge Programs: "soil/land degradation should be in all relevant CP's" .
- e. what should be the future of the INRM-task force, INRM-workshops?
- f. new methods are needed for INRM impact assessment and for monitoring and evaluation for INRM.
- g. what institutional arrangements are needed to make INRM work in research and in implementation?
- h. more knowledge is needed about scales of intervention and integrations.
- i. national and local policies, and their development, should receive more attention.
- j. off farm income is already quite important in many marginal areas, and should receive more attention in INRM research



## ***3 Getting 'grounded' in reality: Field visit to Khanasser Valley***

### **3.1 Background and objective of the fieldtrip**

Khanasser valley is located approximately 70 km southeast of the city of Aleppo, and the study area covers 453 km<sup>2</sup>. The agricultural area and the natural rangelands of the steppe meet in the valley, which lies between two hill ranges. Cultivation is concentrated at the valley floor and at the lower foot slopes, while the stony slopes are mainly used for grazing. The northern part of the valley drains towards the Jabbul salt lake and the southern part drains towards the Adami depression in the south. These biophysical features result in a diverse and dynamic ecosystem, with several NRM-related problems. Livelihoods are fragile, risks multiple, and farmers' choices constrained by limited resources, policies, and institutions. People are generally poor, seasonal male migration to cities and abroad are very common, while the workloads for women are heavy and further increasing.

Khanasser valley has been selected by ICARDA's Natural Resource Management Program as an integrated research site to address problems that are characteristic for the marginal dryland environments (Khanasser Valley Integrated Research Site' or KVIRS). The diversity and dynamics of the natural resources and livelihoods, poverty and the relative easy accessibility made Khanasser a prime candidate.

#### **Objectives**

The objectives of KVIRS project are two-fold:

1. LOCAL: To stabilize and improve the rural livelihoods in Khanasser valley by developing options and scenarios for alternative natural resource management.
2. GLOBAL: To develop a participatory, integrated and transferable approach for the analysis of resource degradation and the design and evaluation of alternative resource management options, which can be applied beyond Khanasser in a spectrum of dry area environments.

The approach for INRM research as discussed during the INRM Penang workshop (Sayer and Campbell, 2001) was used as a starting point to organize the KVIRS strategy and was slightly modified. The tools are organized as follows:

- i. Diagnostic tools.
- ii. Process tools.
- iii. Problem-solving support tools.

As KVIRS is still in an early stage of the project, concepts, approaches, and strategies are still being developed. During this field trip, the aim was to share the present progress and to solicit recommendations and suggestions of the INRM 4 participants.

In total there were 5 stops, each focussing at the application of a certain INRM tool. These are described in the program.

**Program of the fieldtrip**

- 07.30 Start from Chahba'a El-Sham Hotel to Khanasser valley.
- 08:30-09:00 Stop close to **Jabbul lake**.  
Subject: General introduction to the project.  
NRM example: Sustainable use of the groundwater resources and salinization.
- 09:15-10:00 **Atshaneh village**.  
Subject: Methodology to select best-bet technologies and links to livelihoods.  
Example: Fattening.
- 10:00-10:15 Tea & cake-break.
- 10.30-11:30 **Serdah village**.  
Subject: Multi-scale approach.  
Example: Rehabilitation the degraded slopes by olive orchards.
- 11:30-12:15 Route by Silk Road.
- 12:15-12:45 **Hammam village**.  
Subject: Diversity and resilience of livelihoods.  
Example: Hammam (livelihood changes, migration, impact of policies).
- 12:45-13:30 Lunch in Bedouin tent at Hammam village.
- 13:30-14:00 **General discussion**.  
Subject: Stakeholder cooperation + general issues.
- 14:00-14:45 Route by Khanasser- Harbakieh-Hobs- Shallaleh Sghireh.
- 14:45-15:30 **Shallaleh Sghireh village**.  
Subject: PR approach for KVIRS.  
Example: Qanat.
- 15:30-17:00 Return back to Aleppo.



## 3.2 Processing experiences of field trip to Khanasser

In order to generate more lessons learned from the field trip to Khanasser (KVIRS project), the following question was asked to the '5 tables':

### *Task for table groups*

*"What are the impressions, lessons, and suggestions you would like to communicate to the ICARDA team?"*

The table groups came up with numerous interesting observations and suggestions that are summarised below:

#### **Methodology**

- KVIRS is considered as a new type of project: 'research for development', although others suggested the need to agree on focus: R&D or R-for-D or R-on-D?.
- Emphasis should be on participatory research, so it can move towards development.
- Sequence from research to extension.
- Diagnosis is too long. On the other hand, someone else found that diagnosis is a continuous process and should not stop after 1 or 2 years.
- Value of this project is the methodological approach.

#### **Up and out-scaling**

- The investment into Khanasser cannot be justified by the limited number of people alone. Therefore the project needs wider implications. There is a need to compare Khanasser with other similar sites, and to learn lessons from other similar and contrasting environments.
- Up scaling need to be planned from the start, and it is important to extract generic lessons for early scaling up/out.
- KVIRS should not ignore lessons from the past. Retrospective studies and triangulation could help to understand what have caused change. Archaeologists and/or geologists could be involved. Potential questions: What was the vegetation in the past? Why the old terraces were abandoned?

#### **Inter-disciplinarity**

- There was an impression of 'multi-disciplinarity' instead of 'cross-disciplinarity'. More integrative look is necessary from the start, and cross-disciplinary knowledge needs to be promoted. This might need other mechanisms need for planning as a team.
- There is a need for negotiation skill capacity to solve conflicts. The negotiation process could be helped by models to evaluate negotiation options, but also farmers could collect data necessary to solve certain conflicts.

### Community / Stakeholder cooperation

- Plan start future scenarios at the community level with all involved stakeholders. Envisioning tool is useful for this purpose. In this way, integration will be easily obtained.
- Need to strengthen the human and social capacity in every community. Need for community organisation/institutions for change, and communities should be empowered to experiment.
- There needs to be a focal point in every community. On the other hand, someone thought in order to get impact there should not be too much scatter of the experiments.
- Building trust with farmers needs TIME.
- Improve linkage with the government institutions.

### Livelihood options

- Need to look at multiple livelihood strategies and risk management strategies.
- Appreciate that change is related on the face of risks or improvements defined by the people on the ground.
- Khanasser is an extreme environment. Therefore, we also need to look at non-agricultural and off-farm options. On the other hand, what is the comparative advantage of ICARDA to support non-farm/agricultural strategies?
- Need to include health issues.
- Property and tenure issues need attention
- Assess the potential impacts on major external factors on livelihood, and possible long-term future scenario's. For example: What if policy changes, a major drought occurs, markets change (e.g. sheep import of Australia?).
- Is there a future for agriculture in this area, or should we abandon this area and let return it back to its natural state?

### Technical level

- Are there enough short-term benefits?
- More technical options needed.
- Technologies for marginal areas should be simple, have limited risk and incremental steps.
- Technologies should not be too site-specific, if upscaling is aimed at.
- Without water there is not much future for agricultural + research. Need to look at water-use efficiency.
- KVIRS could try *Cisifus pistachia* (?).
- Look at hidden subsidies in research experiments. If you want farmer to farmer diffusion, don't allow hidden subsidies!
- Use the word 'practices' instead of 'technologies'?

**The major issues were recorded on cards and later clustered together with all the issues, lessons and challenges coming out of all the presentations.**

## ***4 Challenges, Lessons and Insights in putting INRM into practice***

### **4.1 Insights and issues emerging from the presentations and the field trip**

The short discussion groups raised the following issues during the presentations and the field trip. They were clustered and then group were formed for further processing them.

#### ***Community development, empowerment, and participation:***

- Community approach well developed.
- Community participation important.
- Development of TIPOs and community development plans are innovation to learn from.
- Negotiated action plans.
- How to “empower” farmers and community.
- Be careful of “empower” (instead: help people to take power).
- Diversity within the community calls for specific adaptation for specific households.
- Financial support/commitment to communities.

#### ***Building social capital:***

- Need to strengthen civil society in rural areas.
- Importance of local Institutions for community development.
- Imbalance between effort to increase technical capital and efforts in social capital.
- Increasing productivity and environment equity.
- Incongruence between the power to influence and the consequences of activities.
- Farmers driving the research agenda think about tomorrow.
- Can the starving poor afford to think about tomorrow?

#### ***Impact, M&E***

- Changes are longer term and deeper seated.
- We need new impact assessment for INRM.
- Need new tools to measure impact.
- Spill over impact evident (community approach).
- Challenge: Measuring education benefits for children arising from developing INRM.
- Attributing real impact in INRM needs to recognize uncertainty.
- Impact + ADP outputs not quantified.
- If quantification of impact is impossible, how to convince donors?
- Does embedding impact in the project invalidate the objectivity of assessment?

- Are there robust decision support tools to improve INRM adoption?

#### *Landscape services*

- Need methods for forceful expression of public goods value of systems.
- The value of the landscape good use has to be paid by urban areas.
- Degradation is often hidden by adding inputs or mining resources.
- use the landscape as a water factory and put the price for its conservation.

#### *Scale of intervention & integration:*

- How to relate the social and the biophysical landscapes.
- Old generalization don't work, we don't have new ones to replace them!
- Family → community → region.
- Farmers → micro watershed → micro watershed.
- Technological and policy options in context of integration.
- For technical options: Clear link to policy and institution.
- Scale of analysis/intervention should be appropriate to the problem type.
- Not excess integration, but optimise level of integration.
- Identify key drivers in complex systems.
- Holistic/inter. approach + need to priorities action/best bets.
- Need to better operationalize the term "marginal".

#### *Scaling up/out:*

- Difficulty of scaling up due to different decision-makers.
- Small scale + complexity => Difficult to scale up/out.
- How can we mainstream successful INRM experiences, especially across different cultures?
- How can community planning be scaled?
- How to convert on-farm yield increases into sustainable market opportunities?
- Learning + scaling-out from "bright spots".

#### *Learning for approach development and institutionalisation*

- Adaptive learning is key to success.
- Encourage more vigorous cross-country exchange (south-south) (west-south-west).
- Drawing experiences from other countries.
- We must talk about failures, as well successes.
- The necessary social/economic/scientific infrastructure for complex INRM may not exist in all countries.
- Role of CGIARs to assist decision makers at different scales.
- What should the IARC role be in community development projects?
- Facilitation of INRM.
- Institutional arrangements to make INRM work.

*Messages / knowledge:*

- Messages, messages, messages.
- Is diversification a realistic future for tropical farmers?
- Are the local species + farmer knowledge the key to feed the future generations?
- Broader bandwidth to include non-economic values.
- How to improve the natural pest control.

The group work on those issues is documented below, after the next chapter



## 4.2 Revisiting the Conceptual Framework for INRM developed in Penang and Cali

*(presentation by Richard Thomas)*

After the presentation and discussion of practical experiences in INRM and the exposure to the practical situation in the field in Syria, it was important to reflect back to the conceptual framework, which was developed by the INRM task force in the Penang and Cali meetings. A presentation by Richard Thomas helped to reach the common understanding and to take this framework into account in the following group work on operationalisation of INRM

### Richard Thomas's Presentation:

#### What is Integrated Natural Resources Management?

- What is INRM?
- What would success look like?
- How do we achieve it?

**INRM is an approach that integrates research on different types of natural resources into stakeholder-driven processes of adaptive management and innovation to improve livelihoods, agroecosystem resilience, agricultural productivity and environmental services at community, ecoregional and global scales of intervention and impact**

INRM has emerged as a necessary approach to solve problems of agricultural communities

Germplasm alone is not enough, need to conserve/enhance natural resources to gain benefits of improved germplasm.

Farming systems approach was too descriptive, looked in from the outside and did not understand processes, extrapolation difficult

In parallel there have been paradigm shifts in agricultural research:

- From agronomy to ecology
- From analytical research to system dynamics
- From top-down approaches to participatory action research
- From prescriptive approaches to adaptive learning and management
- From factor-orientated management to integrated NRM

#### What would success in INRM look like?

There would be improvements in livelihoods, system resilience, system productivity and environmental services that benefit many people over a large area

#### How do we achieve it?

INRM functions via:

- Empowerment of relevant stakeholders
- Resolving conflicting interests
- Fosters adaptive management capacity

- Focuses on key causal elements (reducing complexity)\*
- Integrates levels of analyses
- Merges disciplinary perspectives (SLA approach)\*
- Makes use of wide range of technologies
- Guides research on component technologies
- Generates policy, technological and institutional alternatives
- Focus on improving the adaptive capacity of stakeholders to increase resilience of the agroecosystem (ecology, social, economic)
- Move from training to social learning
- Focus on knowledge management (how does knowledge flow, how to connect people in different ways)
- Focus on increasing the awareness of the environmental cost of bad NRM (ecological footprint concept)

**Some new approaches in INRM**

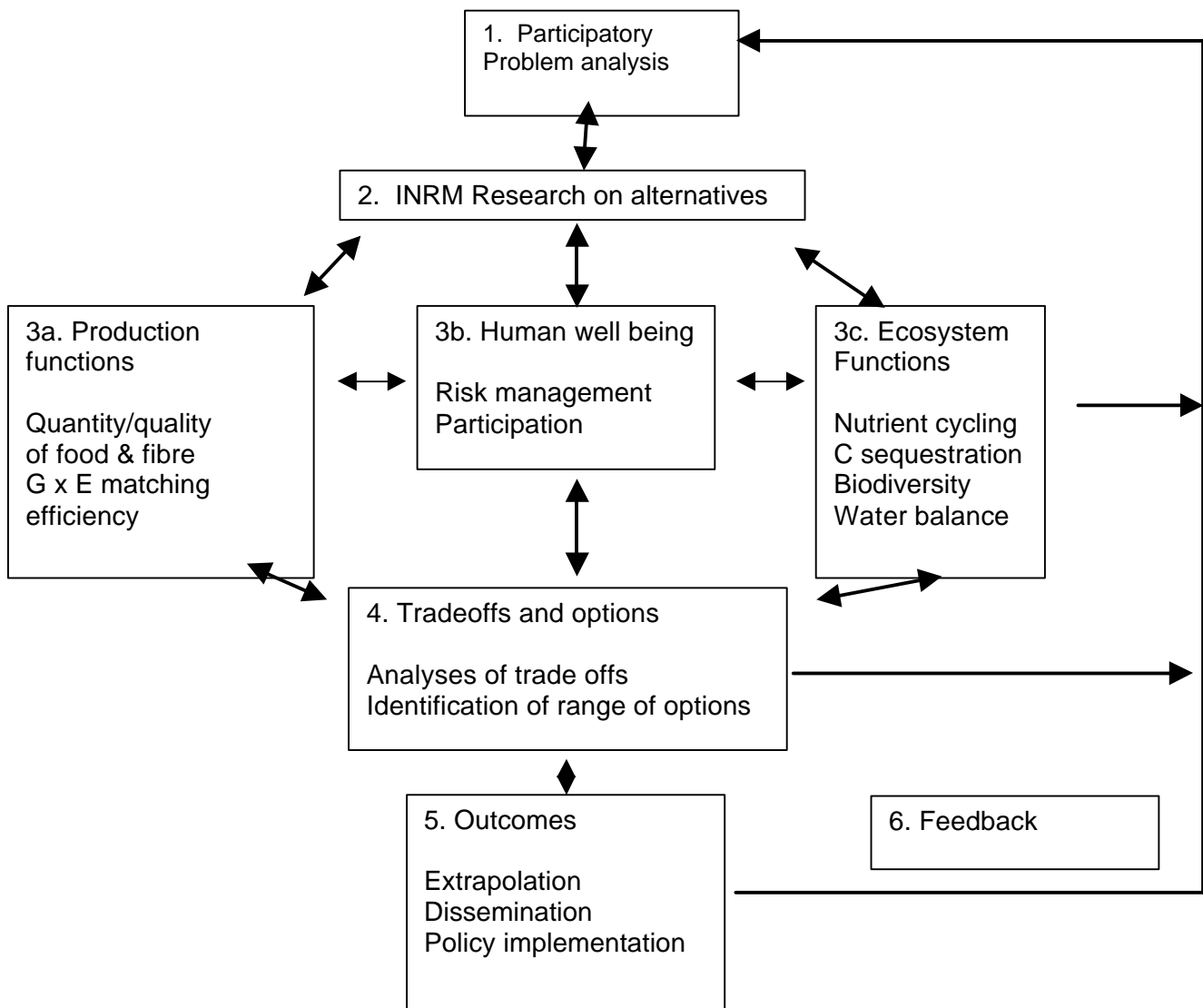
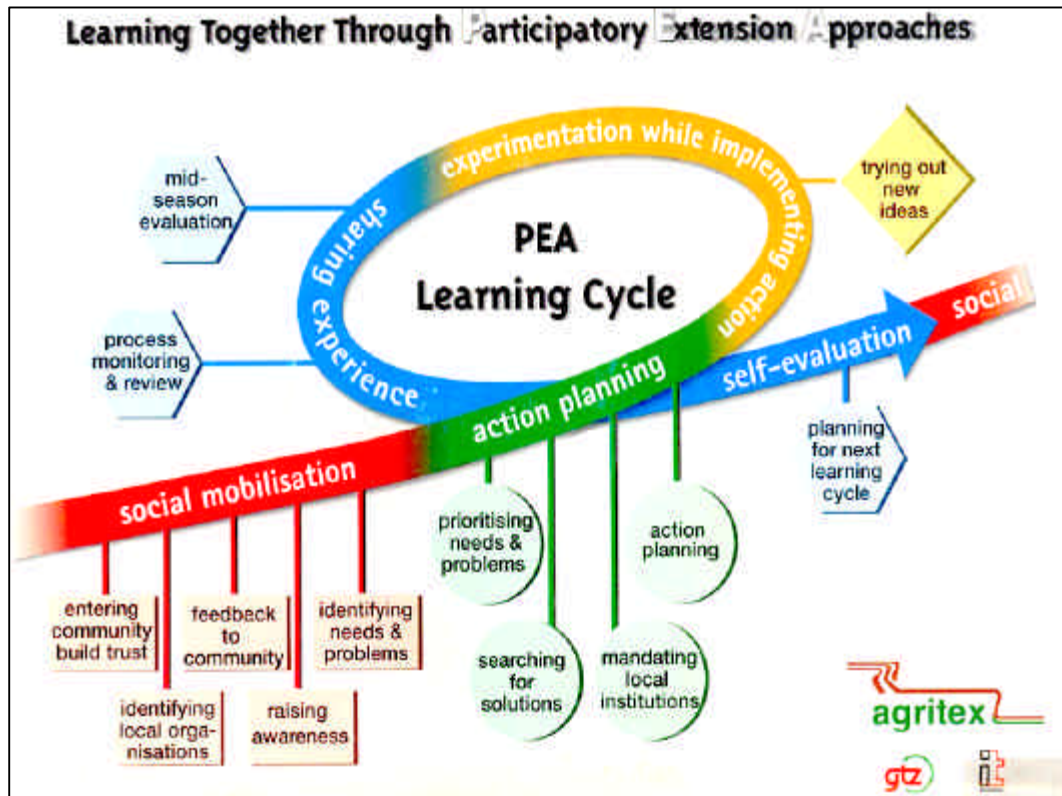
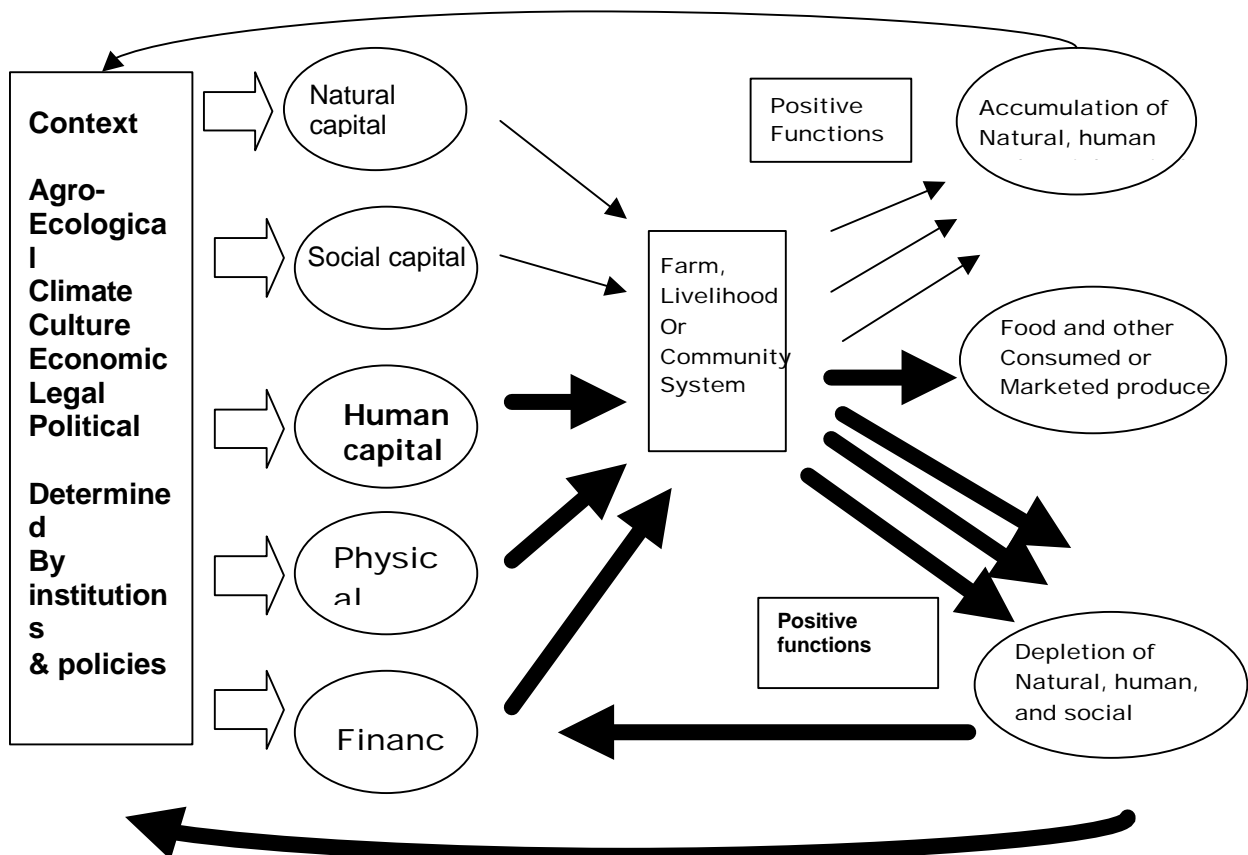


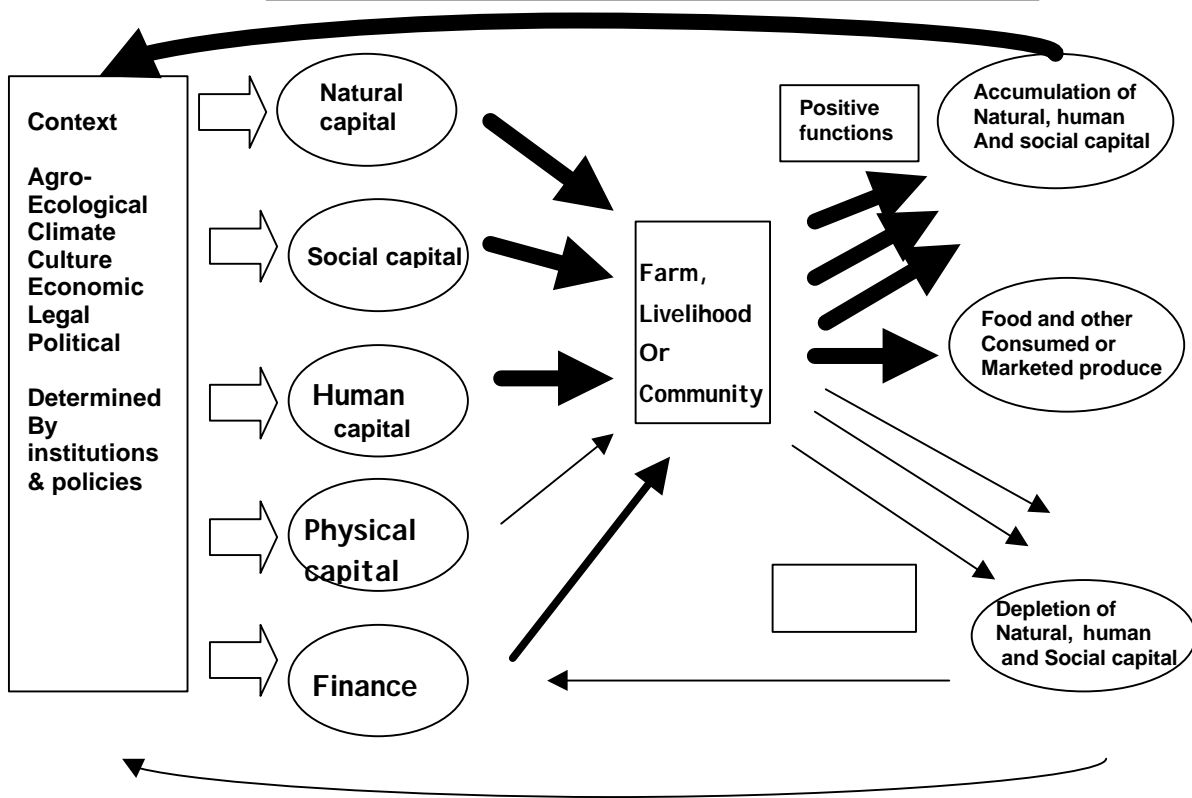
Fig. 1. Model of INRM Research Process (Hagmann et al, 1998)



Assets-based model of agricultural systems – flows and outcomes of modern systems



**Assets-based model of agricultural systems – flows and outcomes of sustainable systems**



**What are the critical factors for success in INRM?**

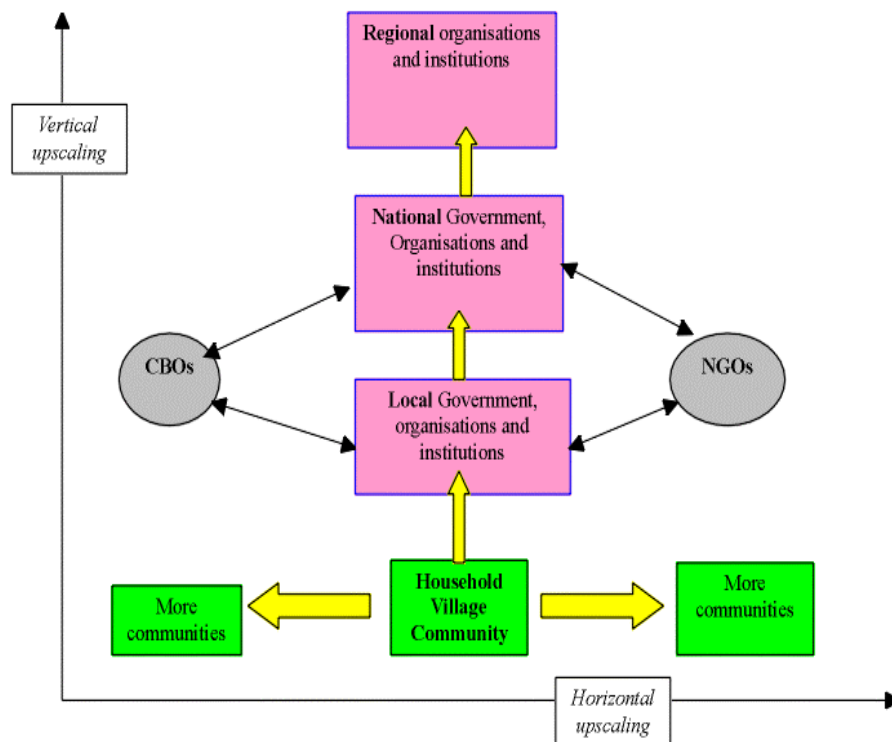
- Must provide benefits to people in the shortest time
- Needs long-term commitment & trust by a core group to a site or issue
- Needs good governance & long-term financial support
- Needs careful choice of partners from research to development
- Building of strategic alliance and trust
- A framework to build trust and effective communication
- Requires transparent communication
- Identify the problem and desired outcomes
- Entry points must be a NR problem
- Interdisciplinary science/local knowledge approach
- Needs social learning to build common understanding/social capital
- Involve donors and institutions with adaptive rather than prescriptive approaches
- Implement stakeholder participation at all phases of research
- Need to identify key 3-5 system drivers (diagnosis)
- Understand what causes changes in 3-5 key variables
- Work on a problem simultaneously across at least 3 different temporal and spatial scales

**Targeting? Do the poor degrade the environment?**

- Poverty is not always the driving force behind degradation – the rich degrade also and on a bigger scale
- The poor do also but on a limited scale and they can regenerate degraded land and in so doing so can improve livelihoods especially where resource degradation is tightly linked to poverty. This represents perhaps the best opportunity for CGIAR centres to tackle poverty and the environment at the same time.

**Where is our biggest challenge?**

- Moving from discipline-based groups to interdisciplinary teams with better competencies for process-orientated action and systems research



### What are implications of INRM for genetic resources management?

- Germplasm evaluation and targeting
- In situ conservation and GIS
- Role of germplasm in maintaining ecological services
- Germplasm often the entry point for NRM to build trust, quick benefit for land users

### Are there successes?

- Many examples at a small scale
- For example Pretty et al site 208 cases from 52 countries where 8.98 million farmers have adopted sustainable agricultural practices & technologies covering 28.9 m ha
- 88% report better use of locally-available natural resources
- Still lacking is access to finance, added value through processing and ways to link farmers to markets/consumers

### All successes were characterized by:

- Enabling external institutions
- Local institutions and groups
- Resource-conserving technologies
- and particularly by;
- Participatory methods/processes
- Good external linkages and support with NGO's and government agencies

- 



## 4.3 Group Work on Operationalising INRM

The presentation on INRM as elaborated in the previous meetings put the issues emerging in the keynote presentations in a broader conceptual context. Working groups now took up the issues and worked on operationalisation based on the following task:

### *Task for working groups*

1. Identify the real challenges underlying the issues/cards
  2. How to deal with these challenges in practice
    - a) What are promising strategies?
    - b) What are promising ways to implement methods, tools- based on the experiences shared?
    - c) Where to learn from - identify good cases for each strategies /without/ tool
- Choose group facilitators
  - Nominate a reporter, who will summaries the group discussion on ~ 2 pages
  - Visualize your results and report back in plenary (10 min)

*The following clusters of issues were addressed:*

- Social capital
- Impact, Monitoring & Evaluation, Landscape Services
- Scale of intervention, integration, scaling up /out
- Institutionalization and facilitation of INRM approaches



### 4.3.1 Results of Group 1: Social Capital

**Participants:** Celal Cervas, E. Yilmaz, Theib Owies, A. Jane, Joachim Voss, Mohd. Sharif Zia, Thomas Mbeylea, Frits Penning De Vries, Anne Marie Izac.

#### The issues raised during Day 1:

##### **Community development, empowerment, and participation:**

- Community approach well developed.
- Community participation important.
- Development of TIPOs and community development plans are innovation to learn from.
- Negotiated action plans.
- How to "empower" farmers and community.
- Be careful of "empower" (instead: help people to take power).
- Diversity within the community calls for specific adaptation for specific households.
- Financial support/commitment to communities.

##### **Building social capital:**

- Need to strengthen civil society in rural areas.
- Importance of local Institutions for community development.
- Imbalance between effort to increase technical capital and efforts in social capital.
- Increasing productivity and environment equity.
- Incongruence between the power to influence and the consequences of activities.
- Farmers driving the research agenda think about tomorrow.
- Can the starving poor afford to think about tomorrow?

### **Group presentation**

#### **What are the real challenges?**

- Build social capital under different kinds of conditions, but avoid hijacking of the process by one or other interest group
- Figure out how people/communities can better solve their problems and innovatively build their confidence, dignity, voice
- How do we extrapolate the building social capital and the role of partnerships?

#### **Promising strategies•** Diagnose social capital situations from the local to the national level

- Build a strong, shared knowledge base
- Through direct participation of all community members, involve and capture the interest of policy-makers and bring together local and scientific knowledge
- Work with successful NGOs and CBOs
- Create positive incentives for scientists to engage in building social capital (reward refereed publications, but add evaluations of the contributions they make to develop impact in INRM)

#### **Methods and tools•** Inclusive, gender, power relations, interest groups

- Participatory modelling, GIS, mapping, monitoring and evaluation (M&E)
- Bring together people/communities in conflict and facilitate discussions on criteria, principles for common resource management
- Demonstrate successes
- Develop conflict resolution tools
- Use methods of community experimentation and social learning
- Analyse policy to provide context for social capital
- Amend performance evaluation system for scientists; recognize long term (LT) impacts, team building and team work

**Where to identify cases** • Limited supply in literature

- Participatory M&E
- Look for success outside of agriculture (e.g., community health)
- Look for lessons in literature on team building
- Learn from successful NGOs

### ***Plenary Discussion***

- M&E can be a very emotive and dangerous exercise. As far as data collection is concerned, they must be collected by them and driven by them, but only for information of direct concern to the community. If you want strong quantitative data, unless they are of direct relevance to the community, you must collect them yourself.
- Literature on team building is available on the web.
- Team building takes lots of time. There is not much incentive for this activity in CG, as staff is quite fluid. Hence, there is little motivation and incentives for scientists to devote time to it.
- If INRM is to be streamlined into research, then team building must be embedded into it.
- Early setting of goals is a prerequisite for effective team building.

### ***Rapporteur report of the working group discussion on social capital (By Anne Marie Izac)***

#### **Challenges**

The real challenges when addressing issues of building social capital are threefold:

- First, we need to understand how we can build up social capital under different conditions (cultural, economic, environmental). Furthermore, this social capital build up must be undertaken in such a manner that the process is not hijacked by one particular interest group. Therefore, power relationships within a community have to be factored in.
- The second challenge is to understand social dynamics in a community and figure out how members of this community can better solve their problems and innovate. This is essential to building their capacity to manage, as well as their self-confidence and dignity. It is about giving a “voice” to people who thought they did not have one before.
- The third challenge is to find effective ways of extrapolating, scaling up/out the building of social capital. This is a much more difficult thing to do than scaling up of a technology, for instance. Partnerships are of course essential in accomplishing this.

## Strategies

A number of strategies seem to be promising for addressing these three key challenges. A diagnosis of the social capital status of a community first needs to be undertaken. This diagnosis, whilst focussing on a particular community, also needs to take into consideration factors influencing social capital formation at the district, regional and national level.

Building social capital upon the basis of this diagnosis is equivalent to developing a strong and shared knowledge base among members of the community and scientists. The goal here is to integrate local knowledge with scientific knowledge and to share the resulting more relevant knowledge widely within the community. This can most effectively be done through the direct participation of all community members, avoiding dealing with only key community members. It necessitates the involvement of policy makers, so that they do not feel threatened by the increased social capital and empowerment of community members.

Working with successful NGO's and CBO's, where they exist, should increase the effectiveness of all the above strategies.

Finally, the group recognized the need to create explicit and positive incentives for scientists to engage in building social capital in their work. Current reward and performance assessment systems recognize the value of refereed publications, but fail to recognize the value of less tangible outputs of the research process, such as the building of social capital.

## Methods and tools

Methods used for implementation the above strategies must be inclusive, recognizing gender and power issues and the relations among interest groups.

A number of techniques exist for carrying-out participatory modelling, GIS, mapping of landscapes and watersheds, monitoring and evaluation.

Conflict resolution necessitates the development of negotiation tools and skills. Building together individuals and/or communities that are in conflict and facilitating discussions on criteria and principles to be used by the communities to jointly resolve their problems.

Methods of community experimentation and social learning have a great deal to offer.

Policy analysis can play a useful role in elucidating policy mechanisms that influence social capital formation (e.g. decentralization will have direct implications for social capital).

Finally, the group agreed that the performance evaluation system of research institutions needs to explicitly recognize the value of teamwork, social capital formation and the creation of long-term impacts.

## Where to identify case examples

The agricultural literature has a limited supply look for case examples, so it is necessary to look for case examples in different fields, such as community health, for instance. The literature on team building can also provide useful insights, as team building is an exercise in building social capital.

Most useful case examples are likely to be provided by the experience of successful NGOs. This experience will probably have to be obtained from the grey literature or direct discussions with relevant NGOs, as it is unlikely to be fully documented in professional journals.

Finally, the monitoring and evaluation system, put in place a part of the INRM approach, will itself generate very useful insights into the social capital formation process.



### 4.3.2 Results of Group 2: Impact, Monitoring & Evaluation, Landscape Services

**Participants:** Aden Aw-Hassan, Abiye Astathe, Ahmed Mazid, Myles Fisher, Matilde, Kamil Shideed, Sobitjon, Luis Alvares-Welchez, Adriana Bruggeman, Roberto La Rovere.

#### The issues raised during Day 1:

##### Impact, M&E

- Changes are longer term and deeper seated.
- We need new impact assessment for INRM.
- Need new tools to measure impact.
- Spill over impact evident (community approach).
- Challenge: Measuring education benefits for children arising from developing INRM.
- Attributing real impact in INRM needs to recognize uncertainty.
- Impact + ADP outputs not quantified.
- If quantification of impact is impossible, how to convince donors?
- Does embedding impact in the project invalidate the objectivity of assessment?
- Are there robust decision support tools to improve INRM adoption?

##### Landscape services

- Need methods for forceful expression of public goods value of systems.
- The value of the landscape good use has to be paid by urban areas.
- Degradation is often hided by adding inputs or mining resources.
- landscape as a water factory and put the price for its conservation.

### ***Rapporteur report of the working group discussion on impact, monitoring and evaluation and landscape services (By Myles Fisher)***

#### **Impact, monitoring and evaluation**

- The primary question is: "Is the methodology for reliably assessing impact available or not?" If not, how can we come up with relevant methodologies. The need is to review the available methods and assess their suitability for the particular case studies under consideration.
- Evaluation is a continuous process. It feeds into the diagnosis, leading to its continuous refinement.
- A baseline situation needs to be defined in the first instance.
- In addition to ex-ante assessment, there is a need for ex-post evaluation with a long-term commitment to the process.
- There are considerations of the different scales at which INRM concepts operate: temporal, spatial, and issues (aspects). The methods for impact assessment depend on the scale, and each scale needs different methods.
- There are different impacts on the different system components (ecology, livelihoods, etc).
- How can the steps in the process be defined? This requires definition of the technology and organization of the participatory process.
- There is a need for aggregated indicators, which capture a range of aspects of INRM. An example could be to use farm yield as proxy for a range of biophysical indices such as soil fertility, erosion, water retention etc.

- There are three concepts of INRM: efficiency, equity, and environmental sustainability. Health should now be added as an additional concept. There was some discussion on how the indicators should be aggregated and how they should be weighted. The farming community's assessment of the respective weighting factors should be taken into account.
- Other indicators such as ecological resilience should also be taken into account. We need to know how farmers' livelihood strategies will be affected in the long-term.
- There is a need for more dialogue between the biophysical and the socio-economic scientists at all stages of the process.
- The communities need to be involved in the monitoring of indicators they have identified themselves as important to their livelihoods.
- This internal monitoring needs to be combined with external community monitoring and assessment on the adoption and what hinders wider adoption.
- We need to look at the broader picture, not just adoption of technology, but other aspects such as institutional relations, what were the key factors in INRM success and so on.
- Some indicators are readily quantified, but some, such as institutional development and social capital are more difficult to quantify.
- The attribution of impact needs to be defined so that there is a clear cause and effect. External factors can have a confounding effect that can mask or confuse the assessment of impact. Absolute attribution may not be possible, but may require definition within broad boundaries. There are no clear guidelines, but there has to be a minimum requirement of attribution by means of a convincing linkage.
- Need also to be in a position to evaluate the spillover impact. Spillover, which is not deliberately designed into INRM, can be important. It is necessary to differentiate it from scaling out, which is a deliberate activity.

### **Landscape services**

- Impact of INRM goes beyond agriculture (the example of Jules Pretty of Cuba and Switzerland are relevant).
- The question is: How can standards be defined by which environmental services can be measured? Factors such as nutrient concentrations, water quality, biodiversity, and water retention capacity in the soil are needed.
- We would like to have all the people in a watershed live well and receive payment for their INRM activities, which requires measures that can be applied to all communities in the watershed.
- INRM also has to take into account landscape issues in addition to livelihood and social welfare issues. Research needs to take account of the scale issue in the landscape.

### **Plenary Discussion**

- Should the resources (particularly the human resources) be planned and built in from the early stage in the INRM M&E?
- Impact and M&E indicators for participatory research needs to be defined in participatory ways, and at early stages.
- What are the appropriate levels of M and E, as well as for design and implementation?
- To assess the cost effectiveness of M&E in INRM, a method (not specified) is developed by IUCN that allows integrating both scientific and other indicators.

### 4.3.3 Results of Group 3: Scale of Intervention, Integration, Scaling-up & Scaling out

**Participants:** John, Rincon, Mustafa Pala, Simon, Achouri, Luis Iniguez, Dyno, Eddy De Pauw, Malika Martini, Repav.

#### The issues raised during Day 1

##### Scale of intervention & integration:

- How to relate the social and the biophysical landscapes.
- Old generalization don't work, we don't have new ones to replace them!
- Family → community → region.
- Farmers → micro watershed → micro watershed.
- Technological and policy options in context of integration.
- For technical options: Clear link to policy and institution.
- Scale of analysis/intervention should be appropriate to the problem type.
- Not excess integration, but optimise level of integration.
- Identify key drivers in complex systems.
- Holistic/inter. approach + need to priorities action/best bets.
- Need to better operationalize the term "marginal".

##### Scaling up/out:

- Difficulty of scaling up due to different decision-makers.
- Small scale + complexity => Difficult to scale up/out.
- How can we mainstream successful INRM experiences, especially across different cultures?
- How can community planning be scaled?
- How to convert on-farm yield increases into sustainable market opportunities?
- Learning + scaling-out from "bright spots".

#### ***Rapporteur report of the working group discussion on scale***

*(By Simon)*

##### **Problems: Scale dependence**

1. Reality is scale-dependent - the ecological fallacy: Most phenomena are scale-dependent and location dependent. Methods and insights that we develop to influence activities at one scale will be only partially true for other scales or places, for which we wish to influence change. For example: Involvement that is successful in one community may not be successful at another. Involvement at watershed level may have no measurable impact on well-being of individual households.
2. Intervention is scale-specific: Missing the issue at the appropriate scale of impact will reduce the value of research, but the real thing is very large and very complex. So how to decide what to do, where and at what scales? What precisely is the meaning of integration of scales?

3. Change processes move within multi-scale organizations: Transmission of influence between different levels requires organization, power and communication which is often not available.

### Options to deal with this?

1. Full replication: Operate at all scales and locations, for all timescales. Is this realistic? This may create problems of
  - a. Cost.
  - b. Confusion: Who are we talking with?
  - c. Risk of information overload.
2. Replication / leverage of impact through institutional partners: Including institutional partners (NAREs, NGO's) is essential to upscale. This reduces the cost of replication, assuming our contribution is what they require.
3. Progressive research, scaling up and down to identify broad-scale issues and local-scale solutions. This needs to occur in parallel to the research process, not afterwards, and requires flexibility in research.
  - a. Scaling out: Success breeds success.
  - b. Scaling up: Examples - Externalities at community level influence function at catchment scale. Growers opportunities (e.g. chickpea) depend on sector-wide market opportunities.
  - c. Scaling down: Drought tolerance starting at broad-scale. Market opportunities tend to limit the scale.
4. Extending the research and development process (RES -> DEV) beyond 'best bet' to true implementation creates a self-diffusing research 'product'. Close the loop through 'clever' monitoring (e.g. high and low risk sites). Stakeholder consultation should be a continuous part of the research process, not a 'beginning' and 'end'.
5. Invest in capacity building [who is ready to move?]: Within obvious constraints, identify opportunities for multiplier capacity building. Identify key organizers and stakeholders. In practice, this also means understanding what 'providers' want to see (e.g. what do donors want?, what do government stakeholders want?). Sometimes a tricky compromise between the deserving and the capable.
6. Identify key drivers in complex systems: E.g.
  - a. Sensitivity analysis to identify key modifiable drivers.
  - b. Analysis of complexity – [improve signal:noise ratio].
7. Visualisation of situations and scenarios (e.g. using GIS and available spatial data) linked to models which are 'best available' representation of the system. Sometimes these may have to be very crude (i.e. best available, rather than perfect). E.g. where satellite imagery is available, how well can this be used to represent process of irrigation potential, development over time? Constraints will NOT be provided by such visualisations unless they exist within the models.
8. Chaining of processes through spatial scale: From villages – catchment – regions. Cycles of learning at small scale, predicting at large scale....
9. Chaining of processes through time scales (short, medium and longer term): Short-term gains needed to get 'buy-in' towards longer-term directions. Regional/ national government officials can be attracted to the provision of basic information which they need to develop government policy. This initiates dialogue for further interaction. (e.g. Dyno's example of providing basic food production information on which to base short-term policy). Real-time tactical decision support can initiate a longer-term process of strategic change.

10. Communication: Access to *timely* information is a persistent problem. Various media have been used. Top-down 'garden sprinkler' being replaced by directed, bottom-up and bottom-bottom (e.g. bean net). E.g., mobile phone usage caught us all unaware. Some organizations already exist to manage the process (farmers unions).
11. Follow through communication with stakeholders: Ex-ante studies to clarify benefits (or losses) and to build confidence.

### ***Plenary Discussion***

- How do you identify the major drivers for scaling? For example a sensitivity analysis to identify the direction.
- Which processes and analytical tools for identifying the key drivers are needed?
- We mostly think about 'drivers' in terms of continuous process, but in ecology, also critical jumps/chocks exist.
- On drivers: At a stakeholders workshop, we should ask them what are the key factors that they interpret to be most important.
- A study found that that the driving forces for deforestation were policies set at the national level. Hence, research was used as an entry point the policy level.
- Multi-scale framework and up scaling are two different things. A multi-scale framework is mostly used for diagnosis and planning, while up/out scaling is a tool for dissemination and expansion.
- To be effective, it is necessary to look in the preliminary stages at all the different scales. In a next step, priority scales can be identified and focus can be directed to most relevant scales.

### 4.3.4 Results of Group 4: Institutionalisation and Facilitation of NRM Approaches

**Participants:** Jane, Chude, Dick, Nathalie, Steve, Francis, Akhur.

#### The issues raised during Day 1

##### Learning for approach development and institutionalisation

- Adaptive learning is key to success.
- Encourage more vigorous cross-country exchange (south-south) (west-south-west).
- Drawing experiences from other countries.
- We must talk about failures, as well successes.
- The necessary social/economic/scientific infrastructure for complex I NRM may not exist in all countries.
- Role of CGI ARs to assist decision makers at different scales.
- What should the IARC role be in community development projects?
- Facilitation of I NRM.
- Institutional arrangements to make I NRM work.

##### Messages / knowledge:

- Messages, messages, messages.
- Is diversification a realistic future for tropic farmers?
- Are the local species + farmer knowledge the key to feed the future generations?
- Broader bandwidth to include non-economic values.
- How to improve the natural pest control.

#### Presentation in Plenary / Rapporteur Report of working group No.4

*Facilitator, Steve Twomlow - Rapporteur: Nathalie Beaulieu*

This group had to deal with issues related to institutionalisation and facilitation of NRM approaches, ecology and development. We had a large variety of cards to comment on.

#### What are the real issues?

From the group's discussion, we established that the issues are :

How can institutions and players, together define their respective responsibilities (especially between CGIAR centres and partners)?

- Defining their place in the continuum or gradient between research and development.
- Defining the themes where each will offer expertise in (be it technology, economics or markets).
- Defining their objectives in sustainable agriculture, conservation or preservation.

How can these institutions and players establish linkages? What are the incentives?

### How to deal with these issues?

In terms of having clear objectives, we established that for any INRM project, independently of where we stand between research and development, we must:

- Establish a real assessment of needs, demands and availability of resources.
- Establish the "value" of rural life and agricultural development, and we must define other values of nature, such as environmental services.
- Keep ecosystems functional.
- Aim for an improvement of people's livelihoods.

### In terms of sharing responsibilities we established that we must:

- Channel facilitation and institutionalisation responsibilities to national institutions.
- Have an entry point at the community level.
- Consider that scientists can act as facilitators for pilot sites.

### In terms of creating and maintaining linkages:

- There needs to be a development process in which research can contribute results.
- In the development process we must formulate questions for research.
- Disciplines integrate in the decision-making process.
- Development plans can be a good entry point to integrate research of different disciplines.
- Integration is an ongoing process and does not happen overnight. One has to maintain linkages.
- One incentive to establish linkages is the sharing of responsibilities (not having to do all of the actions necessary to reach the objectives).

We also had a debate on if we could distinguish research and development, given the fact that all research contributes to some kind of development. Although we did not have time to close the debate, we did establish that research for development is research that aims at responding to questions formulated by players of development, which are outside the research environment.

Research should not aim to be in the driving seat to guide/facilitate development processes. This responsibility should stay with the 'development agents'. However, as 'development agents' are often absent or lack specific capacities, research could temporary take this role to pioneer alternative development approaches.

### In addition to the group work, some results from the email discussions were presented:

#### **Boundary issues:** Technical/Economical

- How define responsibilities of partners.
- How define links.
- Incentives?
- Gradients (global, local)! Values.
  - Decides
  - Knowledge
- Bridging gap from local level.

- Realization of local resources.

**Facilitation:**

- Do we need all of interactive skills?
- Do we have key skills?
- Local/national facilitation for development.
- Organizing development programs.
- In bureaucratic society.
  - Get shot down for innovation (comfort zones, threatened).
- Type of scientists!
  - Link to other discussion.
- Team building.
- More than a weeks course.
- Continual process with feedback.
- Facilitations + brokers of knowledge for development.

**Plenary Discussion**

- Where should we stand in the dilemma between being open versus globalisation and being appropriate?
- Can you really work with poor people although there may well be a tremendous distance between national policies and CG research work? Governments are export-driven because they want foreign exchange, while the Centers want to help the poor people. Can you help the poor if you ignore the governments' aspirations? INRM should lay out the options so that both governments and the people can make rational decisions.
- One of the defining features of INRM is that it enables options to be developed at different levels. The entry points vary by level. You have to cover the whole spectrum because of the interactions that take place at the different levels. A key contribution is to have balance between the local and the global scales. Subsidies distort the balance between the export- and import-driven products.
- Most global industrial agricultural commodities are used as raw products for manufacture of food. IFPRI forecasts that prices of cereals will continue to fall in the future. For this reason it will be difficult for poor people to make a living exporting these commodities. The strategy instead will be to grow economically what is needed for domestic consumption and seek export possibilities in other areas, such as tropical fruits and cut flowers.
- Disciplinary boundaries. Maybe the theme should be termed sharing responsibilities, because they are not boundaries in the area of research activities, but knowing the boundaries of where your research should lie. It is essential to define linkages and define responsibilities.
- In the past research and development were living in two different worlds. Now we are coming closer in terms of objectives and tools. Although this is a positive evolution, it also creates confusion about roles and responsibilities (e.g. research stations who take over tasks of extension agents). Though there is similarity, there should be clear definition of responsibilities.
- What does integration at the global level really mean? If the global agenda indeed does drive research priorities, it should benefit local people. Consideration of global issues leads to 'Drowning in complexity'. So the key issue is, how do you bring the discussion back to reality? Put another way, what does integration at the global level mean for you on Monday morning?

- How can we (the scientists) get along with farmers? In general, they are people who are interested in what happens on the ground, which grows their product. In contrast, others in the North are more interested in regeneration or preservation of the landscape. Who will pay for this ecosystem service?

## 4.4 Synthesis On Operationalization Of INRM

(by Anne Marie Izac)

The synthesis builds on the points merging from the presentations.

- INRM scientists have two fundamental roles in the respect to building social capital. The first is to integrate and share knowledge with farmers and communities. Knowledge sharing was recognized as key to building social. The second role is in facilitating conflict resolution and negotiation processes among farmers and communities. Conflict management and negotiation skills were acknowledged to be essential components of the adaptive management capacity.
- M&E and impact assessment have to be part and parcel of the entire research and development process and be set up from the inception of the work.
- An essential way of dealing with the complexity of the issues is to focus on the key drivers of the problem being addressed. A fundamental and unresolved question is how these key drivers are identified? We need tools and methods to do so effectively. Drivers often occur at different scales, some are long-term, others shorter-term in nature. Furthermore, there are disconfirmations, "critical junctures" and non-linear processes that have to be factored in the process of identification of key drivers.
- There is agreement that INRM provides options (technological, institutional, policy) at different levels, and that each kind of options is as important as the others.
- Finally, one way of "integrating" from the local to the global level is to adopt the perspectives of farmers and see how the specific interests of the global society (e.g. biodiversity, carbon sequestration) can be used to devise transfer mechanisms that directly benefit these farmers.

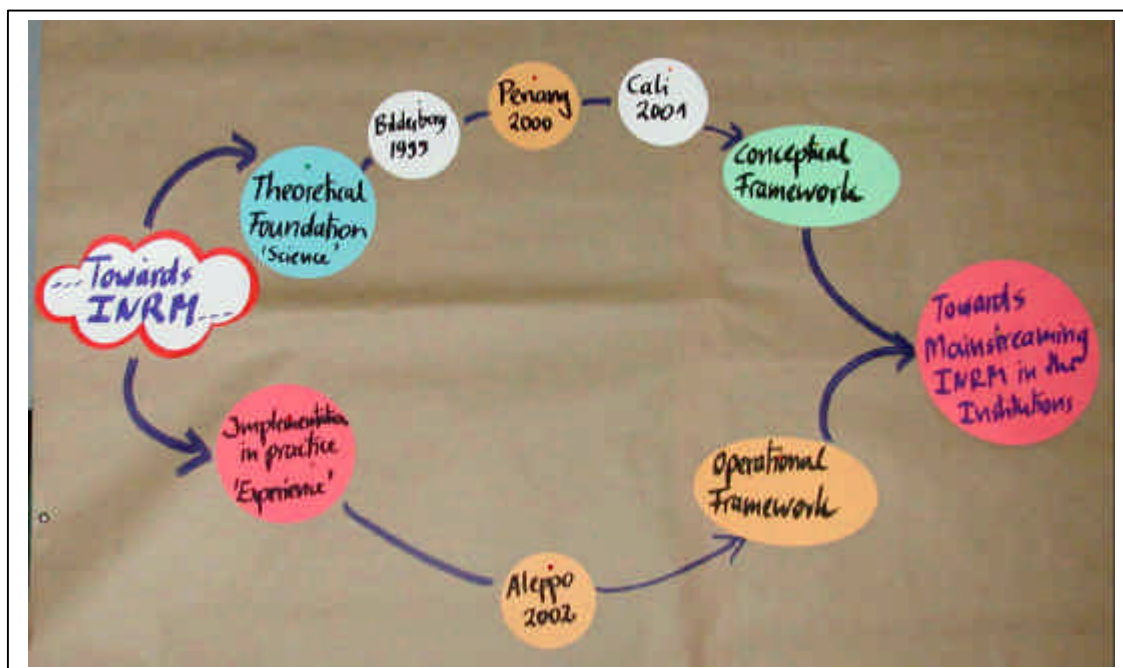
## 5 Towards an Operational Framework for INRM

After having shared lots of experiences and approaches to deal with issues in INRM the question was: How to bring it all together and make the loose ends meet?

### 5.1 The process of conceptualizing INRM

Jürgen, who had also facilitated the previous INRM workshops in Cali and Penang attempted to visualize the way towards INRM in practice.

The process of the INRM task force started off from a theoretical foundation, the 'science base'. In Bilderberg in 1999, the first attempt was made to reach a shared perspective on INRM (the Bilderberg Consensus). In Penang in 2000, the conceptualisation based on science and theory was continued with and a number of new concepts (like 'adaptive capacity', action research etc.) were brought into the debate. A major step towards a new INRM framework was reached. In Cali in 2001, the framework was shared with a broad audience and agreed upon. So, one can say that the first 3 meetings brought up a conceptual framework, but did not clarify the operational details in putting the concepts in practice. In the Aleppo workshop in 2002, the operationalisation is the key aspect to be dealt with. Based on the practical experiences it is expected to come towards an operational framework, complementing the conceptual framework. Both frameworks together have a great potential to make INRM clear enough to mainstream it – with adequate support in training and learning. (see picture below)



Then, a methodology of how to arrive at an operational framework based 'cornerstones for interventions was presented and suggested:

## The methodology towards an operational framework (input by Jürgen Hagmann)

The methodology applied to generate the operational framework was experientially developed by Hagmann (2003) in a range of workshops where the sharing and conceptualizing of experiences was central. It builds on the lessons and success factors of practical case examples. Success factors are distilled, clustered into 'cornerstones' and systematized into an operational framework for (in this case) ***'Managing an effective process of operationalizing INRM'***.

This methodology builds conceptual frameworks in an appreciative manner from success factors which were central to generate successes in different cases. Often the cases have only lessons and success factors in some areas, but when analyzing them all together a comprehensive framework can be reached.

The 'cornerstones' of the framework are central elements of successful interventions which are in systems interaction with the other elements. Based on 'systemic intervention', each of the fundamentals need to be addressed as otherwise the weakest one becomes a threat to the whole approach. This does not mean that they all have to be actively addressed, some of them might be in place anyway, others can be addressed through partnerships which are then prioritized and actively pursued. In this sense, the 'wheel' serves as a checklist which can also be used for self-reflection and evaluation of INRM interventions and for the design of interventions

Hagmann (2003) suggests this framework as a learning frame. In each of the cornerstones, the gaps in existing knowledge and experience can be defined and then specifically explored in different places by different people. Their insights, lessons and experiences can then be integrated after some time into the overall umbrella approach and so all the parties involved in this systematic joint learning process can obtain a much broader and faster experience base than alone.

This should be a core message behind the cornerstones in the INRM group. For each of the cornerstones, certain groups and teams of researchers could work in more detail and gain experiences and bring back their learning. A frame in form of a matrix, describing the main elements of the fundamentals, possible strategies and possible ways to implement these strategies can be used to identify the gaps for future learning and capture the knowledge (see table below).

CORNER STONE	CONTENT (ELEMENTS/ 'INGREDIENTS')	KEY STRATEGIES & PROCESSES	POSSIBLE WAYS TO IMPLEMENT
		•	•

**This methodology will be published soon: (More information: [JHagmann@aol.com](mailto:JHagmann@aol.com))**  
 Hagmann, J. (forthcoming; 2003): *Creating common learning frames for joint action: a workshop methodology for conceptualizing experiences among multiple stakeholders and learn together.*

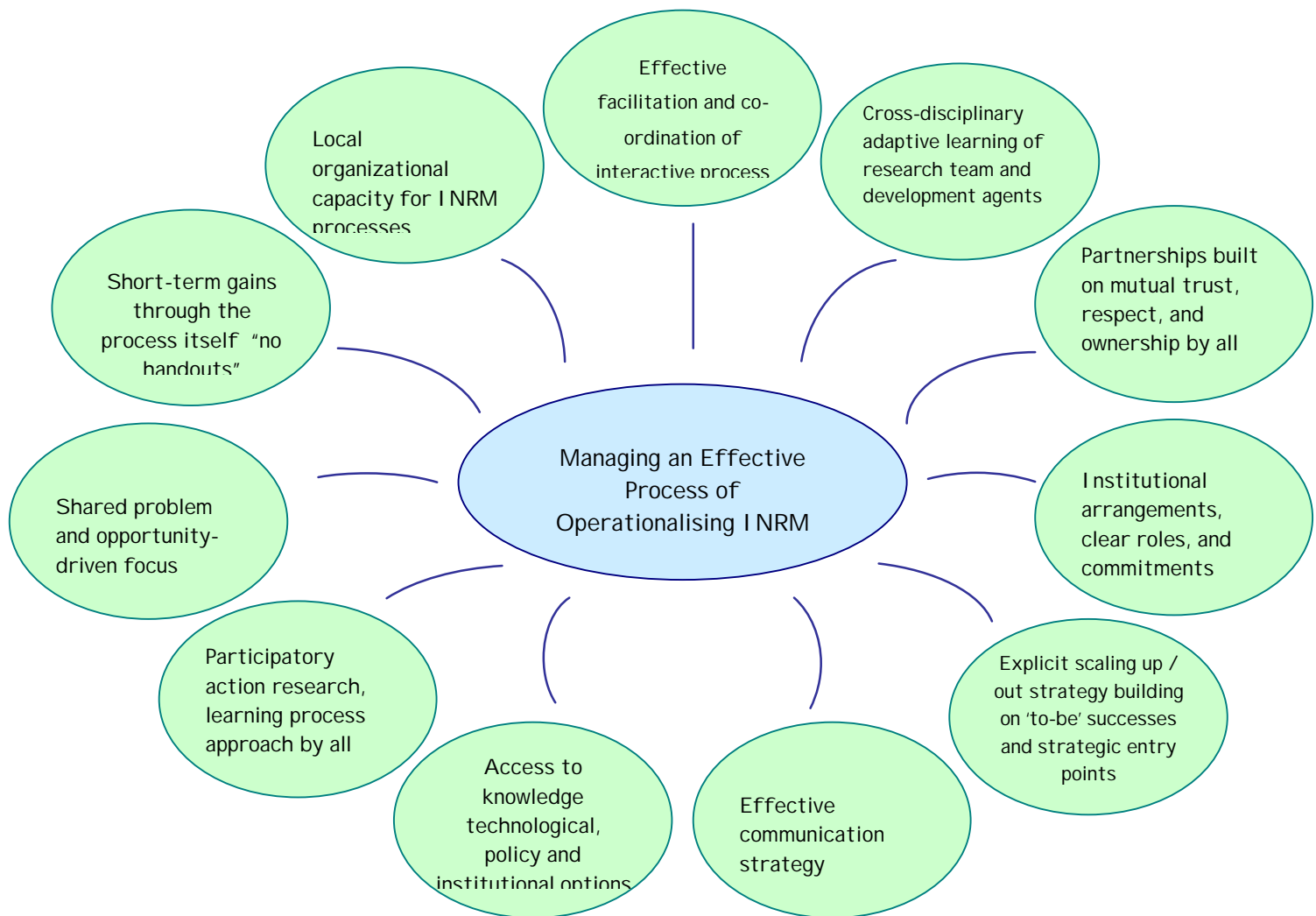
## 5.2 Identification of key success factors in operationalising INRM

The first step towards the framework was the analysis of success factors based on the lessons and experiences shared. Table groups were working on the following question:

Looking at all the lessons and experiences, we have shared and our own rich experience: What are the key success factors in operationalizing I NRM effectively?

The cards were clustered and a synthesis group (Anne-Marie, Dick and Jürgen) formulated headings (which are then called 'cornerstones for intervention' and shared them with the group the next morning. The group made a few changes and amendments and agreed on the framework as illustrated below.

## 5.3 Framework for Operationalizing INRM: the proposed 'cornerstones'



## 5.4 Working groups on the 'cornerstones' of the Framework

The framework was agreed and working groups were to discuss the cornerstones:

1. What we have / know by now
2. What we do not have / know yet; the major gaps and challenges
3. What we should realistically achieve within the next 1-2 years as a group / task force in this cornerstone.

The results for the different cornerstones were:

## 1) Partnerships built on mutual trust, respect, and ownership by all

First, it is essential to define whom all and we are. So far we have made progress. Partnerships are broader and more respectful than 10 years ago. There is greater respect for a wider range of other participants (NGOs, farmers, etc). There is greater inclusiveness in planning and execution at the institutional level and beyond.

What we did not achieve yet is full transparency in communication, full and open information channels for all participants, full ownership mainly in the preparatory stages. Very often there is no ownership at the start of the INRM projects.

We should now:

- 1) Achieve more transparent and open communication.
- 2) Respect the cultural and religious beliefs of the community.
- 3) Achieve ownership of project outputs.
- 4) Believe in and mutually trust the roles played by different stakeholders.
- 5) Respect legitimacy of stakeholders.
- 6) Understand and make explicit the incentives for partnership.
- 7) Define partnerships with particular care on matters of inclusion and exclusion.
- 8) Have a management and leadership structure for cross-disciplinary and inclusive partnerships.
- 9) Increase our experience in creating partnerships at all levels (community, national and international) for R+D, i.e. on managing and using biodiversity.
- 10) Construct information channel that enable the access for all partners.
- 11) Use methodologies that can involve the partners from the very beginning.

## 2) Cross-disciplinary adaptive learning of research teams and development agents

Recognizing the problem is a key issue. We can do that only in part, not completely. Many institutions are still compartmentalized. Hence, the current state of cross-disciplinary work is still not good enough. We should expect changes in the institutional structures at all levels. CPs will have a big impact on this component. We need to be learning on opportunities in projects involving cross-disciplinary activities. We should create time and mechanisms for cross-disciplinary learning and action before and during project.

We need to:

1. Have education and training in cross-disciplinary work and action.
2. Re-structure the institutions (e.g. CG centers), as well as within institutions.
3. Educational institutions need to go in "the main stream" too.
4. Scientists who see the whole picture and are able to integrate themselves.
5. Effective goal oriented teamwork and integration across disciplines.
6. Have actual cross-disciplinary teams.
7. Ostracize 'prima donnas' (who inspire and lead in selfish ways).

### **3) Organizational and institutional capacity for INRM processes**

There must be:

- 1) Effective institutional building at the community level.
- 2) Early consideration of existing indigenous knowledge.
- 3) Locally developed organizational capacity for INRM process
- 4) Preliminary local institutional analysis
- 5) Ways to include the different perspectives of the communities.
- 6) Ability of community institutions to respond to change.
- 7) Ways to identify whether other institutional are working on other INRM issues.

### **4) Institutional arrangements, clear roles and commitments at each level**

There must be:

- 1) Better tools to identify key partners.
- 2) An effective process for participatory planning / negotiation objective setting e.g. PPO (this will also need training).
- 3) Budgetary transparency with respect to the agreed roles and responsibilities.
- 4) Agreed rules for collaborative advantage, e.g. Orstom TRG
  - a. Credit sharing.
  - b. Performance standards (no free riders)
- 5) Agreed mechanisms for coordinating the institutions
- 6) Periodic stakeholder planning meeting (in order to plan and organize).
- 7) Follow up on long-term commitment (to support the adaptive process after projects are ended, i.e. by help desks).
- 8) Institutional commitment by major actors (i.e. CGIAR centers) to INRM (in terms of time, money, recognition). "Energy" is already there among scientist!
- 9) Effective and committed local partners to achieve collaboration.

### **5) Participatory action research / learning process approach by all partners**

There must be:

- 1) Dynamic learning processes.
- 2) Although it may seem self-evident, M&E must be embedded in the project.
- 3) A defined INRM plan with the community from the very beginning.
- 4) Methods, tools, and approaches within the NGO domain, IARC, ARI , NARS:
- 5) PAR must be commodity based, not resources based.
- 6) Better documentation of the processes and methods.
- 7) Synthesis document of INRM methods with examples of successful applications.
- 8) Improved capacity of most participating NARS.
- 9) Exchange of experiences by increased visits to enhance direct exposure.
- 10) An INRM network to act as a platform to share information.

## **6) Access to knowledge, technological, policy, and institutional options on-going**

There must be:

- 1) Pragmatic, good science-based INRM; this is essential and mandatory.
- 2) Integration among technologies, institutions, policies at implementation.
- 3) Improved and more straightforward adaptation of technological knowledge.
- 4) Increased testing of technologies in the production context (markets, policies)
- 5) Enhanced presentations of successful cases by means of i.e. Conferences.
- 6) Use of methods, tools and approaches available from the NGO domain.
- 7) Increased use of visioning-maps-simulation tools to linking research to farmers.

## **7) Effective communication strategy:**

From very beginning, we must take steps to:

- 1) Distill simple messages in local language by appropriate media & extension tools.
- 2) Lay the baseline for M & E during the inception phase.
- 3) Draw lessons from past assessments of effectiveness of different media.
- 4) Distill stories for donors.

## **8) Shared problem and opportunity driven focus**

There must be:

- 1) A negotiated action plan for mutually shared goals among stakeholders.
- 2) A proper and early baseline diagnosis.
- 3) Understanding of how people organize and participate.
- 4) Better tools to priorities problems in manner acceptable to all partners.
- 5) Understanding of spatial extent of problems.
- 6) Problem identification: listen, interpret, agree, plan (we do this reasonably well).

## **9) Effective facilitation and co-ordination of interactive processes at different levels**

We must:

- 1) Identify the mechanisms of facilitation.
- 2) Consult farmers through extension.
- 3) Support local organization.
- 4) Link with development planning and projects.
- 5) Encourage local institutions to be part of the INRM processes.
- 6) Identify and continuously improve the skills.
- 7) Mobilize farmers to take roles (we should be cautious in selecting farmers).
- 8) Develop guidelines on why, how, when and what to do.
- 9) Learn to listen.
- 10) Use flexibility in facilitation and interactive skills.

## 10) **Explicit scaling up/out strategy building on potential successes and strategic entry points**

There must be:

- 1) A non-volatile external environmental (pre-condition).
- 2) Good governance (enabling environment).

Also ... one cannot do "partial INRM", one has to go for "full INRM".

... success breeds success.

... focus on hot spots and bright spots (more stable and promising sites)

... one has to be ready and take advantages of existing plans.

Examples of success:

- 1) Germplasm (fast impact).
- 2) Feedback technology (fast impact).
- 3) Afforestation (marketing mechanisms).
- 4) Water efficiency (scarce resources profitability).
- 5) Watershed management (Turkey-policy changes).

## 11) **Short term gains through the process itself "no handout"**

We must have:

- 1) Something to contribute (quick wins).
- 2) Involvement of exciting genetic resources and production networks.
- 3) Technologies that do not have extra costs.

i.e. implementation of practical option in dry tropics for INRM.,

## ***Plenary discussion on the cornerstones for operationalising INRM***

On partnership, that should be built on mutual trust, respect and ownership by all:

Partnership is broader and more respectful than before; greater inclusiveness in planning at institutional (national / inter-) levels is needed; transparency and communication must be open.

Define who are members of that partnership; use methodologies to involve partners from the beginning; information channel enabling access to all partners.

Respect the cultural and religion beliefs of the community.

Achieve ownership of project outputs at all levels.

On effective cross-disciplinary adaptive learning team of researchers and development agents.

- 1) It's better now than it was before.
- 2) Education and training in cross-disciplinarity is needed; management and leadership structures for cross-disciplinary and inclusive partnership.
- 3) Restructure at level of institutions (e.g. CG centres) and within institutions; educational centers must go in the 'main stream' too; create mechanisms timely in projects for cross-disciplinarity learning and action both before and during.

- 4) We must be clear on how much ownership is needed and is there, otherwise there will be problems with stakeholders and fund-givers for creating expectations. Often ownership is not there at the start of the INRM project.

On communication strategy:

- good public relations are needed to achieve donor support. We should be telling well the story. PR should be included. We are not trained to sell ourselves. We should lay the foundations (VDO, pictures), not necessarily do it ourselves.

We propose creating consultancies in CG to let others know what we can / can't give.

It is necessary to elaborate the concept and definition of which type of capacity is required, not only human capacity is what it is needed. Capacity has also structural, transitional, and organizational components.

On scaling up: don't forget the negative effects of success-stories, such as technologies (i.e. pumping) that because of their potential and often misused.

Additional insights obtained from the cards focus on A) the conditions for successful INRM and B) the major challenges that we can expect:

**A) Conditions that are conducive for successful INRM.**

- It delivers quick benefits.
- It includes (attention to) market mechanisms.
- It considers profitability.
- It delivers appropriate technologies and increased availability of natural resource.
- It generates excitement by success.
- It generates policy awareness and appropriate policies.

**B) Challenges towards successful INRM.**

- How to best adopt successful stories.
- Constraints related to the scale (economical, technical).
- Lack of resources (human/financial).
- Good planning at different levels/scales.
- Complexity (linked to multiple resources).
- Institutional setting/arrangements.

## 5.5 Ground-truthing of INRM framework on Khanasser Case

The previous day's discussions lead to hypothesizing the 'cornerstones' - summarized below - to operationalize INRM. The framework was now taken up by one group - people involved in the Khanasser case study - applied to the case and verified for its usefulness and applicability

### **Rapporteur: Roberto La Rovere**

This section contains the discussion of the focus group of Khanasser on the Framework for Operationalizing INRM, particularly the proposed 'cornerstones'. Due to time limitations, however, the group could only cover half of the topics. The group also noticed that it is difficult to set sequencing to the different cornerstones, as well as to choose specific starting points. However, they chose to start with: 'Shared problem and opportunity-driven focus among stakeholders'.

- On sequencing and prioritization: these are needed from the team working on a given project, according to the cornerstone model. That approach is useful since it touched issues that we did not think of covering before, or think of at all, and that we perceive now as a tool for self- and own-evaluation.

(On this respect, the participant Steve Towmlow proposes that his forthcoming publication 'Guideline on Participatory research' is a useful tool.)

### **A) Shared problem and opportunity-driven focus among stakeholders**

- 1) Problem with proposal was focusing on land degradation instead of how it probably should be on livelihoods.
- 2) List of stakeholders:
  - a. Farmers unions
  - b. Extension services
  - c. Badiah project
  - d. JEH project
  - e. Org. for land reclamation
  - f. Department of extension and research
  - g. Ministry for environmental affairs (responsible. for conservation)
  - h. Ministry of irrigation and directorate of irrigation of Aleppo basin
  - i. Olive bureau
  - j. Steppe directorate
  - k. Other stakeholders: DUMA, University of Bonn, AECS

What are missing among stakeholders are the government members!

Where the above the right stakeholders? Different stakeholders come into the picture at different stages. A stakeholder analysis should have been done. Also alternatives should be found after participative analysis: a multi stage process.

The question has been to reduce the NARS that could actually work on the field.

Initially there were extensive consultations among the above stakeholders. There was a participatory meeting in 2000 with farmers to identify the problems. Main question from the farmers was the irrigation. Other recognized problems were identified. The analysis of problems was probably partly done but not properly institutionalized and documented. RRA provided problem diagnosis; that - however - is a dynamic process.

B) Short term gains through the process itself: 'no handouts'

Focus on practical techs that can have an impact. i.e. farmer travelling workshops, such as the trip to Baylounan. Short-term benefits are difficult to deliver since most technologies are of a long-term type. One thing is technologies, other is training: and the value of knowledge. First stage is to bring farmers. For social sciences, identify opportunities for investments for which we can provide loans through other schemes such as the next credit scheme. Another area is to explore opportunities for marketing, i.e. feedstuff, stock buying, etc. Past studies of ICARDA, i.e. shrubs should be sought. Out of the new technologies, the time scale of the possible delivery of benefits should be made explicit.

C) Local organizational capacity for INRM processes

Our work with extension should be sufficient to deliver this, since they have good human resources but we should build capacity. Our involvement should improve, though we started with extension staff integration. We must build capacity, and how realistic is this to be achieved? To be done more systematically. In addition, we are hiring a ground facilitator for this. However, our capacity has limits.

D) Effective facilitation & coordination of interactive processes at different levels

At the community level we should look for leaders from the commodity interest groups. There is a difference between facilitation and communication: we have good communication. We need more powerful links at the higher levels. Tools such as multi-stakeholders negotiation tools should be embedded, as well as a forum for capturing opinions and views.

E) Effective cross-disciplinary, adaptive learning team of researchers and development agents.

Relatively low level of integration and teamwork (3.5 out of 10), but improving. A structural problem of organizing in a project way is needed different from the CG one. Projects should be formulated in ways that are more attractive. The other key issue is negotiation.

Other 'cornerstones' not touched directly by the discussion were:

F) Partnership built on mutual trust, respect, and ownership by all.

G) Clear institutional arrangements, roles and commitments at each level.

H) Explicit scaling up/out strategy building on potential successes and strategic entry points.

I) Effective communication strategy.

L) Access to knowledge and technological, policy and institutional options (on-going)

M) Participatory Action Research / Learning process approach by all partners.

**Overall, the group felt that the framework was very helpful in reflecting about the case in a more comprehensive way. It was used as a tool for self-evaluation and the fact the group wanted to continue after the workshop indicates that it triggered a number of insights.**

In the workshop, the framework could be developed, but the details of the matrix capturing all the methods / tools etc. could not be finalized. Thus task was later taken up by the follow-up actions where a booklet as 'guideline' for INRM in practice or similar was proposed. The group who will take this up will have to look into the cornerstones in more detail.

## 6 Working Groups on Open Issues

A last round of working groups tried to address open issues which emerged from the discussions and the expectations of the workshop. These were:

- INRM in the Global Challenge Programmes (GCPs)
- Telling the Story: how to articulate better what INRM and its impacts are
- Watershed management

Results are presented below.

### 6.1 INRM in the Global Challenge Programmes (GCPs)

#### *Rapporteurs summary*

We expect INRM to be incorporated in challenge programs. Along the same line, INRM is a framework that will likely draw many of the CPs together. In fact, one of the great capacities of the CGIAR is to bring an INRM emphasis to the CPs. We propose that the next meeting of the INRM task force should be jointly with the Genetic Resource Task Force. The plant breeders do not have a CGIAR task force. We need to formulate a clear statement to present the INRM framework to plant breeding.

We should:

- Be able to integrate INRM with challenge programs to follow up the workshop.
- Identify what role INRM concepts can/should play in the implementation of CPs.
- Identify soil/land degradation preventing strategies so that they are included in all relevant challenge programs.
- Fast tracked CPs:
  - Genomics (emphasis is now on useful traits, such as drought tolerance, micronutrient content, etc.)
  - Biofortification (at the moment not much, although there are aspects that are INRM such as avoiding erosion of biodiversity).
  - Water and Food? (Should include a substantial INRM component, which can draw the components together).
  - Current CP Pre-proposals:
    - Climate Change ++
    - Desertification ++
    - Africa ++
    - Rainforest ++
    - Agrobiodiversity +
    - .
    - .

INRM should inform the development of the CPs. It can be a link between the CPs and contribute to making them operational. The theme of the next Task Force meeting should be how the CPs and SWIs are made operational in Africa. FARA and ASARECA should have endorsed the course. Program and people need to be defined, and a minimum 6 months notice should be given.

The INRM TF should sponsor the meeting. The Workshop title could be:

'Implementing the CPs in Africa - A first step forward: A workshop sponsored by the INRM Task Force.' We should include a session on how to draw in other experiences.

A clear role should be defined in order to coordinate the CPs with benchmark sites to minimize transaction costs. Representatives of NGOs and NARS will be stakeholders.

## **6.2 Telling the Story: how to articulate better what INRM and its impacts are**

### **Rapporteurs summary**

The Output of the INRM effort should:

- be attractive and relevant to donors.
- identify the messages (from INRM) for governments for implementation / actions.
- collect interviews that can bring out the relevance of INRM for farming communities
- testify the good cooperation and free interchange of workshop challenges and ideas.

Three publications are planned:

### **1. Case examples of successful INRM projects underway**

Proposed title: "integrated natural resource management through CGIAR partnerships: a case of practice in action." A publication of INRM Task Force with Interim Science Council / FAO.

- Editor and Coordinator: John Poulsen, with R. Harwood and A Kassan of the iSC.
- Length: approximately 40 pages.
- Audience: donors / CGIAR members, INRM skeptics.
- Contents: INRM concepts and operational cornerstones (about 4 pages).
- Case example: 6-10 cases, about 4 pages each, contributed by Centers.
- Time: by June 2003.

### **2. Booklet 'telling the whole story', by the INRM Task Force**

Audience: Donors, scientists (any discipline), Centers / Programs external review teams.

Purpose: to provide an overview of INRM including conceptual components and operational cornerstones. It should be more detailed and technical than n. 1 of the series. To cover about 45-50 pages.

Organization: a team leader plus 4-5 experienced INRM practitioners, with input from the INRM scientists.

Time: by mid 2003.

### **3. Manual for INRM scientists conducting the Programs.**

Based on number 2 of the series (above, it will evolve out of it, though in greater detail). About 300 pages, with Chapters dealing with the range of conceptual and operational issues and cornerstones. It should be used as a guidebook to INRM.

Time: late 2003.

## 6.3 Watershed Management

The meeting was chaired by: Frits Penning de Vries, Rapporteur: Adriana Bruggeman.

There was a short introduction by Frits: There was a proposal to have a catchment workshop at the INRM meeting. Now the catchment action within the CG has been somewhat been taken over by the Challenge Program on Water and Food, which includes a catchment section. Also, FAO is undertaking an assessment of watershed projects, and an up-date on this will be presented.

Three presentations on watersheds were made: their key ideas and discussion are briefly listed below. The full text is however available from the presenters and / or organizers upon request. Files:

- 'Preparing the next generation...', M. Achouri: present-forc-concept.Final1.ppt,
- 'Watershed management...', by Larry Tennison: AleppoLCT.ppt,
- 'Water and Food CP', by Simon Cook: WaterCP\_INRMa.ppt

### Presentation by Moujahed Achouri, FAO

*Preparing the next generation of watershed development programs, review and assessment of watershed management approaches.*

FAO is undertaking a major review on watershed management, starting with their own 27 projects (1990-2000). Also a survey of 30 key actors was undertaken. Currently they are holding regional workshops for sharing experiences. An international conference is scheduled for March-April 2003.

#### ***The emerging key issues are:***

- Sharing of "lessons learned"
  - Dissemination of information
    - Role of participation
    - What kind of participation, at which stages?
    - What can realistically be achieved through participatory approaches?
- Realistic results of projects
  - Environmental services, natural resources conservation
  - Living conditions of rural communities
- Replicability and sustainability
  - Questionable results
- Development of institutions and legal arrangements
  - What organizational arrangements are adequate?
  - Legal issues e.g. land tenure
- Supporting policy framework, e.g.
  - Environmental policy
  - Decentralization

#### ***The emerging problems are:***

- Projects often focused on natural resources conservation from a technical perspective
- Projects designed with little attention to priorities and needs of local people

- Programmes often neglected the contribution of beneficiaries to planning and implementation of watershed management
- Project span and scope too limited when long-term commitments are needed

***The concrete steps to be taken are:***

- Consultations with technical divisions in FAO/key actors involved in watershed management
- Inventory and analysis of FAO watershed management projects 1990-2000
- Assessment of existing reviews of watershed management experience within and (outside) FAO
  - Cases for in-depth review of key issues and identification of good practices
  - Regional workshops
    - to share experiences and lessons learned
    - to contribute to the assessment process
  - Dissemination of results:
    - Publication/Conservation Guide on future watershed management projects/programmes
    - Website

Discussion:

- What defines a project (INRM) as a watershed project? A: often we have to consider both the physical and the human (political) boundaries.
- How about market opportunities, these are critical for development and likely to cross watershed boundaries. He lists some watershed projects that could add valuable information to the review and assessment process, e.g., DFID in India and Zimbabwe, ICRISAT in India (Andra Pradesh), and work of B. Campbell (CIFOR) especially on social capital.
- Watershed management is an entry to INRM. So a lot of CG centers are doing watershed work. It looks like you did not include all actors in your review. A: The CGIAR was considered as one institution. The individual centers were not addressed.

**Presentation by Larry Tennyson, FAO**

*Watershed management - review, assessment and strategies for the future.*

Larry presented a summary of phase I of the assessment process. He invites all communication on watersheds. Published reviews of case studies are also very welcome.

His major conclusions are:

- WSM projects / programmes are being implemented throughout the world.
- WSM development concept is not universal with a myriad of strategies / approaches being employed.
- Some major constraints identified in 1986 are prevalent today.
- New approaches such as payment for environmental services need to be implemented and tested under variety of real world scenarios To some extent WSM concept has become diffuse with less emphasis on conservation of soil and water resources.

Discussion:

- Communities / municipalities are important planning units, sometimes they overlap with watersheds.
- What line-agent do we need to deal with for multiple-use management for watersheds. A: This depends very much on the institutional framework. It could be

Agriculture or Forestry. Experiences have learned that a multi-institutional approach often results in failure.

- Do you also look at a continuum of different landscapes? A: The watershed approach takes the complete upstream-downstream sequence. We need mechanisms that make down-stream users pay for environmental services at the up-stream end.
- In Central America municipal and watershed borders coincide. Environmental services are taken care of at the watershed level. Local institutions are often more successful than national institutions.

### **Presentation by Simon Cook on the Water and Food Challenge Program (CP)**

This CP is a multi-billion \$ project led by a consortium of 18 members: CG Centers, ARIs, NGOs, NARES. There are five research themes: policies and institutions, integrated basin management, agro-ecosystems, upper catchments, and aquatic ecosystems. Twelve benchmark basins have been selected to focus the work:

Yellow River, Mekong, Indus-Ganges, Limpopo, Volta, Nile, Amu Dariya, Karkheh, Euphrates, Sao Francisco, Andean basins, Ulua.

There will be a call for concept notes for competitive funding in December 2002. These will be funded in November 2003. Information and background papers are available from [www.cgjar.org/iwmi](http://www.cgjar.org/iwmi).

#### ***The immediate objectives of the Water and Food CP are:***

- Improved food security at household level
- Poverty alleviation through broad increase of sustainable livelihoods
- Reduced health risk from agriculture related threats to water quality
- Maintenance of ecosystem services

#### ***There are four major research themes:***

- Crop water productivity
- Upper watersheds
- Aquatic Ecosystems and fisheries
- IWRM Global processes

Is it too big?

- This is the CG's advantage

Is it not our core business?

- By 2025, 2/3ds of the world's population will be coping with water shortages

Is it not our research issue?

- Water integrates processes from rain to food, drink, health, and industrial utilities

Is it not our area?

- Commissioning of Benchmark basins may need a progressive approach

Shall we start with something smaller?

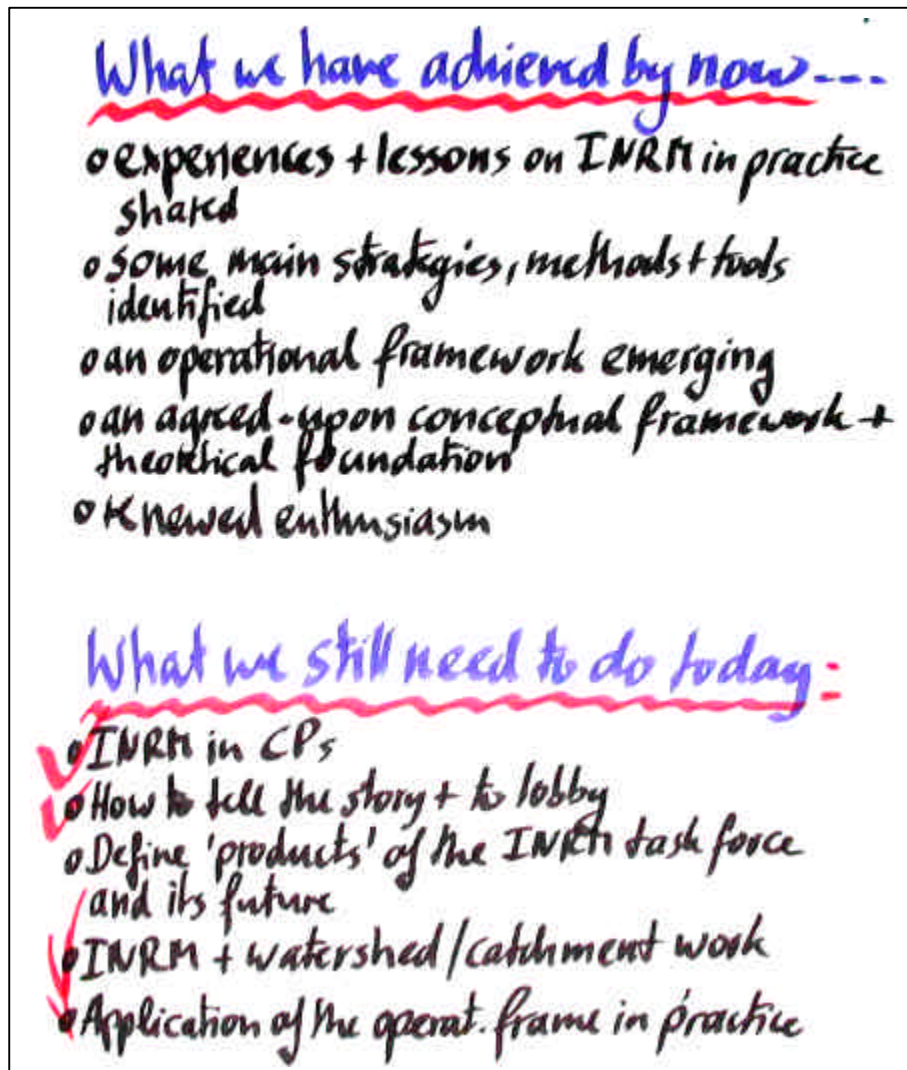
- Some things have to be observed at full scale

### **Discussion:**

- Lots of things are happening at the micro-catchment level, basins are very big, requiring lot of work, while the money is limited. A: Not everything will be done in these basins.
- We have to look at the effect from micro-catchments on the basin.
- The CP is not a project, it is a new way of doing research, promote collaboration and fund-raising.
- The CPs are trying to structure the approaches and funds of donors. This way funding will be more long-term, without continuous switching of directions. A: It is important that we can pull out generalizations to focus our work.
- Is the funding only for the selected 12 basins? A: No, approximately 75% of the funding will be directed towards these basins.

## 7 How to move forward with the INRM Task Force

As an entry into this discussion, a recap of the workshop was done:



Then the future role and the tasks of the INRM task force was discussed in plenary. A number of points on implementation and action were raised during the discussions:

### Implementation and Actions:

- Next meeting should provide a clear action plan.
- We must clarify what is the mechanism for future INRM conceptualization (that is, how to advance in the future if no more large INRM meetings are held).
- We should feel motivated to try new techniques that have been shared.
- By having new person into the INRM meetings we can learn new technologies / approaches / methods.
- We should move from mouth to meat: implement INRM approaches; show examples of INRM in practice; provide specific studies of specific impacts.
- We should perform cost / benefit analysis of INRM.
- We must witness integration in practice, freely exchange ideas, keep learning.
- We should learn how to identify realistic goals for INRM.
- INRM must better Link farmers and end users to the scientific research.

The main tasks which were agreed to be taken up and further by the task force are:

1. develop further a strategy for mainstreaming INRM in CG
2. develop a format to include INRM in the MTPs (Dick)
3. Training & competence development
4. organising the next meeting

A lengthy discussion emerged on the form of the future INRM 'movement'. Suggestions came to form a professional association with resources etc. The suggestion was considered as a point for the future, not for now.

Joachim Voss was tasked to put together a task team to write up the booklets and other publications.

## 8 Workshop Evaluation

The facilitator asked the table groups to reflect on the major insights / lessons in order to see what people take home:

### What is new / different?

- I NRM is an approach to research in agriculture
- Realisation of relevance of I NRM in CPs: preparations to be made
- Holistic thinking
- Theoretical and operational framework
- Getting down to the ground
- Recognition of value of work on relationship
- I NRM is a process that goes beyond agriculture
- Lessons from Penang and Cali are now appearing in the work.

For the final evaluation of the workshop the table groups reflected on two questions:

**Workshop Evaluation:**

**Discuss on your table and come with statements on:**

1. **What we liked in this workshop was ...**
2. **What we did not like in this workshop was ...**

### *What we liked in this workshop was....*

Exchange with inter-disciplinary international scientists, and networking.	Hospitality and help from I CARDIA staff to host us. Syrian hospitality.	Open mind for integration of CG's on I NRM research.
Field visit gave us a real opportunity to exchange ideas.	Practical workshop discussion in small groups (learning).	Meeting old and new friends and get reacquainted with new boss!
Presentations of first day and field trip.	Realizing that I NRM is not a panacea!	Dynamic adaptive type of program of workshop.
Clear pragmatic objectives leading to specific outputs (more focused than before).	Focused dynamic logical framework to allow you to check through out the process.	Good facilitation.
The openness of the discussion in the sessions.	Richard's orientation presentation.	Did move towards putting I NRM into practice.
Interactions and knowledge sharing (case studies).	Field trip to see I NRM action and meet the real integration.	Opportunity to uplift the way of doing agricultural research.

## *What we did not like in this workshop was ...*

No time to visit the city (no cultural integration).	Need more rooms in involvement of new participants.	We still risk continuing to give appearance that we talk without action.
Not enough NARS and non-CG representatives (though the ones here were good).	That we didn't arrive at a plan for integrated NRM for the CG's.	Too philosophical. Need more depth in some of the discussions (challenge for Nairobi).
Time pressure.	Lack of clarity in mode of operation of the task force. Program not well defined.	Too few women backsliding. ☺
A suggested reading list should be sent before the meeting.	Gain of 3 kg to waistline. ☺	

**After the evaluation, the facilitator thanked all the participants for their active and lively participation and particularly the process steering group and Richard Thomas for their great support. Adel El-Beltagy and Joachim Voss gave closing remarks and thanked for organising the workshop at ICARDA. Richard Thomas and his team were thanked particularly for the hard job of organising the whole workshop including the logistics etc. Their contribution was highly recognised.**

## 9 Annex

### 9.1 List of Participants

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## 9.2 Annex 2: photographs of groups