

Re-framing technical change: livestock fodder scarcity revisited as innovation capacity scarcity : Part 3. Tools for diagnosis and institutional change in innovation systems

Citation for published version (APA):

Hall, A., Sulaiman, R. V., & Bezkorowajnyj, P. (2008). *Re-framing technical change: livestock fodder scarcity revisited as innovation capacity scarcity : Part 3. Tools for diagnosis and institutional change in innovation systems*. UNU-MERIT, Maastricht Economic and Social Research and Training Centre on Innovation and Technology. UNU-MERIT Working Papers No. 004

Document status and date:

Published: 01/01/2008

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

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Working Paper Series

#2008-004

**Reframing technical change: Livestock Fodder Scarcity Revisited as
Innovation Capacity Scarcity**

**Part 3. Tools for Diagnosis and Institutional Change in Innovation
Systems.**

Andy Hall, Rasheed Sulaiman and Peter Bezkorowajnyj

Reframing technical change: Livestock Fodder Scarcity Revisited as Innovation Capacity Scarcity

Part 3. Tools for Diagnosis and Institutional Change in Innovation Systems.

Andy Hall¹, Rasheed Sulaiman² and Peter Bezkorowajnyj³

Abstract

The exploration of fodder innovation capacity requires tools to undertake the following tasks: (i) Diagnosis of fodder innovation capacity to identify project starting points, including micro and macro elements (ii) Socio-economic benchmarking, and follow-up studies (iii) Pilot innovation cloud process learning/ process-driven intervention correction (iv) Comparative analysis of institutional change processes (iv) Project team process learning And (iv) Project evaluation. There is a wide range of existing tools available to investigate institutional change. This paper reviews these and recommends that an eclectic approach of mixing and matching tools to the emerging circumstances of the research is the best way forward.

Key words: Institutional change; innovation systems; M&E; benchmarking; evaluation; learning

Acknowledgement: This paper is from a project funded by the Department for International Development, (DFID), UK

UNU-MERIT Working Papers
ISSN 1871-9872

Maastricht Economic and social Research and training centre on Innovation and Technology, UNU-MERIT

UNU-MERIT Working Papers intend to disseminate preliminary results of research carried out at the Centre to stimulate discussion on the issues raised.

¹ Joint Coordinator, Learning, INnovation and Knowledge Network (LINK), United Nations University, MERIT, Maastricht, The Netherlands, hall@merit.unu.edu

² Regional Director, LINK South Asia and Director, Centre for Research on Innovation and Science Policy (CRISP), Hyderabad, India, rasheed.sulaiman@gmail.com

³ Project Coordinator, Fodder Innovation project, International Livestock Research Institute (ILRI), Hyderabad, India, p.bezkorowajnyj@cgiar.org

1. Introduction

Acute fodder shortage⁴ — resulting from the increased competition for limited resources, environmental degradation in common property areas and the need to increase animal intake in intensive production systems — is a common problem affecting millions of poor people across the developing world dependent on livestock for their livelihoods. Maintaining or improving livestock production is crucial to improving social and economic conditions in these communities. In addition, up-grading throughout the livestock value chain is needed to survive, cope and compete in dynamic production and market conditions at sub-national, national and global scales.

Rural development strategies in developing countries have tended to focus either on importing technology from the developed world or on research-driven technology transfer over the last 50 years. Typically, the agricultural research community has approached the problem of fodder scarcity by developing new fodder technologies and introducing new fodder varieties and feeding systems. While there has been some measure of success, persistently inadequate supplies of fodder in the developing world is a reminder of the poor performance of this strategy, and it is time to tackle this problem from a new perspective.

This is the second of a set of three linked papers that develop a conceptual framework, drawing from contemporary ideas on innovation, to revisit this problem. It was prepared for a project exploring fodder scarcity from the perspective of innovation capacity being undertaken by The International Livestock Research Institute (ILRI), UNU-MERIT, The International Crops Research Institute for the Semi Arid Tropics (ICRISAT) and the International Institute of Tropical Agriculture (IITA) and their partners. Instead of approaching the issue of fodder shortage from the perspective of information and technological scarcity, the project explores capacity scarcity in relation to fodder innovation. The empirical focus of the papers is the case of livestock fodder scarcity in Nigeria and India. The first paper in this linked series of three dealt with the historical experience of fodder research and technology transfer. The second developed a framework for analysis for revisiting this issues through the presetive of an innovation systems. This the third paper reviews tools and methods to assist with research on innovation capacity, particularly tools and methods for institutional analysis.

2. What the tasks must tools and methods fulfil

The analytical insights into innovation capacity that is described in part 2 of this paper frame two key activities in research to explore fodder innovation capacity. The first concerns diagnostic studies at both the micro level (the immediate networks and local contexts that the individual project initiatives will be embedded in, referred to as

⁴ The term fodder is used in the sense of plants grown specifically for feeding animals. These include grass, legume and tree species as well as crop residues.

innovation clouds (see second paper of this series) and the macro level, which would include the broad policy and institutional context in which project activities would be situated. Of course, a systems view of innovation capacity would suggest that this separation is artificial and unhelpful and that micro-level contexts always need to be thought of in the wider setting. The distinction is never the less useful to highlight different elements of the contextual setting of innovation.

The second activity concerns facilitating and exploring institutional change. As discussed in the second paper in this series, institutional change is at the heart of the process of strengthening innovation capacity. Due to the location-specific nature of institutional arrangements these cannot be specified without reference to a particular context. So how then does one know what institutional arrangements are required in any given location? The solution we believe is to use a process-driven approach to derive them experimentally. This also serves as a way of investigating how institutional change can be achieved. The generic deliverables from this research will not be the specific institutional innovation developed as these may be very context specific (although some may be more generic). Rather it will be the principles about how to stimulate institutional innovations that are locally relevant and relevant to policy goals such as poverty reduction or market development or environmental sustainability or a combination of these. Diagnostic studies might also reveal interesting institutional innovations and experimentation may focus on how these can be further developing and diffused more widely.

Another facet of the institutional changes that needs to be investigated is the project process itself, particularly how its approach — and changes to its approach — have consequences for innovation capacity outcomes. In other words, the project team and its actions can no longer be thought of as removed and separate from the institutional setting and network of players that the project is trying to influence and change in order to enhance fodder innovation capacity. The project team is part of the experiment and the process through which it implements the project needs to be process-driven, scrutinised for conformity to systems concepts and analysed for lesson and principles. The ethnographical studies of international research and development organisations by David Lewis (2002) have shown that despite the rhetoric, the way these organisations deal with issues such as “partnership” tends to undermine the success of projects where often skewed relationships and opaque agendas inhibit information flows and institutional learning. This project needs to deal with this tendency and report on any institutional innovations it achieves in this regard.

A rider to all of this is that institutional changes and strengthened innovation capacities need to be sensitive and inclusive of needs and agendas of the livelihoods of livestock-dependant poor people. Here the word inclusive means that institutional change should not only include the agendas of poor people, but recognise that creating opportunities for the poor often involves innovations that help non-poor people — particularly innovations that strengthen enterprise development and create employment opportunities, or pro-poor services and products. As mentioned in the analytical framework in paper 2, the value of institutional innovations to the agendas of the poor has to be rigorously assessed as part

of the process-driven approach to facilitating and promoting (desirable) institutional change.

The way to do this is through socio-economic benchmarking studies in the pilot innovation sites, with periodic re-surveys at appropriate points during the project. Such surveys would need to look at several things, including: the internal profile of the household (gender, education); household assets (land, livestock); sources of income; social capital ('networkyness' and reciprocity) and membership to peoples' organisations; features of livestock production, the livestock enterprise and/or livestock-related livelihood options; and "muddling through" strategies of the livestock enterprise (innovation capacity). Qualitative assessments — through episode analysis, for example — will also be useful, but a quantified benchmark study is required, supplemented by participatory assessments.

From an operational and analytical perspective this means that tools are needed to do the following tasks:

Task 1 Diagnosis of fodder innovation capacity to identify project starting points, including micro and macro elements

Task 2 Socio-economic benchmarking, and follow-up studies

Task 3 Pilot innovation cloud process learning/ process-driven intervention correction

Task 4 Comparative analysis of institutional change processes

Task 5 Project team process learning

Task 6 Project evaluation

Some Cautionary Points on M&E

Before going on to review a number of tools to carry out these tasks it is useful to raise some cautionary points on M&E. These are raised because as a process-driven project M&E assumes a special importance — it becomes a management tool for making mid-course correction and fine-tuning approaches by both the project team and by partners in pilot innovation clusters. However, as Biggs (2006) points out, while countless publications, guidelines and training programmes have been devoted to project M&E, the problems of getting M&E procedures implemented are well documented as well (Biggs and Smith, 2003). Biggs (2006) points to a recent World Bank publication on good practice, where it said, "M&E systems have been weak in World Bank Agricultural Knowledge & Information Systems and the AKIS programmes that they support" (Alex and Byerlee, 2001, p.v). This is in spite of the Bank being one of the primary promoters of project management and M&E manuals for over 30 years.

Part of the problem may be that the term M&E is often viewed as being synonymous with policing of project partners — and this is often the case. If M&E is to avoid becoming the

Achilles heel of this project, it is suggested that the language of M&E be dropped, and tools to achieve the institutional learning objectives of the project be selected — Learning-Based Management (LBM), perhaps (see table 4 for tools). It is worth noting that many development projects have tackled this issue by making social learning the central activity around which all other things hang (see discussion of RAAKS below).

3. Review of Tools

RAAKS

Rapid Appraisal of Agricultural Knowledge System (RAAKS) was devised by Engel (1997) as a way of operationalising systems thinking on agricultural innovation. The methodology is set out in detail in Salmon and Engel (1997). The ideas underpinning it have much in common with the innovation systems concepts, with networking, learning and institutional change being given centre stage. RAAKS is described as a structured inquiry into the social organisation of innovation. Engel (1997) explains that it was designed as a participatory action research methodology to bring out social learning issues relevant to innovation and to design strategies for improving it in practical situations. The approach uses an elaborate and well thought out set of exercises and tools, which is described in detail in a manual titled “*Networking for Innovation*” (Salmon and Engel, 1997). The approach built on many years of field experience by Engel and his colleagues, particularly in the area of agricultural extension communication. The main elements of RAAKS are follows:

- Strategic diagnosis — an appraisal of constraints and opportunities leading to a joint definition of useful strategies
- Creative tension — contrasting findings produced by multiple analytical perspectives
- A task-orient path — leading participants from analysis and interpretation toward the design of potentially useful solutions

Whether it was ahead of its time, or whether it simply did not receive the attention it deserved, RAAKS is an approach that has not come into the mainstream in the 10 years since the manual was published. . Those with experience of using it talk of its complexity. Indeed the manual sets out, at times, a daunting set of exercises, steps and tools. The other feature of the approach is that it tends to focus mainly on activities in the rural domain, rather than looking at the wider set of actors that might be involved in an innovation system..

Despite these niggles, the focus of RAAKS on “complex innovation theatres and inter-organisational relationships” in rural settings is clearly of direct relevance to this project’s investigation of institutional changes associated with strengthening fodder innovation capacity. It is recommended that the project use specific exercises and approaches from the RAAKS tool box appropriate to specific tasks. It is anticipated that these will be found particularly relevant to part of **Task 1** (associated with doing *Participatory*

diagnosis with rural communities in the innovation clouds) and **Task 2** (*Pilot innovation cloud process learning/ process-driven intervention correction*).

Appreciative Enquiry/ Positive Deviance

In the words of Biggs (2006), “the idea of appreciative enquiry is simple: learn from the positive. This involves purposely seeking out and learning from past and contemporary political/ cultural situations where positive things have already occurred, and learning from the way different actors were effective in bringing about positive changes. The entry point for this analysis is finding situations where there is empirical evidence that positive changes have already taken place. This is a very different entry point from much mainstream poverty and social exclusion analysis where the preoccupation is either with (1) describing how bad a situation is (the problem), what the barriers and constraints are to change, and then suggesting solutions, or (2) learning mainly from earlier, planned development interventions. Learning from the positive does not discard learning from the outcomes of past planned interventions; however, it opens up the possibility of looking for different things in new places. Consequently, learning from the positive is a more inclusive approach than just learning from past development intervention success (or failure) studies. Not to be confused with “development success story” literature.

Guidance on the approach can be found in, for example, Hammond and Royal (1998). Examples (again from Biggs, 2006) of institutional innovations that have been identified by looking for unexpected outcomes include: changes in variety release policy to include farmer varieties; changes in R&D arrangements to allow farmer ideas to be used in research priorities and design; changes in national small-scale irrigation schemes to allow farmer technical innovation to be supported.

The business literature recognised a similar idea — positive deviance. For example, Sternin and Pascale’s (2005) paper, “Your Company’s Secret Change Agent”, published in the *Harvard Business Review*. They argue that some business problems never seem to get fixed. Yet, they suggest that the tyranny of averages always conceals sparkling exceptions — isolated groups or individuals operating with the same constraints and resources as everybody else and who prevail against the odds. They argue that if these outliers can be identified, and what they do differently be understood and brought into wider use, then these (institutional) innovations can be used to great affect throughout the company. They recommend using the innovator as the ‘evangelist’ rather than trying to codify breakthroughs into “best practice”. Ironically, Sternin and Pascale cite the sources of this great business insight not as IBM or Microsoft, but development projects dealing with malnutrition, AIDS and education. Their account of finding ways of helping Indian sex workers get their client to practice safe sex using bananas and condoms guarantees that the reader will never forget either the concept of positive deviance or the meaning of the words ‘institutional innovation’.

These ideas are very relevant to the fodder innovation project as they provide a way of identifying promising institutional innovations that happen unexpectedly and which the project can then further develop and diffuse to others. These ‘positive deviants’ might already exist in pilot learning clouds as a result of earlier interventions or on-going

processes. They might also emerge as unexpected by-products of pilot innovation cloud activities themselves. It is recommended that these approaches are used in **Task 1** (*Diagnosis of fodder innovation capacity* to identify project starting points, including micro and macro elements); **Task 2** (*Socio-economic benchmarking*, particularly follow-up studies), **Task 3** (*Pilot innovation cloud process learning/ process-driven intervention correction*) and **Task 5** (*Project team process learning*).

Socio-economic benchmarking

Socio-economic benchmarking is a way of tracking change and continuously testing assumptions about the outcomes of different actions on households of differing wealth status. This helps identify unexpected outcomes and quantitative survey approaches can strengthen the voracity of lessons learnt from the project. This is the most useful tool for underpinning pro-poor claims of the institutional innovations developed by the projects. The questionnaire survey method can be customised to deal with the specific needs of the project outlined in the introduction of this section. It is recommended that this approach be used for **Task 2**. Combining such methods with participatory appraisals will be very powerful in building the plausible causal connections needed to demonstrate the way insituational change can lead to innovation that has positive wealfare outcomes for specific social groups.

ILAC

Institutional Learning and Change (ILAC) refers to a cluster of tools that have been developed and adopted to promote the process of institutional change in international agricultural research centres (Watts et al, 2003). The idea is rooted in innovation systems ideas (Hall, et al, 2004). The success of the approach is far from well established. In all fairness, the ILAC initiative in the CGIAR has been useful as a discussion forum for these sorts of ideas and it has helped bring together relevant resources and briefing notes. It is probably best not to think of this as a single approach, but as a tool box of options.

Of particular relevance to this study are the institutional histories/ innovation histories idea (Shambu Prasad et al, 2007). This is a participatory approach to developing the history of a particular initiative over several years, identifying key institutional innovations that took place and investigating how these allowed programme objectives to be achieved. These histories also often reveal the institutional factors that stop programmes succeeding. One of the difficulties with them is that they unearth contested histories and political tensions between key actors. However, the trick with using them is to use the process of collecting information and discussing it with actors as a way of reconciling different positions, identifying blockages and finding ways forward. In other words, in the hands a skilled facilitator, this can be a useful tool in bringing about institutional innovation.

This sort of approach clearly has relevance to this project, particularly its use for helping to reflect on progress and identifying ways forward. It may also be a useful way of exploring the starting conditions of pilot innovation clouds as these will inevitably have a history that will have implications for new interventions. It is recommended that this tool is used for **Task 1** (*Diagnosis of fodder innovation capacity* to identify project starting

points, including micro and macro elements); **Task 3** (*Pilot innovation cloud process learning / process driven intervention correction*) and **Task 5** (*Project team process learning*).

Process documentation

The use of process documentation can be traced back to the development sector in the early to mid 1990s. It became increasingly apparent at that time that getting processes correct and then building the capacities for change that came with them was much more important than infrastructure development and other development project favourites (Mosse *et. al.*, 2002). As the term suggests, the idea is that an organisation collects information on process. This might involve keeping project diaries or other ways to record activities and the decision-making process. As can be imagined such a broad information collection remit can be a very dangerous thing in untrained hands. Often information is collected that is so trivial that it offers little scope for analytical insights (“meeting decided to have tea at 2 p.m. rather than 3 p.m.”). Alternatively, so much information is collected that its organisation and analysis into anything meaningful becomes unmanageable. The authors are not aware of any review of process documentation approaches that could guide of its us for exploring institutional change, although the idea clearly resonated strongly with those of innovation systems.

It is recommended that the project not use process documentation unless it is to be carried out by a trained process documentation specialist who knows how to collect and analyse such information. Institutional histories and episode analysis and other forms of facilitated reflection and learning approaches make for a useful alternative — particularly in a developmental setting where partners are likely to be “doers” rather than “writers”. However, institutional histories have a drawback in that it takes a significant period of time before useful lessons emerge from project — often years.

Innovation surveys

Innovation surveys are widely used in the industrial sector in developed countries. These are usually indicator-based and work well in situations where innovation is at the knowledge frontier and thus where measures of R&D activity are a good proxy for innovativeness. These methods, however, struggle to capture the systemic coherence dimension of innovation capacity. This approach is not suitable for exploring fodder innovation capacity where R&D activity will not be a particularly good proxy for innovation and where systemic coherence is likely to be the critical aspect of capacity

Interaction matrices and typologies

The interactions between different actors and organisations are central to the functioning of effective innovation systems. To understand patterns of interaction, it is first important to map linkages in general ways, but then it is also necessary to understand the nature and purpose of these linkages. Two tools are useful here. The first is an actor linkage matrix which allows the extent of links to be systematically investigated. This is often more useful than a diagram with arrows as these can become too complex and unwieldy. In the actor linkage matrix, all relevant actors in the sector innovation system (identified above) are listed on both the first row and first column of the matrix. Each box in the matrix then

represents the linkage between the two actors or organisations. It is important to be specific and mention a particular company, or specific farmer’s organisation or research institute, rather than trying to map linkages between different categories. The example in table 1 below shows that while there are extensive linkages, the sorts of linkages that support interactive learning and innovation are absent.

Table 1. Example of Actor Matrix

	Crop Research Institute	Vijay Mango Exports Pvt	Krishna Farmers Association	Krishna Market Commission Agents
Crop Research Institute		Knowledge services contract	Paternalistic	Nil
Vijay Mango Exports Pvt			Input supply links	Input supply links
Krishna Farmers Association				Output market links
Krishna Market Commission Agents				

Source: Hall et al 2006

The second tool is a typology of linkages that includes both the type of link and the purpose of linkage (see table 2). This is important as it helps distinguish between the links an organisation might have with an input supplier (important though these are) and the links an organisation may have for the purposes of accessing a technology or collaborating on a joint project — which would clearly be more important for learning and innovation. This way of classifying linkages helps identify the sorts of linkages that might need to be developed to allow a continuous process of innovation to take place. Of the six types of linkage discussed, all may be important in an innovation system at different points in time. More important is to make sure that the right types of linkages exist in the right place. Paternalistic linkages will be of little value where interactive learning and problem solving are required. Successful innovation systems tend to have linkages that support interactive relationships.

It is also useful to classify linkages by the types of learning that they support. The innovation system recognises that learning can take a number of forms: learning by interacting, learning by doing, and learning by imitating (in order to master process or technology), learning by searching (for sources of information) and learning by training. Again, while all of these forms of learning are important, successful innovation systems are characterised by a high degree of interactive learning.

Table 2. A Typology of Partnerships and Learning

Types of Linkage	Purpose	Type of Learning
Partnership	Joint problem solving, learning and innovation, May involve a formal contract or memorandum of understanding. May be less formal, such as participatory research. Highly interactive. May involve two organisations or more. Focused objective-defined project	Mainly learning by interacting. Also learning by imitating and learning by searching
Paternalistic	Delivery of goods, services and knowledge to consumers with little regard to their preferences and agendas	Learning by training
Contract purchase of technology or knowledge services	Learning or problem solving by buying knowledge from elsewhere. Governed by a formal contract. Interactive according to client contractor relations. Usually bilateral arrangement. Highly focused objective defined by contract concerning access to goods and services	Learning by imitating and mastering. Might involve learning by training
Networks	Maybe informal or formal, but the main objective is to facilitate information flows. Provides know-how and early warning information of market, technology and policy changes. Also builds social capital, confidence and trust and creates preparedness for change, lowering barriers to forming new linkages. Broad objective	Learning by interacting. Learning by searching
Advocacy linkages to policy process	Specific links through networks and sector association to inform and influence policy.	Interactive learning
Alliance	Collaboration in the marketing of products, sharing customer bases, sharing of marketing infrastructure. Usually governed by a memorandum of understanding. Can involve one or more organisations. Broad collaborative objective.	Learning by doing
Linkages to supply and input and output markets	Mainly informal but also formal arrangements connecting organisations to raw materials, inputs and output markets. Includes access to credit and grants from national and international bodies. Narrow objective of access to goods.	Limited opportunities for learning. Some learning by interacting

Hall et al 2006

4. The ‘Four Element’ Innovation Capacity Analysis Tool (aka The World Bank Methodology)

As far as the authors are aware the only published tool for undertaking diagnostic studies of agricultural innovation capacity is the Four Element Innovation Capacity Analysis Tool (aka The World Bank Methodology see Hall et al 2006). It was used in the World Bank study on Enabling Agricultural Innovation and is based on a conceptual framework and methods paper published as Hall et al (2006). Hall and his colleagues’ explanation of the purpose of the tools and its intended users is as follows:

“A rapid methodology that could be used by a non-expert in combination with limited training and which would lead to the identification of plausible intervention points for national governments and development assistance agencies. The scope of this approach would not include a systemic survey of actors in the sector, although the guidelines and the checklists of questions set the parameters for the subsequent design of a survey instrument if this was found to be necessary.”

It is called the ‘Four Element’ tool, as its four main analytical categories for understanding innovation capacity are:

- I. Actors and the roles they play
- II. Patterns of interaction between actors
- III. Habits and practices (institutions)
- IV. The enabling policy environment

It also provides guidelines for undertaking a diagnostic assessment. It gives a checklist of things to be investigated and an explanation of the framework for each analytical point. It also lists possible sources of information (the guidelines are provided in full in table 4): The guidelines outline is as follows:

(i) Sector Timeline and Evolution

Central message or diagnosis from this section: What is the nature and dynamics of the sector? Who are the main players? What has been the performance of the sector till date? What challenges does the sector face? How effective have policies and support structures been in triggering innovation and developing a dynamic innovation capacity?

(ii) Sector Mapping

Central message and diagnosis from this section: Who are the main actors and organisations in the sector, what role do they play and what are their skills and competencies. Which actors and competencies are missing and is policy required to change the role of the public sector or to encourage others to play different roles or play existing roles more effectively. What is the extent of linkage between actors and organisations? What is the nature of these links and does it support interaction and learning? Which links are missing and what types of linkage need to be encouraged?

(iii) Habits and Practices of Organisations

Central message and diagnosis from this section: What habits and practices do organisations have that restrict interacting, knowledge sharing, learning, investing and inclusiveness of the demand side? What types of habits and practices should be developed and in which organisations? Are there policies that are designed to support innovation but being negated by existing habits and practices? What measures could be put in place to account for this?

(iv) Wider Policy and Support Structures

Central message and diagnosis from this section: What is the set of policies put in place to encourage innovation? Which policies have a positive impact on the behaviour of actors and organisations and which do not? Are there contradictory policies that are counteracting each other? Are some of the policies that are not working being affected by habits, practices and institutions of actors and organisations and what additional measures or incentives would be needed to account for this? Similarly, are support structures effective, and if not, how do they need to be adapted?

The tool has been used on a number of occasions. It was used by local and international consultants in the original World Bank study to undertake case studies. Most of the case studies, while providing a good description of sectors and their evolution, had not initially analysed these with the framework provided in the tool. The cases did provide the right information but this had to be subsequently analysed by the lead consultant on the study and lead author of the guidelines. The two best written case studies (on Colombia and India) were by consultants who already had substantial experience of using the analytical framework over many years. In general, the cases (and, therefore, the tool) were weak in identifying differential social implications of particular innovation trajectories and institutional changes — although there were some useful examples.

The tool was used in 2005 by Rose Kiggundu to undertake a diagnostic survey of post-harvest and livestock innovation capacity in Uganda. Personal communication with Dr Kiggundu suggests that the approach would need to be modified for rapid appraisal techniques.

The tool has also been adopted by the DFID Research Into Use programme to undertake diagnostic assessments in Sierra Leone (Clark), Rwanda (Barnet) and Bangladesh (Matsreat). Personal communication with Norman Clark revealed that after an intensive three-week study with two national professionals, he was able to produce a report that identified a strategy for interventions that would build innovation capacity.

To conclude, the World Bank methodology is one of the only tested approaches available for doing an agricultural innovation systems diagnostic assessment of capacity that is inclusive of everything from macro to micro elements of this capacity. It should form the cornerstone of the diagnostic assessments used by this research on fodder innovation capacity. However, it should be supplemented with tools that give sharper focus to the differential roles and impacts of the innovation process on both the poor and non-poor. Greater participation in the diagnostic process by the organisation being assessed would

help. It is most effective when used by researchers who have substantial experience of understanding innovation systems analysis. This last point hints at the fact that this form of assessment contains mainly tacit elements that are difficult to codify in guidelines. For this reason, the participatory and village level elements of diagnosis should take full advantage of the expertise of partners in pilot innovation clouds.

Box 1. A Checklist for Diagnostic Assessments of Agricultural Innovation Capacity

This checklist was developed as a diagnostic assessment tool for the World Bank (2006) study, *Enhancing Agricultural Innovation: How to Move Beyond Strengthening Research Systems*

1. Scope of actors and activities involved and the roles they play

Is a sufficiently diverse set of organisations from the public and private sectors actively engaged in a sector considered in policy and intervention design — appropriate to the nature of the sector, the stage of development of the market and the institutional setting in a particular country.

2. Patterns of interaction

Linkages, networks and partnerships between companies and between companies and research and policy organisations for knowledge-based interactions

Degree of integration of poor stakeholders and mechanisms to promote their agendas

Presence or absence of sector co-ordinating bodies and their effectiveness in particular institutional settings

The presence or absence of stakeholder bodies such as farmers and industry associations, the scope of their activities, particularly knowledge-based activities such as research, training, technology acquisition and market and technology foresight. Institutional setting will also determine the effectiveness of such bodies

3. Habits and practices

Habits and practices that enable or restrict collaboration between organisations

Forms of behaviour that restrict change or which cause organisations to play the wrong role

The existence and strength of social capital — patterns of trust and reciprocity — as foundations for evolving patterns of linkage across the innovation system

Culture of innovation — demand for research in the private sector; an emphasis on problem solving rather than capacity building for future eventualities; limited use of collaborative arrangements for knowledge-based activities; an emphasis on both technological learning (mastering new technology) and institutional learning (mastery of processes for accessing and using knowledge more effectively)

4. Enabling environment — policies and infrastructure.

Source: World Bank 2006

Concluding Points on Tools

Fodder scarcity is a problem for which innovation capacity presents a multidimensional approach to investigate. The central focus on institutional arrangements, institutional innovation and the innovation process is itself multidimensional and needs to be accompanied by socio-economic and technical appraisals. No one research tool fits this requirement. Fortunately, there already exists a whole ‘raft’ of tools that is used intelligently and can cover the information gathering needs of this project. This eclectic approach to tools and methods is important not just from an operational perspective, but also in terms of the contribution of the research to scolorship and learning in this area.. Putting together this collection of existing tools and ideas in a new way to investigate

fodder scarcity from a new perspective is an important innovation in its own right. Given the importance of the eclectic approach, the project should guard against getting bogged down in the dogma of any one particular method, using tools flexibly in ways that best achieve the project's analytical objectives.

Bearing this in mind, tools for dealing with the six analytical tasks outlined at the start of this section are summarised in Table 4 below.

Table 4. Tools for Dealing with the Analytical Tasks

	Timing	Focus	Tools	Execution	Outcome
Diagnosis of fodder innovation capacity to identify project starting points	As soon as partners are identified	Innovation clouds in partners' domain of intervention and the links to national bodies and the institutional and policy setting	Custom-built, drawing from 1. Four Element Innovation Capacity Analysis (World Bank methodology) 2. RAAKS 3. Appreciative enquiry/ positive deviance study	Joint study of project partners and innovation studies by technical specialists from the project team	An action plan in each pilot innovation cloud for addressing missing linkages, facilitating institutional change and/ or developing and promoting promising institutional innovations
Socio-economic benchmarking	As soon as partners, pilot sites and interventions have been identified. NB, be prepared to revisit interventions after baseline Revisited as necessary during the project to assess outcomes of particular courses of action Post-project for terminal evaluation	Households in pilot innovation clouds	Household socio-economic surveys and village level network analysis / social capital analysis	External team for objectivity	A reference resource to check assumptions about social and economic outcomes of institutional change
Pilot innovation cloud process learning/ process-driven intervention correction	Regularly through the whole project cycle	Actions within both the project clouds as well as the wider policy and institutional environment	Custom-built process M&E system (not to be called M&E under any circumstances) drawing from RAAKS and other social-learning based approaches Actor Linkage matrix Technical appraisals and technical research reports	Designed and implemented by project partners with technical assistance and with facilitation by specialists from the project team	Regularly updated action plans

			<p>Episode analysis</p> <p>Positive deviance facilitated reviews</p> <p>Advice and interaction for the Fodder Innovation Policy Working Group</p>		
Comparative analysis	Throughout the whole project cycle	Entire scope of project activities	<p>Institutional development and innovation capacity benchmarking via a diagnostic study using World Bank methodology and tracking using custom-built indicators in each pilot innovation cloud</p> <p>Consultative capacity assessments (ISNAR-IDRC approach)</p> <p>Institutional/ innovation histories</p> <p>Case studies</p> <p>Supplemented with socio-economic surveys</p> <p>Ethnographic studies of project activities</p> <p>Policy process analysis</p>	<p>Specialist team members with expertise in institutional and innovation analysis</p> <p>Institutional change indicators jointly designed with project partners</p>	Range of documented analysis, lessons and principles
Project team process learning	Regularly throughout the whole project cycle	The actions and strategies of the project team (security council)	<p>Process documentation</p> <p>Episode analysis</p> <p>Positive deviance facilitated reviews</p> <p>Ethnographic analysis</p>	All members of the project team facilitated by external resource persons with perception of project used as a key source of information..A specialist process documentation	<p>Regularly updated work plans</p> <p>Range of documented analysis, lesson and principles</p>

			Other ILAC tools	member of the project team	
Project evaluation	Post project to draw lessons for future decisions projects and strategies	Entire scope of project activities	Formative and learning-based evaluation techniques	Everybody associated with the project, including the donors led by an external evaluation team	Lesson strategies and principles for everybody associated with the project

References:

- Biggs, S. (2006). Learning from the Positive to Reduce Rural Poverty: Institutional Innovations in Agricultural and Natural Resources Research and Development. Paper prepared for the Impact Assessment Workshop organised by the CGIAR Systemwide Program on Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PRGA) and the International Maize and Wheat Improvement Center (CIMMYT), October 19–21, 2005 at CIMMYT Headquarters, Mexico.
- Biggs, S. and Smith, S. (2003). A Paradox of Learning in Project Cycle Management and the Role of Organizational Culture, *World Development*, [Volume 31, Issue 10](#), October 2003, Pages 1743-1757.
- Engel, P. (1997). *The Social Organisation of Innovation: A Focus on Stakeholder Interaction*. Royal Tropical Institute, The Netherlands.
- Hall, A.J., B. Yoganand, Rasheed Sulaiman, V., Raina, R., Prasad, S., Naik, G. and N.G. Clark (Eds.) (2004). *Innovations in Innovation: Reflections on Partnership and Learning*, ICRISAT, Patancheru, India and NCAP New Delhi, India, 238 pp.
- Hall, A. J., Mytelka, L.K., and B. Oyelaran-Oyeyinka (2006). Concepts and Guidelines for Diagnostic Assessments of Agricultural Innovation Capacity. UNU-MERIT Working Paper 2006-017. Maastricht: United Nations University – Maastricht Economic and Social Research and Training Centre on Innovation and Technology.
- Hammond, S., Royal, C. (Eds.), (1998). [*Lessons from the Field: Applying Appreciative Inquiry*](#). Plano, TX: Practical Press, Inc.
- Lewis, D., *et al*, 1998 ‘Practice, power and meaning: Frameworks for studying organisational culture in multi-agency rural development projects,’ *Journal of International Development*, 15: 541-557.
- Mosse, D., Farrington, J., Rew, A. (1998). *Development as Process: Concepts and Methods for Working with Complexity*. London: Routledge.
- Salomon, M. and Engel, P. (1996). *Facilitating Innovation for Development: a RAAKS Resource Box*. Amsterdam: Royal Tropical Institute.
- Shambu Prasad, C., Hall, A, Laxmi Thummuru (2007). Engaging Scientists through Institutional Histories. ILAC Policy Brief No. 2. International Plant Genetic Resources Institute. Rome, pp. 4.
- Sternin, J. and Pascal, R. (2005). Your Company’s Secret Change Agents. *Harvard Business Review*, May 2005.
- Watts, J., Mackay, R., Horton, D., Hall, A., Douthwaite, B., Chambers, R. and A. Acosta (2003). Institutional Learning and Change: An Introduction. ISNAR Discussion Paper no. 03-10. The Hague: Netherlands, pp. 89.

World Bank (2006). *Enhancing Agricultural Innovation: How to go Beyond the Strengthening of Research Systems*. Economic Sector Work report. The World Bank: Washington, D.C., pp. 149.