# Participatory Research for Natural Resource Management: continuing to learn together

A Joint CG-PRGA/NRI Workshop

1st – 3rd September 1999 Chatham, England

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## 1. INTRODUCTION

### 1.1 Workshop Programme

Tuesday 31st August 1999

18:00 Arrival and Registration
20:00 Welcome and Informal Ice Breaker

Wednesday 1st September 1999

09:00 Introduction to objectives and expected outputs
09:30 Introduction of Participants
10:00 Keynote address: Hans Schreier, University of British Columbia
11:00 Synthesis of Case Studies

13:00 Lunch

14:30 Parallel Discussion Groups on Experiences in PNRM research:
Soil and water rehabilitation
Collaborative NR management
Agroecosystem health
At landscape & watershed scales
16:00 Presentation of Discussion Group findings
17:00 End of Day One

Thursday 2nd September 1999

09:00 Collective Synthesis Session – Common Opportunities, Constraints and good/best practice
09:30 Introduction to cross-cutting issues
10:30 Parallel Discussion Groups on Cross-cutting issues:
Collective learning
Decision-making support
Institutional linkages communication
Farmer-research interaction
11:30 Presentation of Discussion Group findings and discussion

13:00 Lunch

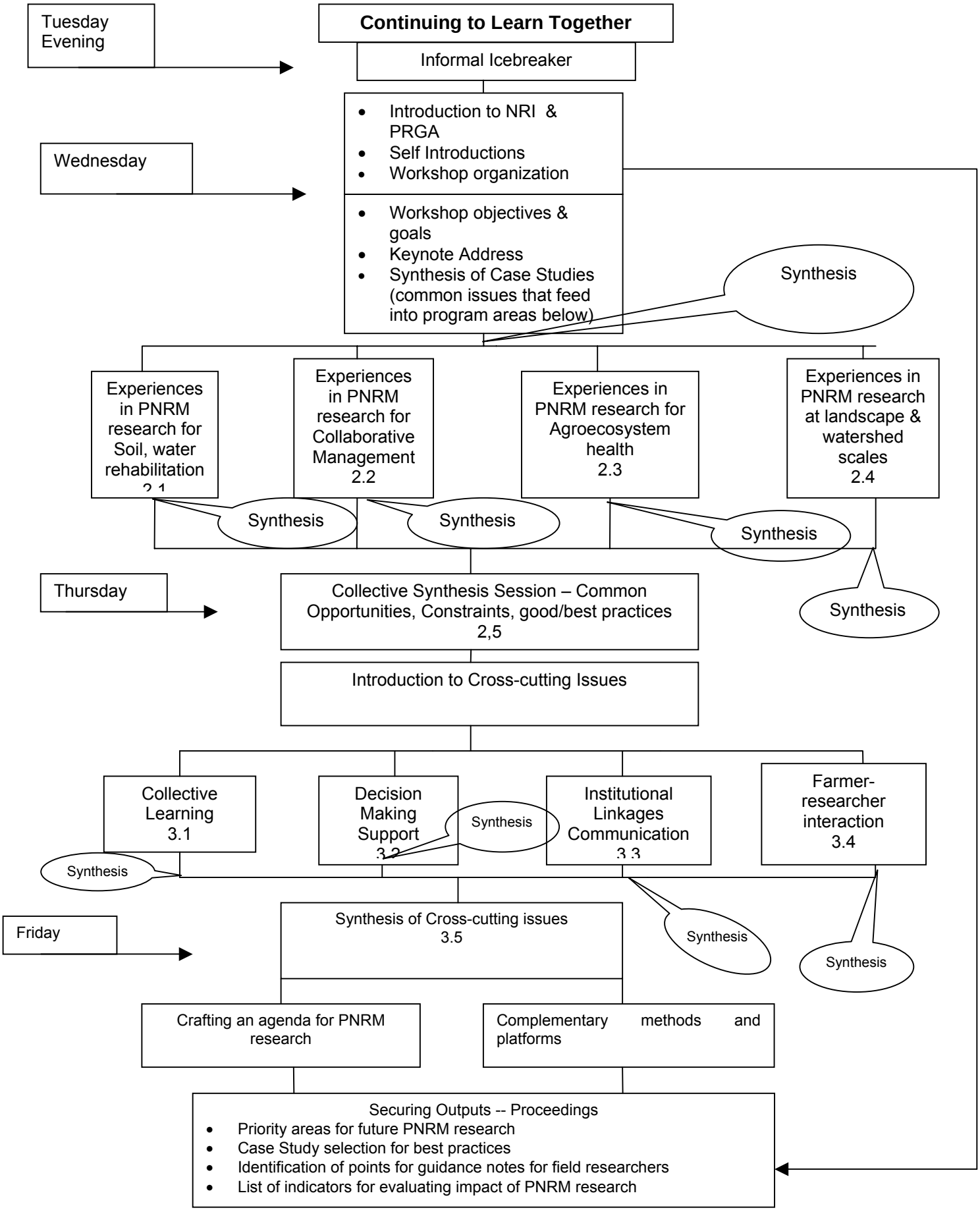
14:00 Synthesis of Cross-cutting issues
15:30 Consolidation of findings and organisation of work for Friday
16:30 End of Day Two

Friday 3rd September 1999

The final day of the Workshop will deal with the following issues: crafting an agenda for PNRM research; complementary methods & platforms and securing outputs. This last day will take the following structure:

09:00 Workshop Begins
13:00 Lunch
14:30 Workshop Re-convenes
17:00 Workshop Ends

## 1.2 Plan of Workshop



## Workshop Objectives

The CG Program for Participatory Research and Gender Analysis (PRGA) Program and Natural Resource Program (NRI) convened a small group of scientists conducting innovative participatory natural resource management research to exchange experiences, and identify future directions for collaboration in the area of PNRM research.

The three-day meeting was organised to exchange experiences and work in progress on participatory research and experimentation with technologies and strategies for:

- Management of common property and protected areas
- Landscape and watershed scales
- Soil and water nutrient management, land care and rehabilitation

These themes were explored using the following questions:

- What innovative approaches are there for collective participation and decision-making in research on NRM problems and processes?
- Where are new kinds of linkages between farmer-led research initiatives and formal-led ones?
- What methods are proving most useful for participatory research with gender and stakeholder analysis and for improving the involvement of specific groups of actors in planning, monitoring and evaluating NRM research?

The expected outputs included:

- Identification of the principles of good/best practice for participatory research on NRM at the landscape level. (N.B. This is not the same as identifying best practice for NRM itself at the landscape level.)
- Identification of common problems and common weaknesses in PR for NRM, and analysis of some of the factors giving rise to them.
- Summary of what we do know; (b) identify major gaps; and (c) formulate a research programme/agenda to fill the gaps.

Number of products were envisioned:

- A set of short case studies on the use of PNRM research “good/best” practices
- A set of guidance notes for use by (field) researchers that can help them to identify opportunities and constraints to PNRM research.
- An initial set of indicators for evaluating the impact of PNRM research

## 1.4 Keynote Address

# Participatory Research for Natural Resource Management: Challenges, Issues and Options

Hans Schreier, Institute for Resources and Environment, University of British Columbia, Vancouver, Canada

The focus of the presentation was to illustrated how GIS and Hypermedia techniques can be used effectively as communication and integration tools to address complex natural resources management issues. GIS, graphic, statistical, image analysis and modelling tools can all be incorporated into a comprehensive interdisciplinary CD-ROM using Hypermedia. These tools can be used in a participatory way to facilitate Cupertino between researchers, and co-operation between researchers and stakeholders. These tools can also be used as information and decision support systems particularly when they are linked to models.

Some of the key issues in participatory research are how to integrate social science, economics and physical science, and how to develop teamwork that is effective and addresses the complex issues associated with natural resource management. These groups have very different philosophies and use different approaches, and despite many discussions within the university system, there are few successful examples of effective integration. Teams that work effectively with one-another from the very beginning of a project have the greatest chance of success. Another key step is to find common indicators that are useful to all three groups, and that require input from all. Productivity, nutrient mass-balances, water balances are such type of indicator that needs both biophysical and socio-economic input. Usually physical scientist select biophysical variables as their indicators of sustainability and socio-economist select social indicators. It is argued that indicators which combine both are more comprehensive and effective because as in the example of productivity, inherited conditions, management and external factors (e.g. climate, policy) are ultimately responsible to determine productivity. If the research groups collaborate in the design of the research, the selection of indicators, and in the collection of the data, then the information is more comprehensive and ultimately more useful. Retaining a geo-referenced location for all research activities for both the socio-economic and biophysical research facilitates the data incorporated into a GIS system, thus enabling the graphic and spatial display of the data. This can then be made interactive by converting all data into hypermedia programs. The resulting product is more comprehensive, more accessible, and becomes a much improved communication tool.

An example of a matrix design was provided to show how GIS can be used to address the key factors of soil formation, land use, and management inputs, and socio-economic conditions to arrive at nutrient budgets, and economic evaluation of cropping systems. A watershed was stratified into elevation, aspect, rock-type and land use classes and with the GIS overlay techniques 48 unique combination of landscape units were determined. Management and soil information was then collected jointly by the team using 10 family farms in each of the 48 types of landscapes. Efforts were also made to assure that all social classes (casts) were represented in each of the landscape types. With this information is now possible to not only display soil fertility and economic information

spatially but it allows the researchers to arrive at comprehensive soil fertility maps and nutrient input maps that show differences in productivity in relation to input, social and biophysical conditions
A case study was presented from Nepal where multi—media techniques were used to produce an interdisciplinary evaluation of resource degradation processes in a 110km$^2$ watershed. The CD-ROM contains information on land use dynamics, socio-economic conditions, soil fertility changes, and hydrology and sediment processes. It also provides data on rates of degradation using multiple indicators, and demonstrates what can be done to prevent degradation and how to rehabilitate degraded lands. An example was also presented to show how gender sensitive socio-economic information could be incorporated into a CD-ROM. In this case the use of forest resources by different user groups was illustrated using interactive GIS and hypermedia-tools.

This hypermedia technology is not only effective as an integration tool but it can be used as an educational tool at the community level. It is now possible to add voice to these CD-ROM products, which enables us to translate the information into the local languages with very little cost. Pictures play a key part in effective dissemination information and having illustrations pertaining to the participating farmers creates an immediate interest and excitement. Once the information is linked to modelling it is then possible to develop scenarios that can easily be compared. As we move towards interactive modelling it is then possible to develop these scenarios in an interactive manner with full community participation.

Access to these techniques is becoming easier and the technology is becoming more user- friendly. Hence these tools should find their way rapidly into participatory research projects. These products can also be used via the Internet making the information more accessible to a much wider audience. Networking community research projects via the Internet will become one of the more exciting new avenues for comparative research. The combination of Internet bulletin boards, multi-media CD-ROM's, DVD's and E-commerce has the potential to revolutionise how we conduct research, communicate global, and educate each other.
For more information see**: www.ire.ubc.ca/projects_w.html**

## Synthesis of Keynote Address

### Participatory, gender sensitive, community based Natural Resource Management Challenges, Issues and Options

Hans Schreier, University of British Columbia, Vancouver, Canada

The presentation illustrated how GIS and Hypermedia tools can be used effectively to address natural resources management issues.

GIS, graphic, statistical, image analysis and modelling tools can all be incorporated into a comprehensive interdisciplinary CD-ROM using Hypermedia. These tools can be used in a participatory way to facilitate cupertino by researchers and cupertino between stakeholders. These tools can also be used as information and decision support systems. Examples were provided to show how social scientist and economists could effectively work with physical scientists to arrive at better indicators of resource sustainability. Productivity, nutrient mass-balances, water balances are indicator that needs both biophysical and socio-economic input. If both researchers collaborate in the design of the research and the collection of the data, then the information collected is more comprehensive and can readily be incorporated into a GIS system and converted into an interactive hypermedia program. The resulting product is more comprehensive, more accessible, and is a better tool to communicate the results of the research.

An example of a matrix design was provided to show how GIS can be used to address the key factors of soil formation, land use, and management inputs to arrive at nutrient budgets, and economic evaluation of cropping systems. GIS overlay techniques were also used to arrive at comprehensive soil fertility maps and nutrient input deficiency maps.

A case study was presented from Nepal where multi—media techniques were used to produce an interdisciplinary evaluation of resource management in a 110$km^2$ watershed. The CD-ROM contains information on land use dynamics, socio-economic conditions, soil fertility changes, and hydrology and sediment processes. It also provides data on rates of degradation using multiple indicators, and demonstrates what can be done to prevent degradation and how to rehabilitate degraded lands.

**Another example was presented to show how gender sensitive socio-economic information can be incorporated into a CD-ROM. In this case the use of forest resources by different user groups was illustrated using interactive GIS and hypermedia-tools.**

Finally, the use of the Internet in combination with hypermedia was demonstrated on an example of an integrated watershed management course that is delivered in a distance learning mode. This allows professional around the world to participate in a global exchange and allows them to upgrade their knowledge in an effective way, without having to return to the university. Using Internet bulletin boards as tools for networking between projects was also advocated.

## 1.5 List of Case Studies prepared for the meeting

1. Borrini-Feyerabend, Grazia (Private Consultand); Participatory Management of Kapuwai's Wetlands (Pallisa District, Uganda): a clear need and some steps toward fulfilling it.
2. Braun, Ann (CIAT); The CIAL or Farmer Research Committee as a Community-based NRM Organization
3. Brinn, Peter (NRI); Focus on integrating methods and approaches to increase gender/stakeholder involvement: Collaborative management of natural resource management and Decision-making support.
4. Conroy, Czech (NRI) and D.V.Rangnekar (BAIF); Participatory Research at the Landscape Level: Kumbhan Water Trough Case Study
5. Dey, Madan M. and Mark Prein (ICLARM); Participatory Research at Landscape Level: Flood-Prone Ecosystems In Bangladesh and Vietnam
6. Garrity, Dennis (ICRAF); The Farmer-Driven Landcare Movement: an institutional innovation with implications for extension and research.
7. Gurung, Barun (CIAT/PRGA); Eastern Himalayan Initiative on Gender, Ethnicity and Agro-biodiversity Management.
8. Heong, K.L. (IRRI) Farmer participatory experiments
9. Klemick, Heather and Devra Jarvis (IPGRI); Participatory Management of Plant Genetic Resources: In Situ (On Farm) Conservation.
10. McDougall, Cynthia (CIFOR); CIFOR/SHK Adaptive Co-Management Project:Long Loreh, Bulungan, East Kalimantan.
11. Nelson, Rebecca (CIP); Farmers' ability to manage a devastating plant disease
12. Peters, Michael (CIAT) Participatory selection and strategic use of multipurpose forages inn hillsides of Honduras
13. Pound, Barry (NRI) developing and implementing an innovative community approach to the control of bacterial wilt (*Pseudomonas solanacearum*) of potatoes (*Solanum tuberosum*).
14. Schreier, Hans (University of British Colombia) Methods Used to Address Resource Issues in Integrated Watershed Management in a Nepalese Watersheds
15. Snapp, Sieglinde (ICRISAT); FPR Methods Comparison
16. Stroud, Ann (ICRAF/AHI); Participatory Agroecosystem Management (PAM) –an approach utilized by benchmark location research teams in the African Highlands Ecoregional Program (AHI)
17. Sutherland, Alistair (NRI); Soil and Water Conservation – Historical and Geographical Perspectives on Participation.
18. Tutwiler, Richard (ICARDA); Long-term Natural Resource Management Research in Intensive Irrigated Systems: ICARDA's Experience in Egypt.
19. van Koppen, Barbara (IWMI); Water Management, Agricultural Development and Poverty Eradication in the Former Homelands of South Africa
20. Vaughan, Kit (CIMMYT); Improving farmers risk management strategies, for resource poor and drought prone farming systems in Southern Africa.
21. Vernooy, Ronnie (IDRC); Participatory mapping, analysis and monitoring of the natural resource base in micro-watersheds: insights from Nicaragua
22. Vincent, Linden (Wageningen Agricultural University); Innovation In Irrigation - Working In A 'Participation Complex'
23. Williams, Jim (NRI) Observations on Use of Information Tools (IT) in Participatory Contexts: Access to Information and Empowerment

## 1.6 Critical Issues from Case Studies

| ISSUES | Innovative approaches collective decision-making in NRM research | Scale and type of NRM situations for which they are used | New kinds of farmer-led and formal research linkages built | Methods for gender/stakeholder analysis & ways to improve involvement of specific actor groups in planning and M&E | Emerging directions for PRNM research: indicators for evaluating impact |
|---|---|---|---|---|---|
| **Soil and water nutrient management** | GIS biophysical database for community issues (9)<br>Matrix for unique landscapes; scaling up (9)<br>Collective vision and adoption of coordinated NRM (18)<br>Resource mapping; analysis and use with users (18)<br>Catchment Area Development Committees (1)<br>Long term monitoring of resource management (17) | Irrigation scheme; scarce resource (3)<br>Watershed for modelling (9)<br>Watershed as project; micro-watershed for interaction (18)<br>Catchment scale (too big?) (1)<br>Farms within irrigation scheme (17) | CG Centre and local stakeholder groups (3)<br>Researcher/farmer problem identification (9)<br>Research/local government, NGO and Community Organisation (8)<br>Researcher/user water group (12)<br>Researcher/user community groups (1)<br>Research/extension/farmer (17) | Resource mapping (18)<br>Resource use scoring (18)<br>Farmer selection by category (17)<br>Participation domains (12) | Policy-supporting frameworks favouring disadvantaged groups (3)<br>Intensify investment for initial evaluation<br>Less time consuming methods (18)<br>Monitoring of effectiveness (1) |
| **Collaborative management** | Visioning for Com. Involvement (8)<br>Demand driven research (7)<br>Gender and Diversity sensitive<br>Interaction of IK with development view (5) | Multi-community farming system (5)<br>Wetland (8)<br>Community grazing (7)<br>Community forest (6) | | Preparing partnerships (8)<br>Developing agreements (8)<br>Developing mapping (7)<br>Criteria and indicator focus (7) | Consensus building (8)<br>Process approaches (8)<br>Financial cost/benefit analysis (7)<br>Criteria and indicator development (6) |
| **Agroeco-system health** | Farmer field schools (16)<br>Integration of social, economic and environmental aspects of sustainability(14)<br>Long term dynamic process (14)<br>Use of GIS for extrapolation (14)<br>Local research committee (2)<br>Technical implementation | Farmer groups (16)<br>Community and scaling up (GIS) (14)<br>Community driven priorities (2)<br>Cross-community farmer groups (11)<br>Community-wide disease control (4) | Complementary on station and community based research (14)<br>Community demand on research (2)<br>Researcher uses farmer perceptions (11)<br>Multi-disciplinary team with communities (4) | Training (16)<br>Learning by doing (16)<br>Targeting to specific groups (14)<br>Community-elected committees (2) | Scaling up (16)<br>Gender analysis (16)<br>Impact assessment (16)<br>Integration of social, economic and environmental aspects |
| **Landscape & watershed scales** | Demand-led and support model for PLUP (15)<br>Participatory GIS; remote sensing; “expert” systems for decision support (10)<br>Indigenous resource management and semi-intensive culture (13) | Community and land use planning after cattle (15)<br>Information tools for community and wider scales (10)<br>Fish/rice and landscape scale (13) | Through information tools that use common language (10)<br>Multi-stakeholder and homogeneous groups (13) | Catchment change modelling (14)<br>Male/female community workers<br>Diagnostic and baseline surveys (13) | Short-term/long-term benefits (15)<br>Local coordinators (15)<br>Community use of information tools (10) |

| | Innovative approaches collective decision-making in NRM research | Scale and type of NRM situations for which they are used | New kinds of farmer-led and formal research linkages built | Methods for gender/stakeholder analysis & ways to improve involvement of specific actor groups in planning and M&E | Emerging directions for PRNM research: indicators for evaluating impact |
|---|---|---|---|---|---|
| **Collective Learning** | Community involvement in designing strategies (8)<br>Farmers identify research (7)<br>Farmers Field Schools (16)<br>Demand-led and support model for PLUP (15)<br>Indigenous resource management and semi-intensitve culture (13) | Farmer groups for individual farm application (16)<br>Community LUP (15) | User discussion groups (13)<br>Researcher as facilitator (8)<br>Multi-level actors and networks | User discussion groups (13)<br>Learning by doing (8)<br>Participatory problem tree analysis (7)<br>Visioning (7) | Consensus building (8)<br>Process approaches (8)<br>Environmental Impact Assessment (7)<br>Gender analysis (15) |
| **Decision-making support** | GIS (9), (14)<br>Matrix of unique landscapes (9)<br>Remote sensing, "expert" systems (10)<br>Long term, continuous process (14) | Modelling at watershed scale (9)<br>GIS-based community decision support (14)<br>Information tools (community and wider) (10) | Change from researcher driven to more collaborative (9)<br>Dynamic, increasing in complexity (14)<br>Need for common knowledge (10) | Linking with headmen (8)<br>Community elected committees<br>Samuhik Bhraman (4) | Establishing biomass on degraded sites (9)<br>Income generation for interim (9)<br>Long term dynamic support need (14)<br>Information tools for M&E (16) |
| **Institutional linkages & communication** | Multi media CD (9)<br>IK and development views (5)<br>Networks (5)<br>Resource use indicators for M&E (18)<br>Socio-technical approach (12) | IWMI mediating between stakeholders, analysis, solutions (3)<br>Researchers, mayors, NGOs, resource users at watershed and micro-watershed (18)<br>Difficulties across participation domains (12) | Combination of diagnostic and PAR (18)<br>"Participation complex" approach to reinforce socio-technical approach (12) | | Use of mapping and monitoring methods by community (18)<br>Broader ranges of stakeholder involvement (12)<br>Study of stakeholder knowledge interfaces (12) |
| **Farmer-researcher interaction** | Ranking and time lines (1)<br>Long term monitoring and LT trials (17)<br>CIALS (2)<br>C.f. farmers perceptions & researchers findings (11)<br>Action research & researcher support (4) | Capacity needed for research - extension CADC interaction at catchment scale (1)<br>Res/ext/farmer associations. at irrigation site scale (17)<br>Focus on community priorities (2)<br>Cross-community farmer groups (11)<br>Community/researcher for joint community action (4) | | | Farmer reasons for adopting/non adoption of conservation measures (1)<br>Relation between soil and water conservation and poverty alleviation (1)<br>Evaluation of directions of pressures for conservation (1)<br>How to evaluate farms perceptions (17)<br>Understanding qualitative aspects of resource base |

NOTE: Numbers in parenthesis refer to number of case studies where issue is mentioned

## 2. EXPERIENCES

## 2.1 Soil and Water Nutrient Management

### 2.1.1 Contextualising the Issue

| **Technology-resources - social interface** | **Linking Worlds of Knowledge** | **Direct Benefits** | **Horizontal Feedback** | **Socio-economic differences practices** | **Empowerment and social organisation** | **Scale - complexity** | **Options - pooling** | **methods** |
|---|---|---|---|---|---|---|---|---|
| Transforming the management governance interface: identifying reasons for infrastructure and problem identification with different groups.<br><br>Understanding local institutional preferences and local ideas about 'transaction costs'. Understanding participation domains.<br><br>Participation in identification of constraints, and in development of solutions.<br><br>Understanding conditions of access to land/water resources of different social groups and the institutions that control access. | Asking farmers organisations and associations about the water management tasks they do and why?<br><br>Understand which soil/water problems are important to which social groups- men women, young old, Tec. Differentiated discussion, maps.<br><br>Understanding indigenous knowledge and practice. | Interventions that combine short term benefits with longer term impacts<br><br>Participatory tech development providing resources and safety nets that enable farmers to experiment whilst reducing risk. Tap into their own R+D<br><br>Superimpose soil fertility + water harvesting on-farm trials | Discussing three design and use of infrastructure at different times with key actors<br><br>Farmer research groups and farmer to farmer field tours (tech options) | Analysis of different soil fertility mgmt practices by socio-economic grp, and soil field types | Empowerment through' user/interest groups and community institutions | Multiple scale analysis of plot/ farm interventions<br><br>Research into PNRM,<br>to devise tools for complex issues and up-scaling how to incorporate externalities | Pooling options or strategies to test participatory assessment of feasibility / constraints etc.<br><br>Multiple options experiments ("supermarket" principle) and farmer scientist interactions | Actor oriented methods: PRA walk through; following strategic actors in water delivery; joining meetings, understanding purposes; discussing the infrastructure with key actors and the reasons for its design and operation.<br><br>Exploring local knowledge of soils /soil management land systems through:<br>Part. Mapping; transect walks; listing and sorting of categories – focus group discussions<br><br>maps , soil analysis, discussion groups |

## 2.1.2 Best Practices

| **Technology – resource-society interface** | **Negative Contexts** | **Positive contexts** |
|---|---|---|
| Linking worlds of knowledge | Highly polarised communities groups<br>Rapid social change urbanisation<br>Seasonal migration<br>Policy context (e.g. Instability in agricultural market<br>Top down target driven project framework | Researchers can: act with different stakeholders across R+D process, understand and design technology in relation to farmers needs (not professional blue print) and understand the transaction costs of institutional change especially induced forms) |
| Scale and complexity | | |
| Differentiating farmer/user practices, needs, interests | | Farmer/users feel they can trust/work with researchers and see the value of the research |
| Diversity of tools | | Researchers are: open to multiple knowledge systems and local problem definition local champions |
| Best practices: Dimensions of research for transformation<br>Best practices: Dimensions of diagnosis understanding | | Projects are process based and have long and open time frames |
| Best Practices: cross cutting | | . |
| Horizontal feedback | | |

## 2.1.3 Methods

Diagnostic surveys on water use, water needs, conflicts distribution and availability (partly participatory based, partly science) GIS - Reference

Soil Fertility Non- conventional soil fertility survey combines soil sample analysis with socio-economic surveys to determine:

i. status of soil fertility and management
ii. Dynamics of the system
iii. Factors that are responsible (inherent and management)

Causal analysis and ranking of soil infertility / erosion
Generally applicable forms basis for intervention allows scaling up from farm to watershed
Needs testing Interventions and acceptability

Problem trees: Diagnostic
Methods need to be rapid, co-ordinated and dynamic/regular (therefore rapid) to monitor changes
Recommendation development workshop with farmers
On farm trial s watershed management with farmers and broader community

Farmer identification of problems in water delivery
Proposals for change
Discussion with all stakeholders

Environmental issues connected to socio-economic issues
External factors?
Utilisation of best available tools (GIS PRM)
Existence of functional organisational models

Indicators which recognise 'quantity' and 'quality' of participation

Identify scale of control/use leverage points, both within system and between externalities and system for rehabilitation and management

Development of soil and climate taxonomies by farmers/interfaced with soil sampling and analysis of climatic factors with met data.

Participatory field problems focused soil sampling

Local soil and land use typologies for system (description and analysis)
Agroecosystem maps and transects to identify soil and field types relating to the Catina

Problem causal diagrams by different stakeholders groups to see differences in problem perception.

Time lines of conservation interventions
Following key actors in water delivery and decision making on water issues

Historical analysis of changes in soil mgmt over time – time lines focus group discussions etc.

Local soil and land use typologies for system (description and analysis)
Agro-eco system maps and transects to identify soil and field types relating to the Catina

Problem causal diagrams by different stakeholders groups to see differences in problem perception.

Time lines of conservation interventions

Following key actors in water delivery and decision making on water issues

Historical analysis of changes in soil mgmt over time – time lines focus group discussions etc.

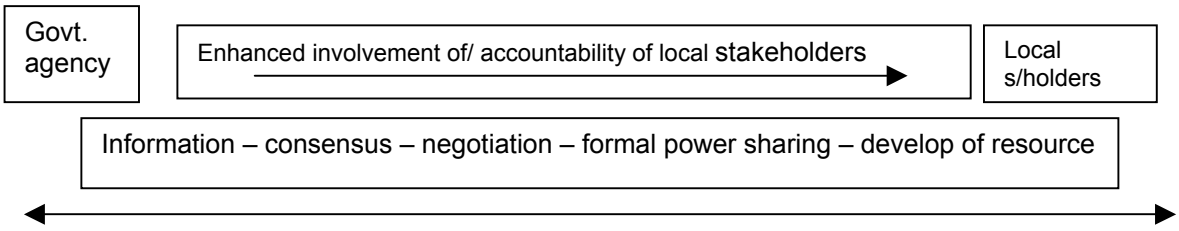
Issues and Gaps: Participatory M + E, of participation and impacts. Farmer diagramming of participation in S+W conservation programme

## 2.2 Collaborative Management

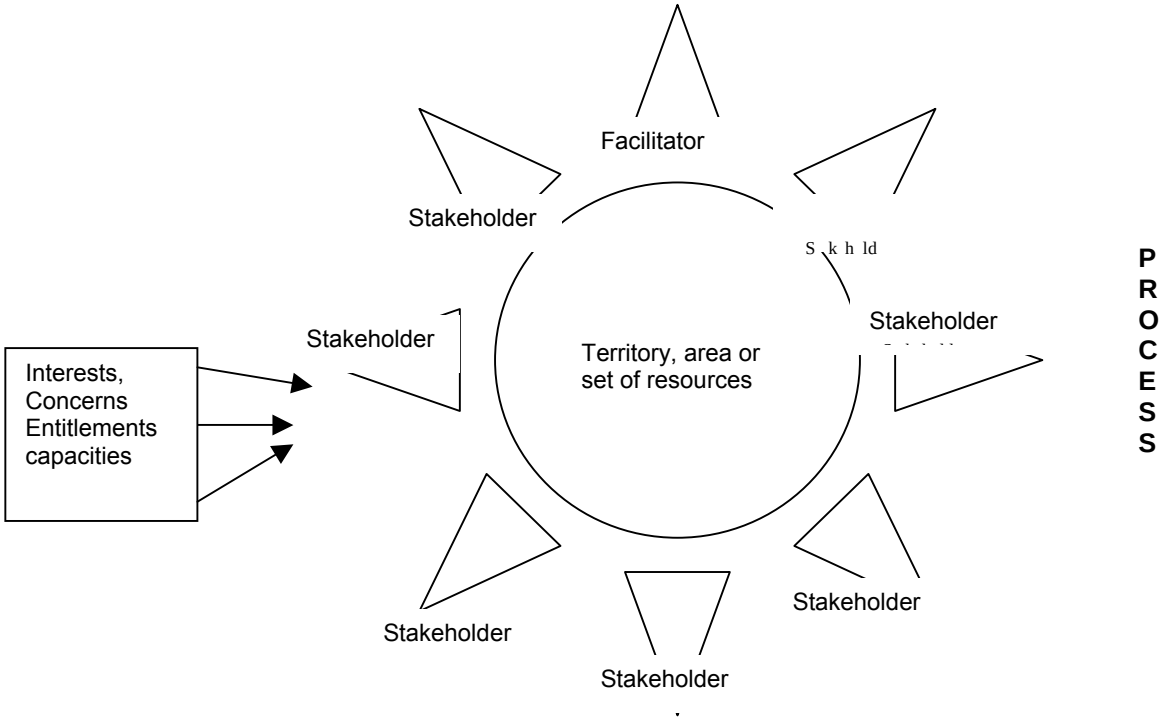
2.2.1 Contextualising the Issue

- Collective action from the community to solve problems, for community action – *capacity building and *conflict resolution.
- Inherent or concerns on defined unit of management – negotiate – guarantee test shore of functions , benefits for management of that.
- Intersectoral collaboration.
- Devolution of accountability – i.e. giving responsibility to stakeholders. This needs to be incorporated into institutions.
- Distinguishes between participation and collaboration.
- shared visions/ benefits
- problem of this concept in different contexts.
- Principles instead of methods
- How to define/ aware of implicit assumptions of equity?
- When should collaboration end?
- Actors continue collaborative process, it is adaptive process (learning by doing).
- Entitlements: Social constructs – recognized roles in management
- Question of equity and scale important

Not a single way or a blueprint receipt, rather procedures must be tailored to context.
LEARNING BY DOING; ADAPTIVE MANAGEMENT



## A Working Definition of collective Management




Stakeholders: Institutional social actor bearer of interests concerns

Collaborative Management of Natural Resources

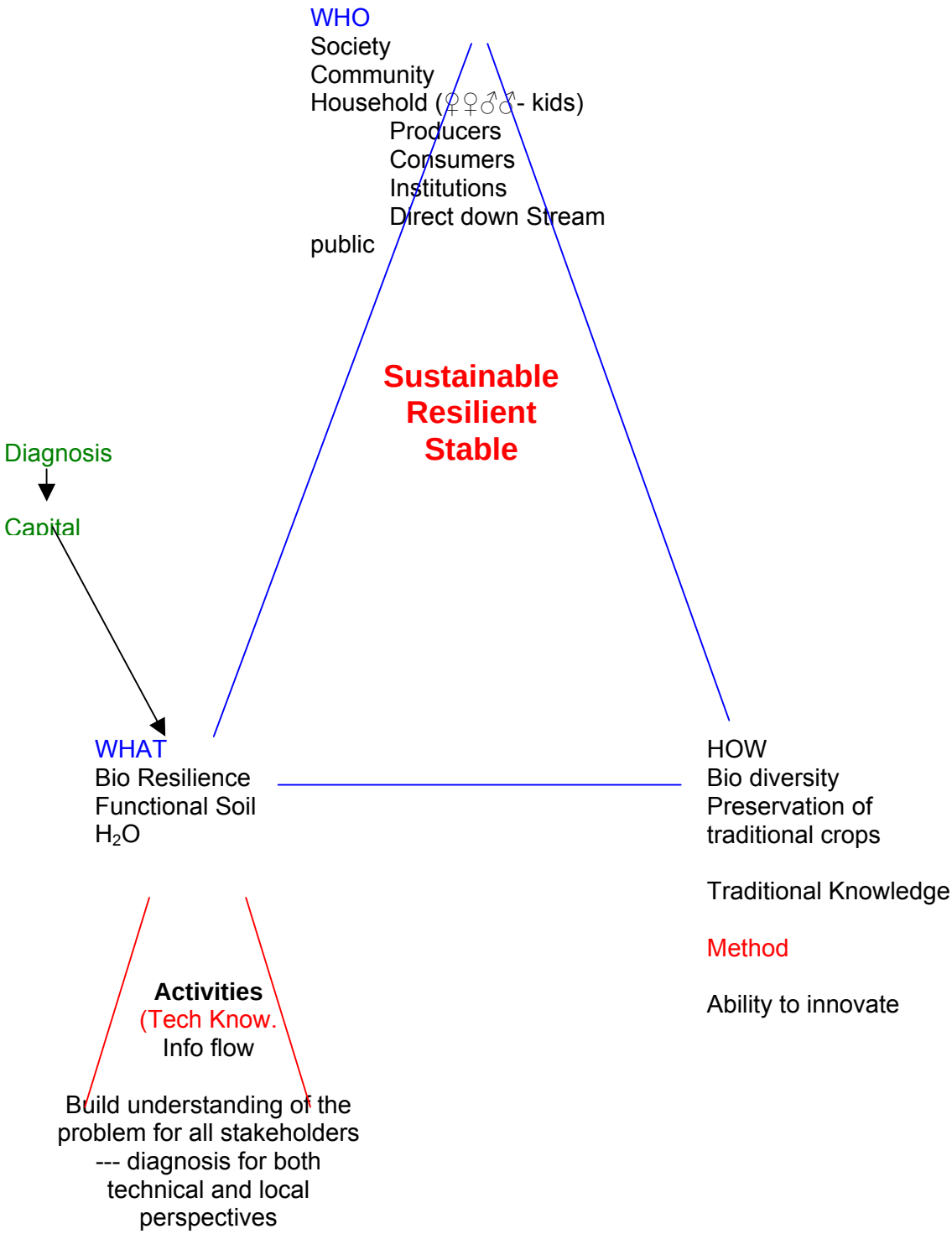
A situation in which two or more bearers of interests concerns….negotiate, agree upon, guarantee and implement a (fair) sharing of management functions, benefits and responsibilities.

### 2.2.2 Best Practices and Researchable issue

| BEST PRACTICES | RESEARCH PRIORITIES |
|---|---|
| Recognition of non-traditional collaborators (PB) | Definition and principles of collaborative management |
| Realistic time frame (PB; CM) | Stakeholder interests, capacities, entitlements |
| Responding to demand (PB) | Social and cultural context og neg and conflict resolution for a/institutions |
| Applied research (non-extractive) (AL) | Applied research – understanding changes to and of resilience of resource base from different stakeholder perceptions – entitlements |
| Intersectorial approach | |
| Collective action for community building | |
| Capacity building | |
| Realistic time frame | |
| Strengthening existing rather than creating new | |
| Responding to demand | |
| recognition of non-traditional collaborators i.e. private/commercial sector | |
| Subsidiary (involve real actors not figures) | |
| Ensure sufficient preparation<br>Building awareness – social communication<br>Level playing field for interaction – not everyone needs to be there at once | |
| Understand cultural context of disparate actors and their interests (shared vision) | |
| Action based applied research (as opposed to extractive) | |
| “Practice what you preach” | |
| Stakeholder identification, being sensitive | |
| – sharing the burden of participation | |

2.2.3 Methods

Relationships in Collaborative Management



## 2.3 Agriculture Ecosystem Health

### 2.3.1 Contextualising the Issue

This can be defined as:
- Sustainable
- Resilient (e.g. Biodiversity)
- Stable
- incorporates understanding of the problems by system managers
- Innovative, ability to adapt

### 2.3.2 Best Practices and Research priorities

| BEST PRACTICES | RESEARCH PRIORITIES |
|---|---|
| Diagnosis linking IK + research knowledge | Methods for ensuring rigour in FPR and robustness of outputs |
| Scenario analysis:<br>expanding farmers horizons<br>innovation | Scaling up:<br>scenario analysis methods<br>Iterative (policy-research-farmer)<br>Statistical methods<br>Qualitative + qualitative info use<br>Info back to farmers |
| Farmer + researcher + middleman:<br>Mother/baby trials | Changing institutions:<br>Incorporate Middleman<br>Incorporate Disadvantaged<br>Scaling beyond margin<br>Improving framework |
| Innovative media:<br>radio drama<br>Puppet theatre, Brazil | Externalities: societal benefits from improved agroecosystem health |
| Farmer experimentation:<br>FFS<br>IPM simple farmer test<br>Community testing | Shining Light – advantage research<br>Space – looking about different space<br>Time – Farmer knowing about it locally |
| Keeping all stakeholders in the picture<br>Farmers perception of limiting factors | Scenario analysis<br>Quantitative quality – GIS<br>Feed back to farmers Statistical analysis |
| Work with principles of sustainability | |
| Be aware of trade – offs productivity – sustainability – equity | |

### 2.3.3 Methods

- Mother and baby trials
- Satellite babies - trails fit farmers needs
- Mothers – fit research needs
- GIS – to help understand what is going on
- Farmer field schools – way of communicating between researchers and farmers
- Scaling up – Testing farmers hypothesis
- Vietnam – Rule of Thumb
- Facilitate farmers experimenting principles
- Biodiversity Fairs
- Creative use of media **2.4 Landscape and Watershed management**

### 2.4.1 Contextualising the Issue

Just talking with farmers is not participatory we have to screen analytically the existing case studies as they might not all be participatory

Eg. Keynote speaker presented a case where information was gathered in a very scientific way and it depends on the use given to the information whether it leads to participatory process or not.

- Problem identification

  This requires a sufficiently strong information base on both sides (researchers have a different set of information) farmers have their information in order to define problems at landscape level.

  Bring in quality information for farmers
  Build together an information base which leads to problem identification
  Researcher should have good back ground information

<u>Problems</u>

Desegregation because you are interested n different stakeholders and then it becomes difficult if you want to aggregate actions in order to measure impact e.g. Soil water conservation.

- Unit of Analysis

  Water shed:- Meeting with two sets of landlords:
  Private land (1)
  Community land (2)

- Between Resource

  Strong issues and household issues
  Two subject areas of diagnosis
  Bio-physical (a)
  Needs assessment (b)
  What type of participatory (c)

- Bio-physical side is what researchers can do on their own

- Is bio-physical unit or social unit more appropriate for participatory records? For same issues?
  - Social-economic unit is more important for others the bio-physical
  - Important to combine both units but “Bad” practice of researchers is to impose units upon stakeholders
  - Boundaries have to be defined unit stakeholders

### 2.4.2 Best Practices and Research Priorities

- Diagnostic best Practice
  - Farmer groups identify problems
  - Focus groups (resource endowment categories)
  - Participatory diagnostic surveys (crucial issues)
  - Second baseline survey for impact analysis

- How to set up M&E on landscape level?
  - Methods are needed to combine indicators of stakeholders
  - Involve female and male community workers
  - Link with indigenous RM knowledge and practices.

| **BEST PRACTICES** | **RESEARCH PRIORITIES** |
|---|---|
| Visioning with community | Decision guides for mgt options |
| Involving multiple stakeholders (inc landless) | Communicating scientific info |
| Stakeholder analysis in relation to resource sharing issues | Experimentation at landscape level |
| Identifying and understanding resource sharing issues (Common Property Resources) | Mutually acceptable monitoring systems |
| Moving quickly from diagnosis to implementation of applied research | Anticipation, identification and management of conflict |
| Participatory tools applied to landscape scale (e.g. diagramming/mapping) | |

### 2.4.3 Methods

| Principles | Methods | 'Best' practices | | Diagnostic + action M+E | Issues |
|---|---|---|---|---|---|
| Catchment Change Modelling | NR mapping and use of 3D watershed models | Part Diagnostics Biophysical and needs assessment | Clear bureaucratic hurdles early on – funding and decision making | Experimentation on landscape level – 'sampling' more difficult | Identifying user groups related to landscape level issues (e.g. Migratory and others) |
| Don't start what you can't finish | Visioning with the community | Researchers are informed on socio-economic issues | Work with user stakeholder groups | Indicator development with stakeholders for whom do we do M+E? | Rectifying and dealing with S/E institutional and bio-physical aspects of landscape |
| Distinguish Resource sharing issues Stakeholder perceptions | | Bring good quality tech info to group discussions | Involve both male and female community workers | Maintaining momentum – building consensus | Way or method of defining unit of analysis |
| | | Identify different sub-groups and their priorities | Link with indigenous NR management knowledge and practice | How to work with local institutions and build capacity in implementation and to diagnose local institutional capacity | How to share translate/communicate 'scientific' info |
| | | Identify any non-resident stakeholder (pastoralists) | Use trained facilitators to solve conflicts | | Trade-offs: Productivity, sustainability, equity, costs and benefits of different management scenarios for different stakeholders |
| | | Use of ranking and problem tree analysis in needs assessment | | | |

## 2.5 Collective synthesis of experiences in PNRM Research

- Scientific approach danger in portraying as one method there is no one scientific approach.
- Direct benefits – to individuals are community benefits.
- Start working with the fact that there is no way not to have conflict situations we should start with that – e.g. assume there will be conflicts researchers should be ready for this who should deal , institutions, researcher.
- Have to be clear about what we mean by conflicts. Need to understand how people negotiate what is required is a recognition of what is requited boundaries of how people manage different negotiations. There are frameworks for looking at disciplines on awareness rather than a list of things to do.
- Direct benefits need to feel for beneficiary they are getting thing out of it. Ethical and science part how do we negotiate that
- Ideology being used well.
- Issues that were not addressed need to expand researcher horizons, interpretation has been avoided. Categorise the boxes in which we work, difficult to do how do we integrate the different aspects?
- If environmental issues require change the value - needs to start with young people.
- Rating and problem fees are appropriate tools
  - Diagramming/modelling
  - Catchment state modelling
  - Stakeholder identification (especially not visible ones)
- Visioning with communities is important tool.

  Be sensitive to conflicts, use trained facilitators to mange conflicts (could be internal local person)
- How do you plan experiments on landscape level? Can you do research beyond farm level?
- Keep momentum, getting greater number of people to buy in (of impact on landscape is objective.
- Empowerment and social organisations research for better technologies Vs research for changing lives.
- If one helps people to understand things that they have the power to change their own lives – should we only be looking at improved resources – or also to improve social organisation.
- FARMERS ARE NOT HOMOGENOUS – with need methods to differentiate. Tremendous complexity at every scale and between levels – GIS can help to understand that complexity.
- Farmers who see the use of the project appreciate collective learning techniques. Researchers can also act as local champions can be flexibility/ responsiveness to

farmers needs; open to local systems acceptance to the value of IK, and community priorities.

- The understanding of transaction cost in changing institutions –
  Moving budgets from
  Mental transformation of cost
- Constraints include
  Community politics
  Rapid social change
  Seasonal migration
  Instability of local markets
  Top town target driven projects
- Resources/ institutions/ may not be available might be able to solve in but not long term. Some international/national institutions are resistance. Vested interest in keeping things the way they are.
- Rigor what can we do that the other mothers / justification-
  Show the special element of use of resources.
  Bring in the question of political control
  See what technology has transformed
- Reflect on our defensiveness at rigour knowing the process is important
- Political implications of:
  Definition of rigour
  Biotechnology and participatory approaches can go together.
  Time needed informing multi-disciplinary teams.
  Levels of confidence
- Visionary- do research, are the processes multi-scenario development with stakeholders display scenarios which will help decision-making. Multiple account methods to look at accounting - for trade off.

## Synthesis of Best Practices

| Collaborative Management | Agroecosystem Health |
|---|---|
| Collaborative advantages and disadvantages<br>Advantages of institutional collaborations what evidence is there that collaborate approach works at the institutional level.<br><br>Sharing of information<br>Must be transparent, but must respect confidentiality of some types of information. Classification of information that should be in the public domain and should be the property of specific stakeholders.<br><br>Conflict Resolution<br>CAPACITY TO ADDRESS – How to address negative contexts highlighted by group<br>Research<br>1. Biophysical criteria<br>2. Human livelihoods criteria<br><br>Impact of strategies on both 2 aspects needed.<br>researchers – Stakeholder interests end entitlement of different stakeholders- who owns what who can do what with what<br>Ownership of resources Vs other types of entitlements – e.g. traditional, recognition of the entitlement.<br>How much the researcher should be a neutral part in mediating and how much should the researcher influence the agenda. | – Research results to provide guidelines for giving management options (&) management principles.<br>– Providing information to local users.<br>– Experimentation at landscape level.<br>– Mutually acceptable monitoring systems – referring to common agendas<br>– Conflict resolution<br>– Diagnostic linking IK and research<br>– Mother / baby trials – complex farmer intact problems can arise from the field with more feed back research.<br>– Innovative media, get across environmental messages<br>Radio drama<br>Diversity play<br>Puppet theatre<br>– Farmer experimentation IPM<br>– Community testing<br>– Farmer Field School approach |

## Synthesis of Research Priorities

| Collaborative Management | Agroecosystem Health |
|---|---|
| Recognition of non-traditional collaborators CASE STUDIES.<br><br>Develop a broad long termed shared vision takes investment in time and energy – resources – before developing the way the opportunities will be addressed.<br>Prior – organisation of stakeholders<br><br>Ways to involve actors who are closer to the NR use (subsidiary)<br><br>How to group/ work in research do we have the "boxes right - " Should we try to look for different groups to the ones we have already in research.<br><br>Ways of influencing policy – with research which can influence action. Participatory monitoring and evaluation require further development.<br><br>Influence of participatory methods on livelihood context not in a single sectoral context impact on livelihoods.<br><br>How empowerment happens through participatory approaches.<br><br>Outcomes of integrated local and scientific knowledge into activities. | – Methods for ensuring rigour in FPR and robustness of outputs, to convince formal institutes/ conventional research it can work.<br>– How best to scale up<br>– Scenario analysis methods: Iterative (policy – research- farmer)<br>– Statistical methods: from qualitative information to how to use<br>– How best to get information back to farmers – quick / **xxxx** is useful to farmers.<br>– Changing institutions<br>– How to incorporate middlemen in stakeholder platforms<br>– Scaling beyond margins – scale up past – pilot project<br>– Common property issues<br>– Ethical issues of extracting diagnosis raising expectations but not following up.<br>– Participatory tools that can be applied at the landscape scale. |

## 3. CROSS CUTTING ISSUES

### 3.1 Collective Learning

3.1.1 Contextualising the Issue

- Collective learning begins with individual knowledge as a base
  Of researchers have rule and regulations
  How far do we impose our understanding on “Professional Procedures”?
  How far do we impose our terms, etc on farmers?

- Cross-section issues in terms of research statistical practises, etc

Farmers operate at plot level and research can bring back the data of a more aggregated situation.

- Farmers do research on plot and then is form of “research network” the aggregated information is disseminated.
  Levels of details
  Interested in different topics
  Being prepared to learn

- Capacity to form groups; What kind of situation makes a group robust?
  Wide type of groups should be formed
  Our assumption is that once a group is established, it becomes a stable formation but that is not true.
  Group as a mechanism as best practice very situation specific

- Does a collective learning group lead into “Elite”?
  Depends on group selection
  Interests driven
  Risks involved

- Challenge is how to feed back loop to others who are not involved in the process.
  Some people are better researchers than others
  Continuum in terms of interests, stakes, capabilities, skills etc.

3.1.2 Best Practices and Research Priorities

- How to take advantage of Heterogeneity for NRM management
- Learn more about group dynamics
  Selection process is crucial and there are always some criteria
- Inter-sector learning is important:; much of the relevant research is outside our domain including mechanisms for collective learning on institutional level
- Problems of PM&E: Time lag between research data collection and farmers observation is not collective learning as researcher’s are behind schedule.
- Data analysis has to be done as close as possible with stakeholders (ownership)
- There are boundaries for collective learning, there are things which are not of interest to farmers (researchers)
- Trade-offs or arrangements between interests of different stakeholders

## 3-2 Decision Making Support

3.1.3 Contextualising the Issue

- What is the decision-making support for?

  Sustainable use of resources

  Preservation of Bio-diversity and Environmental functions

  Sustenance of human livelihood

  Equitable sharing benefits

- During the diagnosis the researcher can influence the context of diagnosis by helping clarify options
- Decision Making - The researcher can influence the context of decision making by assisting to make informed and fair decisions
- Implementing and Learning by doing - The researcher can influence the context "implementing/learning by doing" by assisting to review management results and change what is appropriate to change "Adaptive Management".

3.2.2 Best Practices and Research Priorities

<u>Best Practices</u>

- Decision support systems need to be focused on the decision-makers
  How to start stakeholder process
  Access to information
  Role of researchers verses facilitator
- Establishing values of different resources
  Perspective of each stakeholder groups
  How researchers can influence and change stakeholder values
- Develop and social relationships among stakeholders
- Insure that the researcher is not seen as a quick fix for options
- Finding balance between resources and stakeholder interests
- Accountability of stakeholder
- Demand on decision support tools
- What should they look like : client orientated

  User orientated
- Case study approach to identify inputs and obstacles
  Improve information exchange
  Enhance dialogue across stakeholder leading to action research
- Determine circumstances where participatory research leads to decision making that improves sustainability
- Combine participatory information with computer technology to improve learning and communication e.g. :
  Participatory of GIs
  Quantitative and qualitative modelling

Visioning and scenario development (what if )
Conflicts and options (multiple accounts)

- Find common indicators that are useful to combine Biophysical and socio-economic variables
- Main agenda should be to promote a process
- Identify stakeholders and their entitlements and interests in relation to natural resources
- First identify stakeholders who need to take part in diagnosis
- Differentiate which stakeholder needs to take part in decision-making
- Identify stakeholders who have an impact on the NR in question and who need to be made accountable (eg. illegal cutters of timber)
- Identify stakeholders who benefit from downstream or trans boundary effects of someone else's management of NR in question, and who needs to negotiate sharing of benefits.

Research Priorities

- Who, why and how decisions are going to be made?
  Key test of participation is who makes decisions
  Roots for claims , which then can lead to entitlements
  To be given a forum to stake claims

- Are sufficient and approrpiate stakeholder's analysis techniques already available

- Does decision making have to be all-embracing, or problem based
  Equity does not = equality
  There is a human rights dimension
  Knowledge is power therefore ? is very ?

## 3.3 Institutional Linkages and Communication

### 3.3.1 Contextualising the Issue

- Development of long term shared vision before negotiation of action among different stakeholders and collaborating institutions
- Evidence that institutional collaboration is appropriate and effective. How to avoid if not appropriate?
- Methods/approaches to conflict resolution
- Ways of changing institution to incorporate a range of stakeholders and for scaling up beyond margins of project area
- How to feed research information back to farmers
- Negotiation of monitoring system and indicators between institutional collaborators
- Overcoming institutional resistance to participatory approaches
- Working with continuity points/people in situation of rapid institutional change.
- Conscious action for communication and agreed action across stakeholders.

### 3.3.2 Best Practices and Research Priorities

<u>Best Practices</u>

- Use of multi institutional committees for co-ordination, information sharing, continuity
- Dealing with multiple agendas
- Improving access to information
- Consider selection/quality and judgement required
- Re-packing to be useful
- Visits to some groups
- Use collaborative partnerships
- Important to monitor and provide feed back
- Important to understand and work for management agreements to sustain elements.
- Farmer community groups
- Integrate with local institutions.
- Who is who - power relations – often not know
- Respecting linkages that are culturally necessary.

<u>Research Priorities</u>

- What role/ how successful are criteria and indicators as tools/mechanisms to dialogue among stakeholders
- How can links between policy and local level be strengthened

- What kind of information and communication processes enhance adaptiveness in NRM?
- How research/ technology shapes institutional linkages and possible future change.
- Translation of former needs/ argued activities across stakeholders to achieve wanted outcomes.
- Bringing individual reviews of experiences as acceptable information.

### 3.3.3 Methods

<u>To Strengthen local demand for services</u>

- Concertation improving co-ordination and co-operation
- Competitive small group programme
- Co-teaching and training
- Inter-institutional committees
- Multi- stakeholder – based projects "consultative" group

<u>To Communicate findings and Results</u>

- Locally built 3 dimensional models
- Participatory maps
- Watershed jigsaw puzzle
- Songs
- Case stories
- Drawings
- Simple evaluation cards
- Traditional drama to highlight social and technical issues

## Summary of Institutional Linkages and Communication

| Rationale & dimensions or aspects | Mechanisms – tools for (new) institutional linkages | | Communication tools | Improve the presentation and channelling of information | | Research Priorities |
|---|---|---|---|---|---|---|
| • Widening horizons<br>• Strengthening local demand for services<br>• 'Concentration': improving co-ordination and co-operation | • competitive small grants program<br>• co-teaching and training<br>• formation of associations<br>• interinstitutional committees<br>• CIAL's and linkages with NARS – NGO – IARCs<br>• Multi-stakeholder-based project 'consultative' group | Formation of network / association of regional community organisations<br><br>Farmer Community Groups<br>• Integrate w/local institutions<br>• Who is who, & power relations often not known<br><br>Use of multi-institutional committees for co-ordination info sharing etc.,<br>• Continuity<br>• Dealing with multiple agendas<br><br>Use collaborative partnerships<br>• Important to monitor them and provide feedback to entities<br>• Important to understand and work for management agreements and sustaining elements | • Locally built 3D models<br>• Participatory maps<br>• Watershed jigsaw puzzle<br>• Songs<br>• Case stories<br>• Drawings<br>• Simple evaluation and score cards ☹, 😐, ☺, etc.,<br><br>Use of traditional drama can highlight social and technical aspects<br>• Good for building awareness but requires follow up<br>• Selection of theme – from whose perspective?<br><br>Develop/strengthen local forums of expression through modern forums i.e. video | Ways to process information to users- to help identify issues and make informed judgements for change and investment<br><br>Understand local communication channels and methods - - aim to improve and empower<br><br>What kind of information & communication (process) enhances adaptiveness in NRM<br><br>Improving access to information<br>• Consider selection/quality and judgement required<br>• Repackaging to be useful<br>• Risks to some groups | Contentious paradigms<br><br>New demand driven delivery mechanisms (etc small grants schemes)<br><br>Meanings and results of new forms of participation and concertation (e.g.PNRM research into Policy) | How can linkages between policy and local level be strengthened (for enhancing local well-being and SFM)<br><br>• How resource/technology base of agroecosystem shapes institutional linkages and possible future change<br>• Translation of farmer needs/agreed activities across stakeholder to achieve wanted outcomes (participation domains)<br>• Bring individual reviews of experience as acceptable info on planning |

### 3.4 Farmer Researcher Linkages

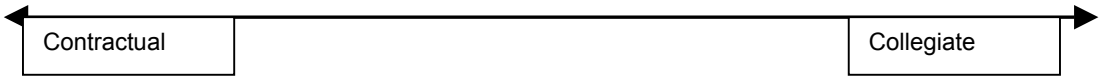
3.4.1 Contextualising the Issue

- Methods interacting between farmers and research
  Relation in terms of research mode
  Context of the relationship
  Make a productive environment

- The context excludes the diversity of actor's e.g. private enterprise, extension, middlemen, policy etc.
  Two way flow, thus research becomes more targeted
  Farmers access to research findings
  Farmers and researchers become better partners
  Farmers become better researchers( capacity building implications)
  Involving farmers in all stages of the research cycle including setting the agenda
  Identifying where interests intersect
  Involve all types of stakeholder, identifying and including the disadvantaged, working with existing CBOs (time implications)
  Changing of the teacher- pupil relationship mindsets
  Are different types of Farmer researcher interactions appropriate to different project/activity objectives?

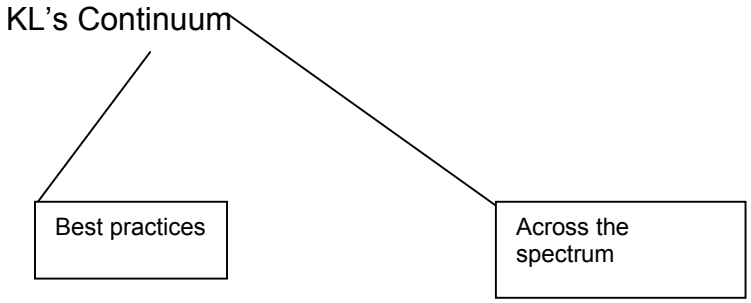
- It was discussed that on the spectrum of research processes there was a continuum where different types of linkages where relevant at different stages of the project and for different tasks etc.

KLS research continuum (envisage Biggs classification of PR)




**Farmers participate as contractor design experiments, collect data, analyse**

**farmers set own agenda,**




The place where you are on the continuum can shift during the life of the project.

## 3.4.2.a Best Practices

| | | | | | |
|---|---|---|---|---|---|
| Risk prone research | Environmental and societal good (Malawi) soil conservation. Ethiopia public good DJ | Linking with CBO NGOs who can provide other services outside mandate Nepal DJ | Ensuring all the parties understand the technical principles overall context and specific objectives of the research training, discussion and negotiation | Farmer researcher committee meetings in clusters. Consultative to collaborative | Researchers work with COG to increase farmer empowerment, input from disadvantage groups and women farmers etc |
| Case study (DJ) Morocco local variety testing on farmers fields by farmers resulted in not weeding lack of farmer ownership and importance of experiment | Ethiopia publish PRA reports in local languages and contribute in communities | Openness in the relationship putting objectives on the table Nepal BP | Zimbabwe fertiliser management practice, farmers invest in technology, for only farmers interested and able to invest in fertiliser, Goal higher yields. | Kenya soil and water competitions between farmer researchers and farmer judges | Kenya soil and water conservation. Focus farmer groups. Horizontal communication empowers and aids F and r interaction. |
| Use a common language ( e.g. insect pests- local classification and researcher classification) | Mother baby trial frameworks (SSS) Trial design to facilitate researcher middleman farmer interaction and communication-platform for experiential learning across disciplines and world views | Amicable and mutually beneficial exchanges (knowledge and material benefits) between farmers and researchers | At scale technology identify key decision takers and decision processes and values, before imposing ideas of democracy and inequity | Facilitating new CBOs in some areas Uganda, Tanzania and Madagascar | Whole Household training in Bangladesh |
| | Involving national program scientists, people in participatory | Contracts may be verbal to minimise disappointments and miscommunication | Linking diagnosis and experimentation, involve some farmers in both but there are trade offs in terms of replicability | CIAL farmer research committee<br>Farmer experimentation<br>Farmer researcher links to formal research systems of improve relevance of research | Location specific problems |
| | Involving national program scientists, people in participatory research diversity fair Nepal | Participation how to start? Evolving partnerships, flexibility, confidence building BP Farm Africa (Ethiopia) | Ethical issues of extracting information without follow on benefit in the short term | | Institutionalise farmer researcher interaction |
| | FPR methods comparison, ignore evaluation of FPR methods by all stake holders: farmers middleman and researchers and policy people | | | | Kenya and Ethiopia DAREP peer review of S and W on farm participation research to involve wider research community |
| | Taking time for building up farmer research interaction Burkina Faso, Nepal. | | | | Farmers motivated to test a hypothesis researcher introduces FP experiments |

3.4.2.b Research Priorities

- Continuity of support beyond project horizon
- Risk of creating new inequalities
- Entry points and exit strategies for NRM
- Community demands credit, facilities, and infrastructure
- Farmer incentives for contract research. Farmer perceptions (Ethiopia DJ)
- Communicating science to farmers (experimental skills)
- Coping and understanding farmers modifications and own experiments
- What is the spectrum of research what method is useful at what time and level?
- Processes for documenting methodologies built into research
- Research into determination of decision making (e.g. peer pressure against reduced tillage)
- Investigation of farmer information services and decision making. Communication pathways.
- Setting research priorities especially the CG's requires a systems understanding.
- Methodologies, indicators to measure effect and change of research priorities. E.g. perception change and empowerment.
- Method to measure indicators, farmer empowerment, Knowledge increasing experts. Increase farmer and researcher linkages. (KLH and SSS)

<u>Research priorities</u>

- better ways for identification of stakeholders and involving them in research
- better ways to study relationships between resources, technology and people
- bridging SE/BP perspectives; convention (stats methods) / pr practitioners
- what is the impact of PNRMR on empowerment. *Externalities*
- how to demonstrate success?
- how to communicate? policy. (Media, message interaction, feedback)
- how to upscale/ extrapolate?
- manage process, agenda setting

*related issues:*

- looking at livelihoods - ecosystem. Holistic? Systemic? NRM & Sectoral. *Externalities*
- new alliances; user-public-private-civil society
- scarcities and control. How to study? (Resources)
- contingency approaches. Learning by doing. (Adaptive/ co-management)
- sustaining traditional knowledge - meaningful & useful. Action not just awareness
- skills and communication for innovation (new space). Creating new forms of communication.

*What are the priority NRM areas for PNRMR, e.g. soil, water, genetic res' etc.?*

## 4 SYNTHESIS OF FINDINGS

### What are the best practices in NRM?

| Presentation structure | Criteria - Aspects of best practice in Participatory Natural Resource Management Research (PNRMR) |
|---|---|
| Review best-practice criteria/ dimensions/ principles - review case studies and material from days 1& 2 presentations | Partnership (created & strengthened) through dialogue, friendship/ fun, joint actions and mutual benefits |
| Put together a generic set of criteria *(context)* | Awareness of change dynamics and mechanisms to address these; analysis of change in subject matter (NRM systems)<br>(b) change and innovation in participating organisations |
| Classify case studies according to criteria (matrix) *(objectives)* | Well defined empowerment objectives and strategies - realistic expectations for empowerment |
| What is "bad-better-good-best" in terms of classification? Minimum requirements? *This was later dismissed as a point due to disagreement about how of if 'best practice' can be judged it these terms.* | Holistic analysis & scenario development, telescoping mechanisms defined and integrated in research process |
| | Information access & use based on multi-sources and horizontal exchanges |
| | 'New professional' (Chambers) roles accepted and practised |
| | "The best" of knowledge worlds linked together through research process |
| | Strategy to stimulate participation of marginalised groups (women, landless, lower castes) |
| | Relate/ synchronise participatory research strategies to research objectives – be realistic |
| | Good documentation of participation as process, tools and result |
| | Eye for incentives and motivation and benefits among facilitators of PNRMR |
| | *Clear* strategy for action/ change as an outcome (either material and/or social capital) |
| | Use of diversity of tools & triangulation |
| | Respect commitments with partner/s |
| | a. Scale up/ extrapolate strategy<br>Analysis of uptake environment |
| | Sustainability and exit strategy |
| | Shared agenda setting |
| | Shared authorship |

## What does it mean to do research in a participatory way?

| Research Questions | | Research Process | | Research Output | Communication of Results |
|---|---|---|---|---|---|
| - Stakeholder interest, capacities, entitlements | - Study relationships between resources, technology and people | - trans: SE/BP & conventional & participatory metods. C & I | | - what outcomes can come from integrating local & scientific knowledge<br><br>- understanding how empowerment happens (or does not happen) through forms of participatory research | - how to share/ translate/ communicate "scientific" information |
| - research – with whom/ for whom<br><br>- issues of partner<br>client<br>public<br>interest<br><br>- shaping 'research priorities' | - identify stakeholders who have an *impact* on the NR in question and who need to be made accountable<br><br>- identify stakeholders who *benefit* from downstream or trans-boundary effects of someone else's management of the NR in question | - indicator development with stakeholders<br><br>- form whom do we do M&E | - conceptual framework and methods that integrate analysis of governance and management of soil and water with understanding of the resource supply/ technology interface shaping their use<br><br>- how to translate this<br><br>integrated knowledge into action | - trade offs: productivity, sustainability, equity - costs & benefits of different management scenarios for different stakeholders | - forms of representation techniques and analytical tools for mapping process/ patterns/ relationships:<br>* to facilitate mutual anlyses of data<br>* to facilitate feedback |
| - determine circumstances where participatory research leads to decision-making that improves sustainability and equity | - identify stakeholders and their entitlements and interests in relation to NR;<br>* first identify stake-holders who need to take part in diagnosis<br><br>- differentiate;<br>* which stakeholders need to take part in decision making | - existing social & institutional context of negotiation conflict resolution fora (organisation)) | - rectify and dealing with S/E institutional & biophysical aspects of landscape<br>- case study approach to identify inputs and obstacles;<br>* improve information exchange<br>* exchange dialogue across stakeholders<br>* leading to action research<br>- how to organise stakeholders to address new NRM issues | - *methods for* participatory monitoring and evaluation *impact*<br><br>- conceptual frameworks and methods that a project or programme may use to influence policy | - combine participatory information with computer technology to improve learning and communication:<br>* participatory GIS<br>* quantitative & qual. Meth'y<br>* visionary & scenario development (what ifs)<br>* conflicts & options (multiple accounts) |

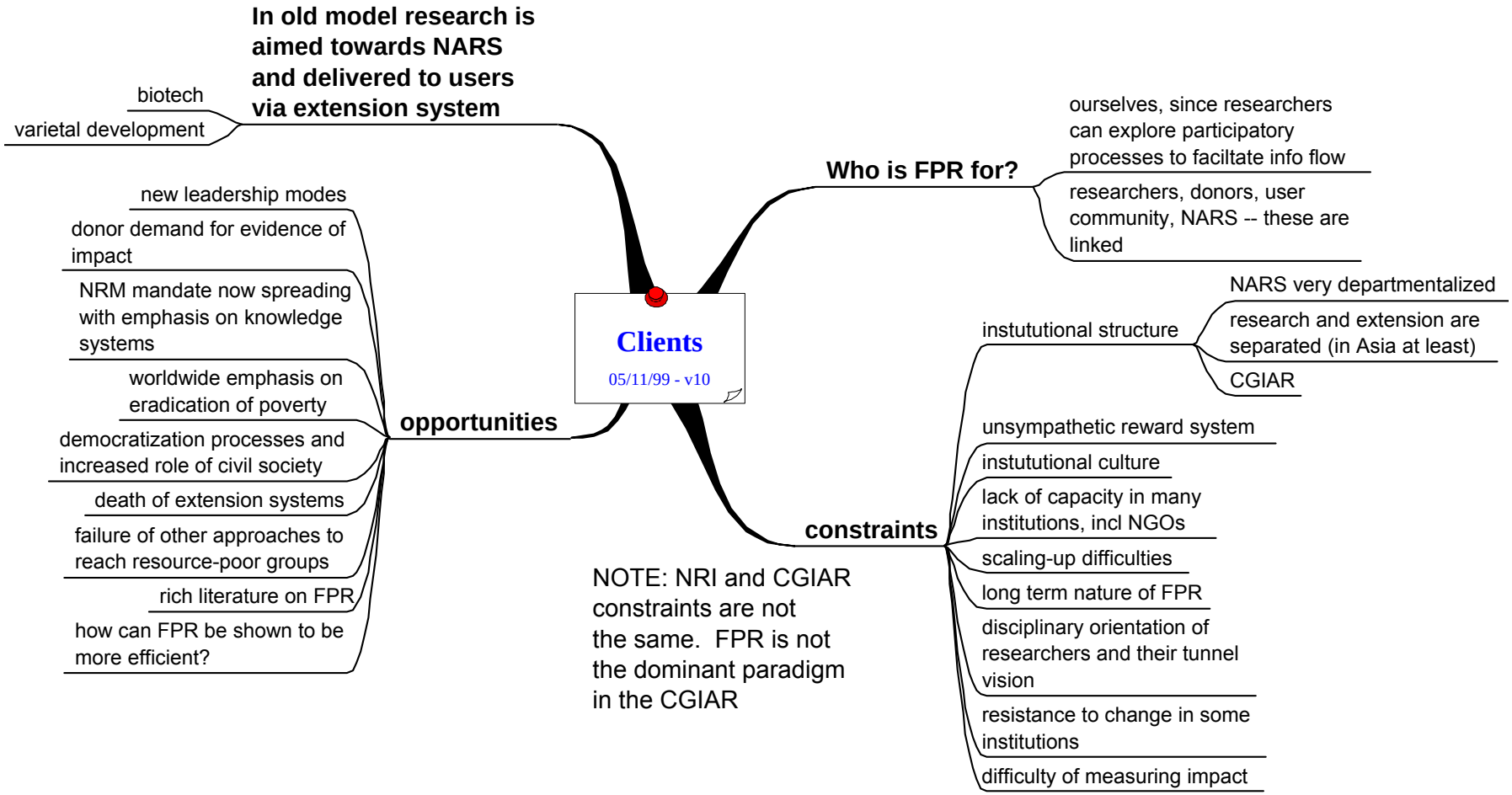
| Research Questions | | Research Process | | Research Output | Communication of Results |
|---|---|---|---|---|---|
| - how participatory research methods contribute to awareness and uptake of new livelihood activities | - 'groups'<br>* principles/ practices for working with heterogeneous groups<br>* principles/ practices related to cultural influences on group dynamics | - handling of FPR - derived data sets | | - needs research:<br>* collaborative advantage/ disavdvamtages<br><br>- institutional/ cross sectional. When/ who<br><br>- impact of collaborative M. vs biodiversity human welfare | |
| - role of (formal) researchers in collaborative NRM e.g. researcher vs. Facilitator vs. stakeholder.. | - identify user groups related to landscape level issues (eg migratory & others) | | | | |

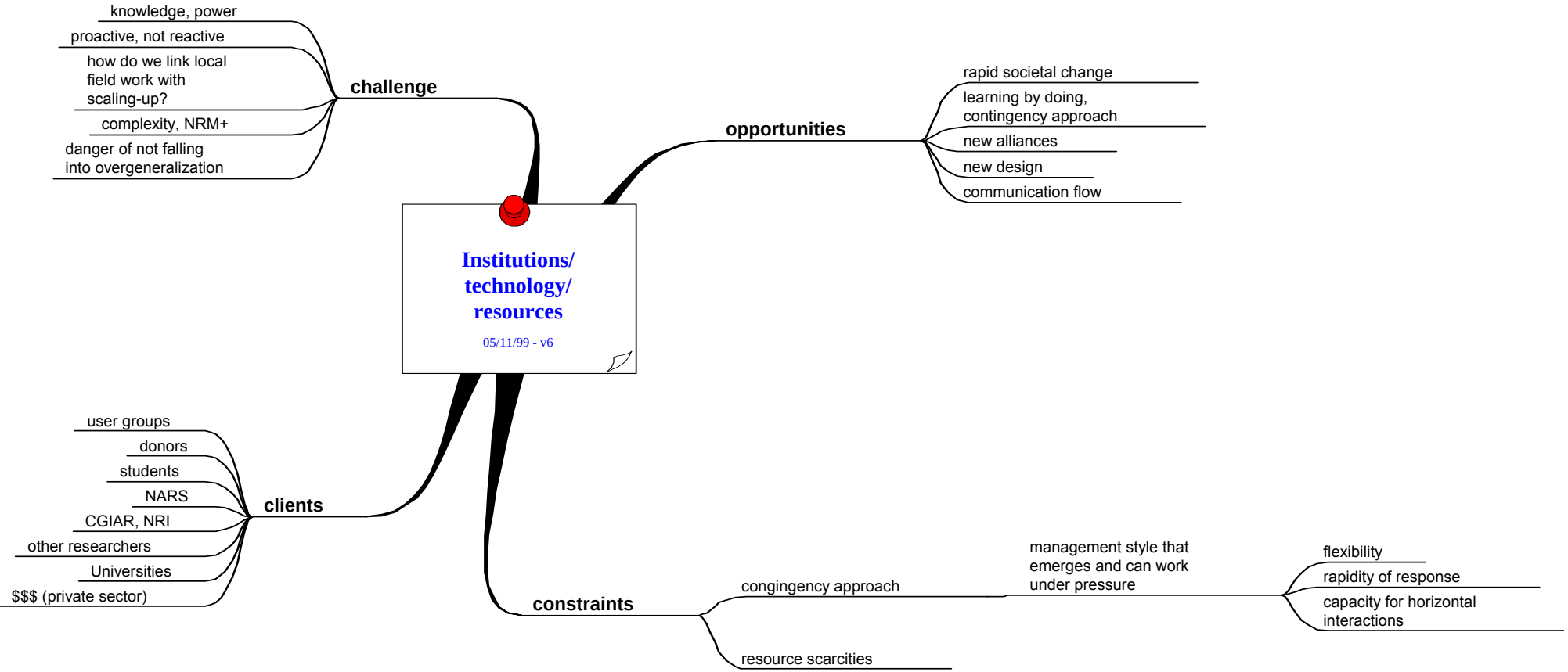
## *Innovation in a changing world - how do we look at interactions between institutions, research and technology?*

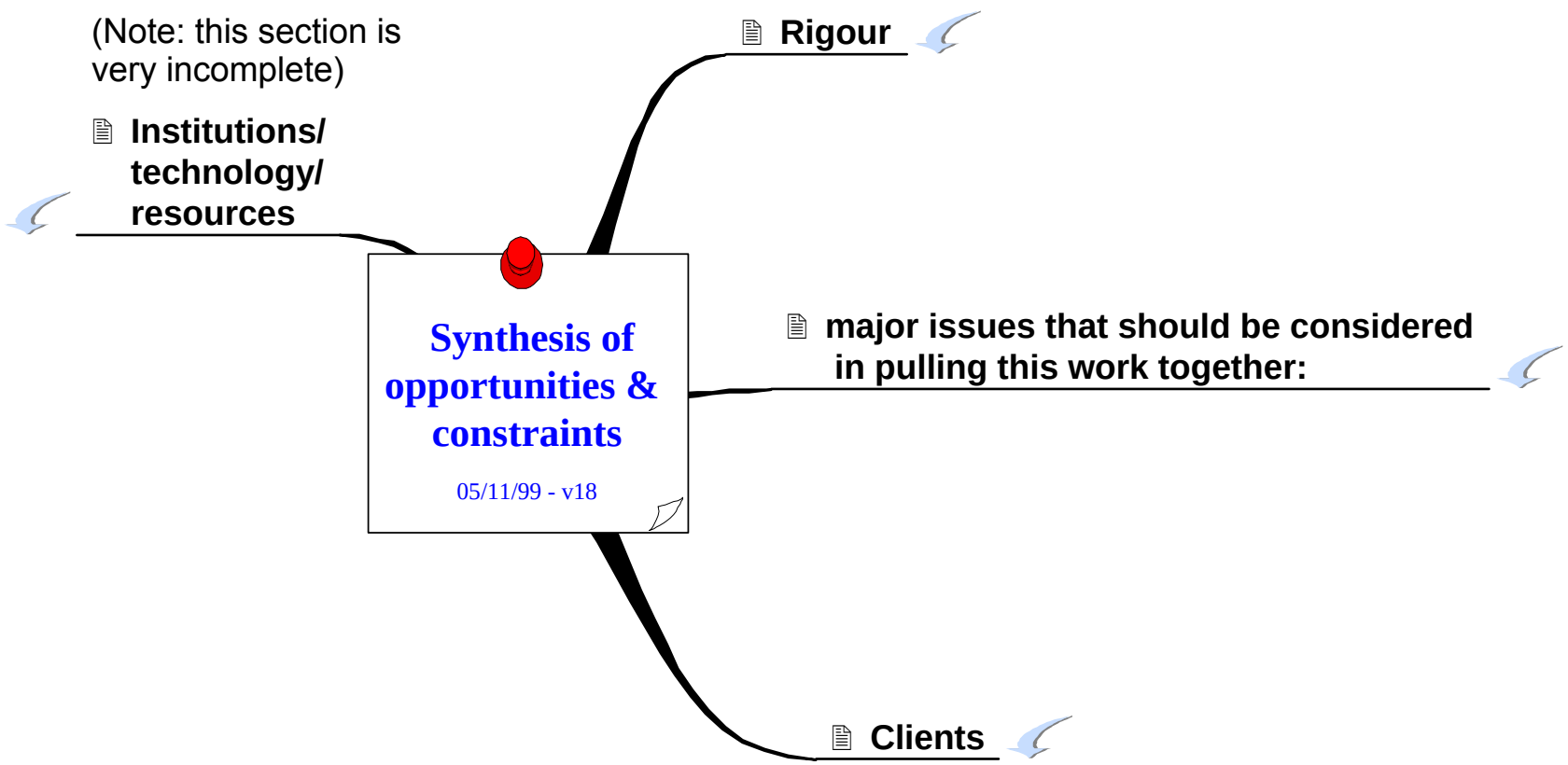
| Opportunities | Challenges | Constraints |
|---|---|---|
| - Chance/ need to play new roles | - rapidly changing society e.g. new technology, privatisation | - stop reinventing ourselves |
| - Researchers as promoters of PNRM processes empowering the farmers/ users | - "contingency approach" - soft systems theory - learning by doing "the emperor has no clothes" | - efficiency approach/ rigid models |
| - new alliances - public/private/c.s. | - local action/ field work and scaling up/ replication principles | - privatisations/ commercialisation, control in fewer hands |
| - work with and sustain traditional knowledge and skills - community solidarity and cohesion | - scale complexity & scales interactions | - resource scarcities<br>- conflicts<br>- competition |
| - new design, flow and management of info and forms of communication<br><br>eg. Internet, e-commerce, hypermedia | - knowledge/ power | |
| | - maintaining/ creating space for innovation.<br>- new incentives/ skills/ social organisation | |
| | - be proactive, not reactive. E.g. we define what is impact in PNRM | |
| | - NRM + Health, I.C.T.s, "education" | |
| | - differences: asia, africa, l/a | |
| | - ecosystem approach/ holistic and systemic visions | |

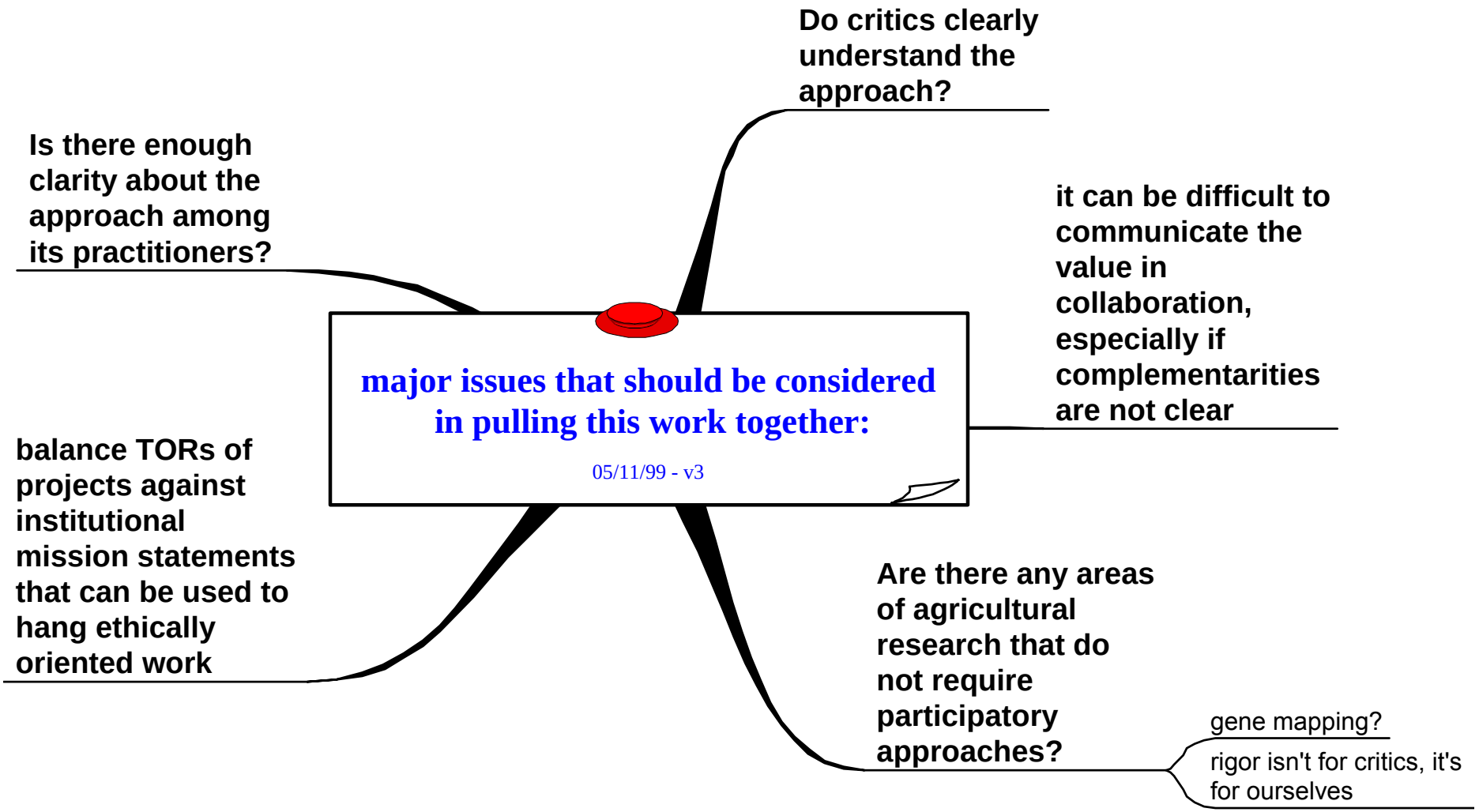
## Stakeholder Matrix

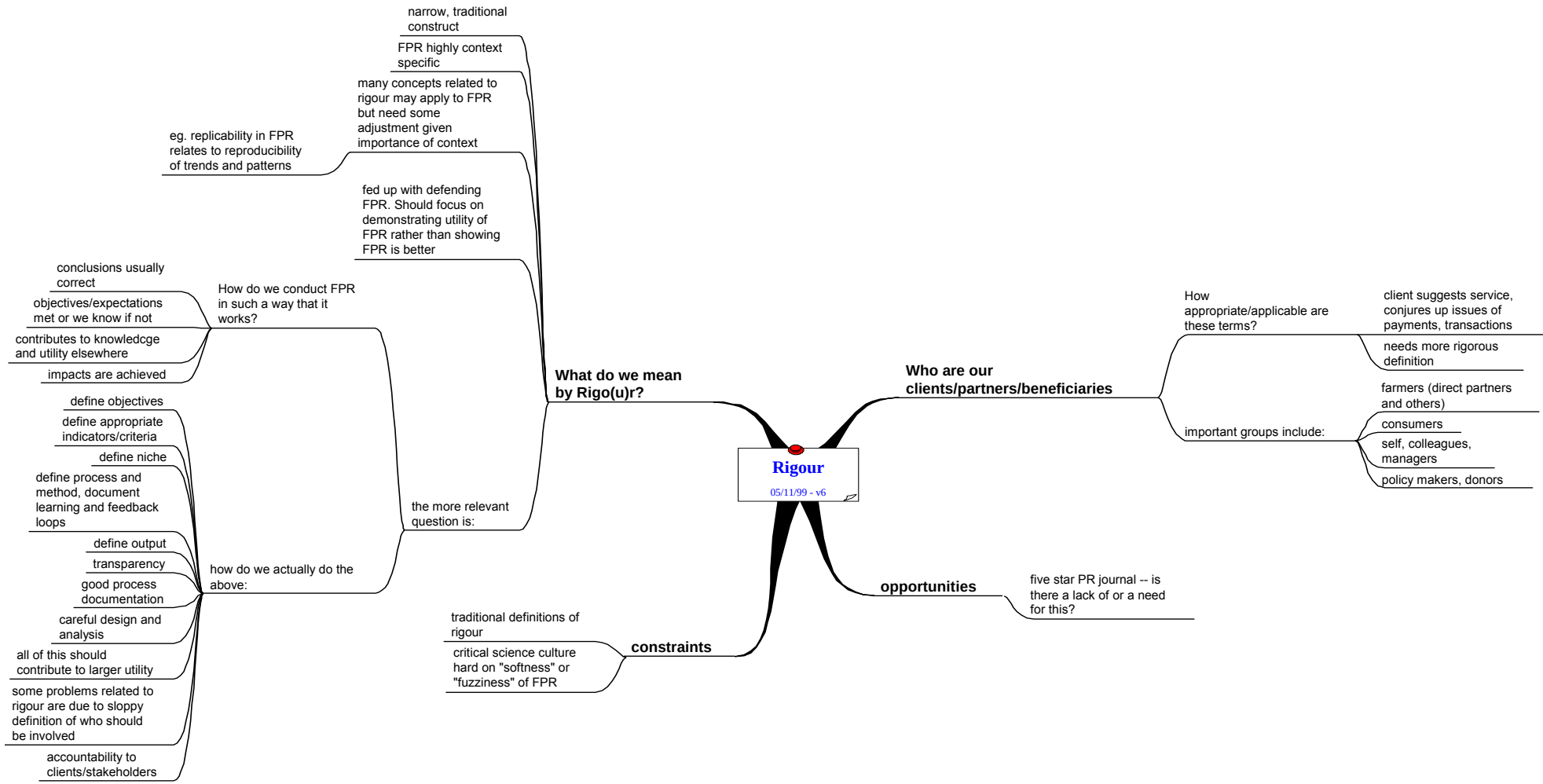
| Insti-tution | | User groups | | donors | students | NARS/ NGOs | Other researchers | $ |
|---|---|---|---|---|---|---|---|---|
| CGIAR | Resource-poor farmers | Farmers not served by private sector | Small holders | | | | | |
| UNIV. | X | X | X | X | X | X<br>Up-scaling? | X<br>Unfavourable institutional contexts and vested interests | |
| NRI | X | | | | X | | | |
| | X | X | X | X | | X | | X |
| | -importance but how to partner/link to communicate.<br>-Beneficiaries vs. clients vs. partners | | | -Upward pressure<br>-Downward cash<br>-Setting the agenda | -Weak/agr.<br>-What will happen | -Weak/ disappearing<br>-Vertical<br>-Conservative<br>-privatised | -Weak communication<br>-overload of info<br>-“garbage” info | -Look further e.g. mission/ ethics<br>-People focussed<br>-debate |


Clients
05/11/99 - v10
In old model research is aimed towards NARS and delivered to users via extension system
biotech
varietal development
opportunities
new leadership modes
donor demand for evidence of impact
NRM mandate now spreading with emphasis on knowledge systems
worldwide emphasis on eradication of poverty
democratization processes and increased role of civil society
death of extension systems
failure of other approaches to reach resource-poor groups
rich literature on FPR
how can FPR be shown to be more efficient?
Who is FPR for?
ourselves, since researchers can explore participatory processes to faciltate info flow
researchers, donors, user community, NARS -- these are linked
constraints
instututional structure
NARS very departmentalized
research and extension are separated (in Asia at least)
CGIAR
unsympathetic reward system
instututional culture
lack of capacity in many institutions, incl NGOs
scaling-up difficulties
long term nature of FPR
disciplinary orientation of researchers and their tunnel vision
resistance to change in some institutions
difficulty of measuring impact
NOTE: NRI and CGIAR constraints are not the same. FPR is not the dominant paradigm in the CGIAR


Institutions/
technology/
resources
05/11/99 - v6
challenge
knowledge, power
proactive, not reactive
how do we link local
field work with
scaling-up?
complexity, NRM+
danger of not falling
into overgeneralization
opportunities
rapid societal change
learning by doing,
contingency approach
new alliances
new design
communication flow
clients
user groups
donors
students
NARS
CGIAR, NRI
other researchers
Universities
$$$ (private sector)
constraints
congingency approach
management style that
emerges and can work
under pressure
flexibility
rapidity of response
capacity for horizontal
interactions
resource scarcities


(Note: this section is very incomplete)
Institutions/ technology/ resources
Rigour
Synthesis of opportunities & constraints
05/11/99 - v18
major issues that should be considered in pulling this work together:
Clients


major issues that should be considered in pulling this work together:
05/11/99 - v3
Do critics clearly understand the approach?
Is there enough clarity about the approach among its practitioners?
it can be difficult to communicate the value in collaboration, especially if complementarities are not clear
balance TORs of projects against institutional mission statements that can be used to hang ethically oriented work
Are there any areas of agricultural research that do not require participatory approaches?
gene mapping?
rigor isn't for critics, it's for ourselves


Rigour
05/11/99 - v6
What do we mean by Rigo(u)r?
narrow, traditional construct
FPR highly context specific
many concepts related to rigour may apply to FPR but need some adjustment given importance of context
eg. replicability in FPR relates to reproducibility of trends and patterns
fed up with defending FPR. Should focus on demonstrating utility of FPR rather than showing FPR is better
the more relevant question is:
How do we conduct FPR in such a way that it works?
conclusions usually correct
objectives/expectations met or we know if not
contributes to knowledcge and utility elsewhere
impacts are achieved
how do we actually do the above:
define objectives
define appropriate indicators/criteria
define niche
define process and method, document learning and feedback loops
define output
transparency
good process documentation
careful design and analysis
all of this should contribute to larger utility
some problems related to rigour are due to sloppy definition of who should be involved
accountability to clients/stakeholders
Who are our clients/partners/beneficiaries
How appropriate/applicable are these terms?
client suggests service, conjures up issues of payments, transactions
needs more rigorous definition
important groups include:
farmers (direct partners and others)
consumers
self, colleagues, managers
policy makers, donors
opportunities
five star PR journal -- is there a lack of or a need for this?
constraints
traditional definitions of rigour
critical science culture hard on "softness" or "fuzziness" of FPR

## Aspects of best practice in PNRM research

- Partnership created & strengthened through dialogue, friendship/ fun, joint actions and mutual benefits
- Involving farmers in all stages of the research cycle including setting the agenda to develop strong ownership
- Involve the whole community in the research, not just individuals
- Awareness of dynamics (changes in NRM systems, changes in participating institutions)
- Well defined empowerment objectives and strategies
- Farmers become better researchers (capacity building implications)
- Realistic expectations on all sides
- Openness in the relationship: putting objectives on the table
- Think about the ethical issues of extracting information without follow-on, or benefits to communities in the short term
- Holistic analysis & scenario development (expand farmers horizons and stimulate innovation)
- Recognise that different types of farmer researcher interactions are appropriate to different project/activity objectives? Relate participatory research strategies to research objectives; be realistic
- Good documentation of participation process tools and result
- Information access and sharing (two ways flow of information and research findings). Realise that this means using local language, local measures, thought processes and culture
- The best of knowledge worlds (e.g. local and scientific) linked together through research process
- Involve all relevant stakeholders and understand their demands/needs/aspirations
- Linking with CBO/NGOs who can provide other services outside mandate
- Strategy to stimulate participation of marginalised groups (e.g. women, landless, lower castes)
- Develop long-term, shared vision before negotiation of action among different stakeholders and collaborating institutions
- Ensure all the parties understand the technical principles, overall context and specific objectives of the research through training, discussion and negotiation
- Identifying and understanding resource-sharing issues (Common Property Resources)

- Use a realistic time frame to achieve objectives that recognises the time investment needed for participation to work
- Recognise heterogeneity within and between communities
- Move quickly from diagnosis to implementation of applied research
- Look for incentives, motivation and benefits of PNRMR for all stakeholders (identify where interests intersect)
- Clear strategy for action/change as an outcome (changes in any of the SRL capital assets)
- Use a diversity of tools & triangulation
- Use diversity and innovation in methods (e.g. FFS, “Mother/baby trials”, radio drama, video, and puppet theatre)
- Respect commitments with partners
- Define scale up/extrapolation strategy
- Changing of the teacher-pupil relationship mindsets
- Encourage farmer/researcher links to formal research systems, and improve relevance of research through farmer involvement
- Don’t marginalise or replace Government services where these are more sustainable than the project
- Analysis of uptake environment
- Negotiation of monitoring system and indicators between institutional collaborators
- Sustainability and exit strategy
- Look for ways of improving replicability

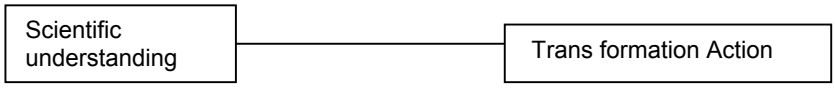
| Opportunities for participatory NR management research |
|---|
| Existence of examples/experience/documentation |
| Donor demand and NRM mandate |
| Emphasis on poor |
| Expansion of role of civil society |
| Demise of formal extension services |
| Failure of other paradigms |

## 5. An agenda for the future

5.1 Outputs and audience

| **Outputs** | **Audience** |
|---|---|
| - case studies? Synthesis | - peer researchers (scientific/ |
| - charter/ statement | fundamental) |
| - background paper | - policy makers |
| - keynote address | - practitioners (field users)/ |
| - priority areas for res. & why | (transformational/ action) |
| - best practice & why | - *receptive* |
| | - *less receptive* |
| | **Form** |
| - Resources | - proceedings |
| * in hand (PRGA/ NRI) | - book |
| * potential (CTA/ EU/ PRGA) | - web |
| * human | - charter/ statement |
| | - peer review journal |
| - Action Plan | - focused multi-journal articles |

A continuum is envisioned that goes from peer scientists to the field application group




Start where we need to influence and then pick adequate content and form.

**NGO's** (With collaborating project partners):
- Detailed case Studies
- Guidelines on best practice
- Interactive web site
- Books, website, journal (e.g. CTA SPORE) Language?

**NARS**
- Selected best practice/tools less respective
- Selected Case studies (impact) Book
- Pros/cons of PNRMR Journal articles (eg CTA SPORE)
- How to match circumstances to use tools

**CGIAR**
- Research priorities
- Case studies (peer review)
- Synthesis of results, principles 9linked to case study so that people can go back to particular cases if needed.

Widening the boundaries, present new areas for research, new methods, etc.
Dealing with the context/decline in extension, NARS, etc)
Suggestion for future actions looking more at across sectorial information.

5.2 Publications

i) Book proposed:
1. Book outline and proposal – Barry Pound and Cynthia McDougall, Sieg Snapp, Maria Fernandez and Ann Braun - Outline, audience, how new/different innovative editors - by Dec. 99

2. Explore resources for book proposal –(Maria)

ii) Participatory NR Mgmt Research Methods (in Entom. Review and Advances in Agronomy and Phytopath?)

iii)Achieving impact at the landscape scale through the use of participatory research approaches Chez Conroy and Sabine

iv)Relevance of participatory NRM research in the changing world (a short paper in Science – Jim Williams

**Book**

- Prepare book proposal (should be circulated for proposals from group)
- Outline
- Audience
- Show differences/ innovative
- Trace finding (in house/ external)
- Assignation of chapters, preparation of draft, peer review in future PRGA, workshop. Important to open-up the authorship to externals (not just workshop group).

| **Activity** | **By whom** | **By when** |
|---|---|---|
| 1. Book proposal;<br>- outline<br>- audience<br>- how new/ different<br>- innovative<br>- editors | B.P. & S.S., C.McD, A.B. & M.F. | By Christmas 1999 (circulated to, and approved by group) |
| 2. Explore resources for preparation, publication & distribution | M.F. & J.A. | - in house resources - by Christmas<br>- external resources - by March 2000 |
| 3. Assignation of chapters. Preparation fo drafts. Peer review (innovative process) e.g. workshop, PRGA sponsored | Authors from this workshop and beyond | - By mid-2000 (first drafts) |

**POSSIBLE TOPICS FOR BOOK**

**1. Researchable priority issues include:**

- Better ways for id stakeholders and involving them in research
- Better ways to study relationships between resources, technology and people
- Bridging socioeconomic and biophysical perspectives
- What is the impact of PR in NRM on empowerment
- How to demonstrate success, use rigour
- How to communicate (media, tools, message, interaction among stakeholders, policy etc)
- How to upscale, extrapolate findings

**2. Best Practices:**

The book could:

- Review best bet practices
- Put together a generic set of (best practice) criteria
- Classify case studies in terms of criteria (within each specific context (opportunities, constraints, objectives of case study)).
- Include a Matrix: Case study across top
  Diagnosis
  Intervention
  Assessment

Aspects of best practice in PR NRM so far include:

- Partnership
- Awareness of change dynamics
- Well defined empowerment objectives
- Holisitic analysis
- Information access
- New professional roles accepted and practised, per Chambers def.
- The best of knowledge worlds linked together (IK, scientists perspective)
- Strategy to stimulate participation of marginalized groups
- Relate/synchronize participatory research strategies to research objectives – be realistic
- Good documentation
- Incentives and motivation of participants, benefits for all, mutual benefit/Clear strategy for action/change as an outcome
- Involvement of stakeholders in priority setting, design
- Use of diversity of tools and triangulation
- Scaling up
- Sustainability of process
- Accountability

Note: Context is important, one good practice does not make a good PR NRM case! Consider principles and practices, evaluate for proceedings in terms of test cases re these criteria.

| Medium | Audience | Timeline |
|---|---|---|
| **Book** | • Researchers, including: CGIAR, Academic, English speaking, Universities (Senior staff and students), Government and NGO professionals<br>• Reach receptive and less-receptive audiences(keep jargon to minimum, develop theory closely linked to detailed casestudies)<br>• Donors and policy makers | ♦ Case studies for workshop proceedings due Sept. 15<br>♦ Book proposal by Dec 31, 1999<br>♦ Funding support identified by March, 2000<br>♦ Draft of all case studies and outlines of commissioned chapters due by May 31, 2000.<br>♦ Review and editorial process workshop with diverse audience (policy, receptive and less receptive researchers, PRGA and case study researchers) to revise and edit the book and to start distilling the casestudies, for the information kit: June 2000 (an inexpensive venue possibility = ICRISAT Bulawayo, Zimbabwe)<br>♦ Finish chapters due: August, 2000<br>♦ Final review and edit for publication: September, 2000 |
| **Information kit:** Brief, visual summaries of case studies for different media and dynamic, for easy updating (and translating) – Websites, loose-leaf folder with brochures outlining different casestudies which could be updated, and publish in Network newsletters (AGREN, ILEA etc) | ♦ Practioners in the field, including: NGOs, Training of trainers, Researchers in CGIAR, University and NARES<br>♦ Interested people from other sectors | ♦ Case studies for workshop proceedings due Sept. 15<br>♦ Workshop to edit and distill the casestudies, for the information kit: June 2000<br>♦ Post distilled case studies at web sites for comments, input: July, 2000<br>♦ Finish case studies, including visuals, for the information kit brochure format: December, 2000 |

**Journal Articles**

Cross cutting analysis of case studies. May be include other (grey ) literature. Main streaming PNRMR at higher scale.
Need for more than one paper

Policy note: relevance of PNRMR in a changing world 9drawing on workshop inputs plus external information sources (forward look).

- *Gear some of publications to...Policy Makers*
- Future - research priorities/ case studies (peer reviewed (*more receptive*))
- Synthesis of principles with sufficient detail to be understood
- Link aims/ circumstances/ outcomes/ tools to case study references - contextualised guidelines
- new institutional methods of working in face of changes underway & tehnical imperatives

**ANNEX I**

**BORRINI**

Collaborative Management of Natural Resources under Unstable Socio-political Circumstances: Learning by Doing in the Congo Basin. The program gathers insights from ten major NR management initiatives in four Central African countries.

**BRAUN**

Contrasting experiences with Farmer Field Schools and CIALs as participatory learning and research platforms. Initial ideas related to adjusting the CIAL approach to cope with agroecosystem health research

**BUTTERWORTH**

I will be able to contribute experiences from research projects that have included different types of participation, on watershed management and community-based small-scale irrigation in Zimbabwe and India. An issue i have been working on that can provide exemplary discussion material during the workshop is how to scale-up from participatory watershed management projects at the micro-watershed scale (e.g. 500 ha). In other words, how to achieve sustainable use of water through participatory watershed management projects in areas where there is competition for the resource

**CONROY**

I have experience of two participatory research projects. One was concerned with weed management by smallholder rubber producers in Indonesia (1993-97). The other is studying problems related to seasonal feed scarcity experienced by resource-poor goat-keepers in semi-arid north-west India. The latter project is, *inter alia*, studying the contribution of community-managed protected silvi-pasture areas on common lands. It has also been studying the relationship between water scarcity and feed scarcity in the dry season in one village in Gujarat, and the effect on goats and herders of introducing a water source (at the suggestion of livestock-keepers) nearer to the village's main dry-season grazing area. This has required the monitoring of daily herd movements and use of the water source. I have also coordinated a detailed study of self-initiated community forest management in Orissa, India.

**DEY**

I shall share our work in progress on participatory development of technical options and institutional arrangements for culture of fish and rice in the Flood-prone Rice Ecosystems in Bangladesh and Vietnam. This interdisciplinary and participatory action research project, which began in 1998, is expected to develop (1) economically viable, socially acceptable, and ecologically compatible rice-fish culture technologies in deepwater ecosystems, and (2) appropriate common property management strategies for rice-fish culture in the deepwater rice environment. The project components consists of 1) assessment of users' need through base line surveys of socio-economic, institutional, and bio-physical conditions prevailing in project areas, 2) participatory development of viable technical options and their field testing and validation, and 3) design and testing of viable community based mechanism and institutional arrangements. The participatory approach is designed to ensure that the suggested

rice-fish technologies and institutional arrangements are appropriate to users' needs and to the social, economic and political circumstances within which they operate. Users' criteria and indigenous knowledge are given a menu of options, which then become prototypes once chosen and successfully implemented.

**FERNANDEZ**

I can share experiences over the past 15 years where I have witnessed a shift in participatory research at the local level has moved from varietal testing to natural resource management issues on the demand of users. A second aspect where I have some experience to share has to do with building platforms of stakeholders in natural resources can begin to address issues of access, control and shared benefits. My special focus is on the importance of difference (gender; ethnic; generation, wealth) among stakeholders and how these influence opportunities for PNRM research.

**HEONG**

Improving farmers' beliefs and practices through participatory experiments to improve agroecosystem health. Besides belief elements, farmers are also "pressured" by peers or subjective norm elements to spray insecticides. To overcome this, we used a participatory experiment approach, in Vietnam and other places inviting farmers to "test" a conflict information expressed as a heuristic. The participatory experiment motivated spray reduction and attitude change.

I am now working on two participatory systems, which I would like to share with the group and obtain feed back. Recent research shows that farmers' decisions to control stem borers are also based on overestimation. We quantified the perceived B/C ratio and found that to be >10, justifying farmers' insecticide spending. However, farmers' actual B/C ratio was about 1 or less. The perception problem seems to be due to overestimation of loss due to white heads, the stem borer symptom. We designed a evaluation exercise that will enable participating farmers to compute grain loss from white heads and compare the results with their perceived loss and expenses in control. This experiment is still in progress.

**JARVIS**

At present I am co-ordinating a multi-institutional, mult-disciplinary participatory global project with national programmes in nine countries to "Strengthen the scientific basis of *in situ* conservation of agricultural biodiversity." The project works to link national programmes and community based organizations to understand and strengthen the conservation and use of crop genetic resources within agroecosystems. We are in the process of finalising a training guide for In Situ Conservation On-Farm that deals with (1) research issues of measuring genetic diversity, ecological/natural resource diversity, and socioeconomic diversity, (2) building multi-institutional and mult-disciplinary teams that link the formal and informal sector, (3) and options for the use of genetic resources for sustainable agricultural and improved livelihood conditions.

I am also working with my colleagues to investigate ways in which national programmes can support the *in situ* conservation of wild species under existing conservation programmes such as nature reserves and protected areas. Finally we are examining link between agroecosystems and natural ecosystems in terms of providing, through

introgression/geneflow between crops and their wild relatives, new genotypes for farmer use to meet their production needs.

**MACDOUGALL**

Challenges faced by a researcher designing and implementing participatory research. There are related but distinct challenges from within the institutional context from which I operate, and practical field level challenges.

From a background of training and working as a facilitator, and experiential Educator, I can share some of the principles of adult education relevant to participatory research.

Insights to the planning and development stages of participatory action research for adaptive co-management processes, including the theoretical basis from which it has grown. I can also highlight the progress that our project is making in terms of moving from a very limited participatory approach (expert led teams) to a more participatory community driven approach. CD on tools for participatory Research in NRM

**NELSON**

For the past five years, I have been involved in farmer-participatory research (FPR) and implementation work focusing on integrated disease management. This deviation from my normal laboratory-based life began through a collaboration with the FAO's rice IPM program in Asia and the Vietnam national IPM program. There, I provided research inputs into a strong extension system based on farmers' field schools (FFS). This was a tremendously fulfilling experience, so when I moved to Peru, I thought I would continue in a similar vein with a focus on the devastating problem of potato late blight. Work in Latin America over the past three years has taught me a lot about the interactions among biology, institutional context and FPR models. We are all familiar with the different types of farmer participation in research. Can we develop such an analytical framework for the different types of relationships between and among researchers and players in the action / extension / development?

**PETERS**

The role of multipurpose forages in the management of protected areas (water conservation), nutrient management and land rehabilitation for agroecosystem health, both at farm-level and watershed/landscape scales.

Experience that shows that formal-led and farmer-led research are complementary, each other feeding – at least to some extent – the progress in the other type of research. Farmer-led research can direct formal-led research mainly by a focused demand and formal-led research can direct farmer-led research in a visionary manner.

**POUND**

Long-term experience in application of participatory methods in a wide range of situations. Use of participatory community planning and action for control of potato diseases

**SANGINGA**

The effects of property rights on the adoption of alley farming and other agroforestry technologies in Nigeria and Cameroon. The factors driving adoption or rejection of alley farming and implications for further technology development.

The impact of close interinstitutional collaboration among an international research center, the national agricultural research and extension systems, and non-governmental organisations on the increased use of Mucuna fallow diffusion in the densely populated areas of southern Benin.

The Implications and recommendations for participatory impact assessment of NRM technologies in sub-Saharan Africa are drawn from these and other case studies.

**SCHRIER**

A focus on sustaining soil fertility and water quality in mountain watersheds that are under very intensive use in Nepal. A GIS database was produced for the biophysical and socioeconomic information and includes evaluations of nutrient budgets , soil erosion, farm gross margins, community forestry, evaluations of soil and vegetation degradation rates, and prevention and rehabilitation experiments.

Experiences we gained in teaching CBNRM by remote means and show some of the tools that are available for effective communication of scientific results.

Non-point source pollution issues resulting from agriculture and its effect on aquatic and human health. This is an emerging topic due to agricultural intensification and the increasing use of chemicals.

Two hypermedia CD-ROM's that enable us to display all aspects of resources management in an interactive manner. The latest version focuses on gender in community based natural resource management. We also have completed a gender sensitive soil fertility evaluation that combines PRA with soil fertility assessment.

**SNAPP**

Experience in attempting to bridge the gap between researchers and smallholder farmers; soil scientists, agronomists and extensionists from the Ministry, University and NGO sectors. Collaboration with national scientists, on developing farmer participatory research and extension methodology in Malawi and Zimbabwe.

Comparison of methods: traditional demonstration transfer, researcher-led PR and farmer-led PR approaches to develop “best bet” options.

Particular interest in gender and soil fertility management in drought-prone areas. Recent survey results from Southern Zimbabwe indicate that women farmers are becoming the primary decision-makers in marginal drought-prone areas, even concerning traditional male areas of expertise such as animal and manure management, draft power.

Two types of female headed households de facto female headed households (younger households, usually with remittances) and de jure female headed households (destitute, older households in the main) differ markedly in investment strategies and soil/crop management:

**STROUD**

Soil and water nutrient management, land care and rehabilitation from the African Highlands. Use of stakeholder differentiation to understand resource endowment differences and resource sharing issues. Materials for involving farmers in priority

setting, implementing and evaluating NRM research and Training materials for increasing farmer involvement in on-farm experimentation

**SUTHERLAND**

I have over 15 years experience with on-farm research programmes in various African countries, including programmes with a specific focus on soil fertility, soil and water management and agroforestry. This includes experience with the application and development of participatory approaches to constraint and opportunity diagnosis, research prioritisation, planning experiments, policy advocacy, evaluating technologies and developing technical recommendations in collaboration with farmers and extension staff. I have also been involved with the implementation of gender main-streaming in agricultural research, and in gender analysis training.

**VAUGHAN**

Problem solving using frameworks whereby we can run simulation models based on farmers' behavioural management patterns (based on different socio-economic groups, resource availability and AEZ factors etc. The idea is to develop an interface that enables the discussion of outputs and key management variables between the model and farmers, with farmers involved in assessment of model output scenarios and with farmers in turn asking questions to the model. The overall objective is the evaluation of the riskiness of Soil fertility and INM technologies by the model and by farmer's criteria.

Participatory development of soil and climate taxonomies with indications of production and management constraints by climate and soil type. These are then linked across a matrix format that identifies clustered management practices (e.g. rules of thumb) for different typologies of farmers under different soil and climatic conditions. These then enables us to run different model scenarios based on farmer's criteria for soils, climate conditions and management practices.

Experience in common objective setting and developing multidisciplinary team working with process facilitation; developing and setting research priorities through a participatory process. Linking the use of new tools and techniques with institutional training and integration into ongoing research projects and programmes in collaboration with the NARS, university of Zimbabwe, private sector and NGOs.

**VERNOY**

Experience in Central American hillsides, using participatory research tools including participatory mapping, monitoring and evaluation of micro-watersheds to understand organizational principles for natural resource management at the watershed-level

Experience as an IDRC program officer involved with a range of participatory NRM projects in Latin America and South East Asia.

**VINCENT**

'Action engineering' in participatory design, construction and operation of water management systems: especially how to promote technologies and institutions that can serve group and individual needs, and respond to agriculture and catchment management needs. I can contribute:

1. An understanding of complex,large-scale technology systems influencing resource management, and the challenges of participatory research and development. For example, the issue of working with intermediary organisations representing farmers, as well as farmers themselves, and of working with contractors also involved in implementing 'participatory designs'.

2. Experience in 'action engineering', and the challenge of working not just with local knowledge and needs but also local opinions about what kind of artefacts people want. Also the challenges of construction operation to fulfil the expectations generated by participatory research;

**Annex II**

# Topics of special interest to Participants

**Nutrient budgets at the field, farm, community and watershed scale** (forest and agriculture). Nutrient budgets will require input from PRA, RRA and analysis of nutrients in soils and water. Such models look at the flow of nutrients within the watershed system and are an ideal forum to assess sustainability. This allows us to examine interactions between community forests, grazing and agriculture and requires the full participation by the community because this cannot be done without input, yield, and management information provided by the farmers

**How to effectively use the water resources & prevent water quality degradation**. Water issues are rapidly emerging as the key constraints in development. Conflicts over irrigation water and pollution from erosion and excess chemicals are emerging issues that need to be addressed. What are successful approaches to deal with these conflicts and hoe can we best prevent water quality degradation with community involvement.

**Rehabilitating degraded common land**. We have considerable experience in rehabilitation work in Nepal but find the problem challenging because of the long term efforts needed, the relatively poor returns in the short run, and the difficulties to get communities involved. Because the impact of degradation is mostly off site (downstream impacting irrigation systems and reservoirs) and biomass production is slow and small farmers are not keen to get involved.

**Up-scaling**. There are a number of techniques available to extrapolate from fields to farms, communities, watersheds, and regions. What are the options and the constraints in doing this? I can provide a number of examples on this topic.

**Women smallholder farmers in Africa.** Are their soil and crop management options and priorities different than men? How can researchers/extension/NGO farm advisors address their concerns.

**Building interdisciplinary teams.** How to develop an interdisciplinary team approach to problem solving and using a number of participatory tools and techniques to facilitate this. How can we get like-minded people together and working in a synergistic manner.

**Assessing common grounds across cultures.** Are there commonalties in areas such as gender, common property use and rights to access, labour organisation and exchange, community organisation.

**Common ground and balance between physical and social science.** Can it be found? What are the compatible methods and platforms? What is the right balance between research on common issues and on specifically social or physical ones.

- Research-extension Linkages. How can farmers and breeding programs can be linked to improve farmers' access to useful crop genotypes, and to diversify crop genetic diversity? How does integrated disease management differ from integrated pest management, as a challenge for farmers and researchers?

- How can research have impact in countries where extension organisations are weak or lacking? How can key issues of scale and impact be addressed in relation to farmer-participatory research? How far are we (as CGIAR researchers / institutions) willing to go in th

**Annex III**

# Workshop participants and contributors

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