Monitoring and Evaluation: Pathways for Change
A Summary of Monitoring & Evaluation Experience from the Renewable Natural Resources Research Strategy (RNRRS)

Susanne Turrall and Kath Pasteur

Monitoring and evaluation (M&E) is increasingly important for accountability, informing decision-making and more broadly, learning. During the DFID-funded Renewable Natural Resources Research Strategy (RNRRS) some innovative M&E methods were developed and there was also growing interest in the M&E of processes, pathways, innovation systems and organisational learning.

Introduction

This briefing summarises 'A Synthesis of Monitoring and Evaluation Experience in the Renewable Natural Resources Research Strategy', a synthesis of new M&E knowledge generated in the RNRRS. It was one of a number of syntheses commissioned to distil learning from the eleven year RNRRS (1995-2005), and inform the new DFID Strategy for Research on Sustainable Agriculture (2006-2016).

The RNNRS comprised ten (originally eleven) programmes which were contracted out to UK research institutions and collectively managed over 1600 projects. It aimed to achieve economically and environmentally sustainable enhancement of productive capacity in the renewable natural resource sector. Monitoring and evaluation systems played an important role in terms of accountability and informing decision-making, although the degree of innovation varied amongst the different projects and programmes.

The new DFID Strategy for Research on Sustainable Agriculture (2006-2016) will have a regional focus with decision-making, management and administration moving to developing countries. There will be a strong focus on encouraging innovation, exploring scientific potential, and the scaling-up of successful innovations and best practice. There are significant implications for institutional relationships within the new strategy, implying less clearly defined projects and more coalitions or networks based around developmental problems. For monitoring and evaluation, this means that whilst reporting for accountability purposes will continue to play an important role, there will be an increased need to encourage learning processes within and between those involved in research coalitions and networks. Much progress has been made with respect to thinking about the implications of institutional learning, and this briefing helps to share the valuable lessons which should be built into future frameworks and systems for M&E and lesson learning.

This briefing starts by looking at RNRRS systems and highlights some innovative methods developed, both those which monitored research outputs and outcomes, as well as those which looked at uptake and impact processes, innovation systems and organisational learning. It concludes by highlighting relevant lessons from the RNRRS for the new Sustainable Agriculture Strategy. It is emphasised that the study is a synthesis of new knowledge, rather than a comprehensive review

Logframe-Based Monitoring and Evaluation

RNRRS guidelines for M&E were largely based around the various elements of the logframe – namely the M&E of inputs and activities, outputs, outcomes and impact. According to the RNRRS guidelines (2000) M&E of project activities, outputs and

outcomes was the responsibility of programme managers, whilst impact assessment of the overall strategy was the responsibility of DFID (and falls outside the scope of this study). Box 1 describes the project logframe levels upon which M&E was focussed within RNRRS projects.

Monitoring of the **inputs and activities** which are outlined in the logframe was largely an accountability measure, carried out through traditional reporting on a quarterly and annual basis. Monitoring at this level plotted implementation progress against proposed timescales, and resource use against budgets.
Outputs are the direct products of agriculture and natural resources research projects. Outputs were measured in terms of journal articles, books, manuals, workshops, policy advice and new technologies with quality generally been measured in terms of acceptance of research outputs by peer reviewed journals. However, as much research increasingly aimed to directly influence policy processes or agricultural institutions, there was greater focus on relevance and broadened to include capacity building workshops, a wider set of journals etc.
The outputs of agriculture and natural resources research are intended to achieve some direct effect, or **outcome**, in a variety of ways: through the uptake of new technologies, other forms of change in agricultural or resource management practice, or influence on institutional or policy processes. A relatively clear and direct relationship between outputs and outcomes can be established in most cases.

Box 1 A Description of the Levels of M&E used within RNRRS Projects

The study found that there was relatively little innovative M&E at the activities and output levels, given that projects generally adhered to standard reporting formats. There was much more innovative practice in the M&E of developmental outcomes, particularly in terms of the use of participatory techniques or adaptation to different contexts or sectors. It is however important to note that given the length of the RNRRS and the way that much information was not documented or disseminated, that there are likely to be gaps in coverage of methods in the study. Below is a flavour of some of the innovative methods described in the main report.

Most Significant Change Stories is a tool used by the Natural Resource Systems Programme project 'Promoting the Pro-Poor Policy Lessons of an Earlier Aquaculture Service Provision Project' (R8334/R8100) managed by Support to Regional Aquatic Resources Management (STREAM). Most Significant Change (MSC) is a participatory monitoring technique based on stories rather than indicators of change resulting from project activities or outputs. These stories give a rich picture of the impact of development work and provide the basis for dialogue over key objectives and values of development programmes. MSC comes into its own where outcomes are unexpected and meanings are disputed, which indicator methods are unlikely to identify. It also allows for broad participation, and sets experiences and outcomes in context.

Case studies or stories of change have been used elsewhere amongst RNRRS projects as a more informal tool for demonstrating outcomes, and have been used in annual reports and in other publicity materials for promoting the work of the research programmes. There are challenges to using stories as a formal methodology for M&E (e.g. bias towards success stories and subjectivity in the selection process) which the literature around MSC has gone some way to explore. A very useful source for further details on this approach is by Davies and Dart (2005)

Participatory Budgets were used to assess outcomes in Crop Protection Programme Project 'Improving Production in the Teso Farming System Through the

Development of Sustainable Draught Animal Technologies' (R7401), which was designed to investigate ways of alleviating labour constraints associated with weeding annual crops in the Teso Farming System. The project involved testing and evaluating weeder technologies and as such a baseline survey was carried out, using beneficiary impact assessments. A participatory assessment of the weeder technologies was carried out using participatory budget methods to compare use and non-use of the technology in weeding annual crops: to gauge the social and economic impact and sustainability of the technologies on the beneficiary populations; and to assess future potential demand. The participatory budgets were developed with groups of farmers through semi-structured interviews to explore general impacts on lives and livelihoods, and how household budgets had changed (Aliguma, 2004).

The Livestock Production Programme project 'Understanding Small Stock as Livelihood Assets: Indicators for Facilitating Technology Development and Dissemination' (R7823) explored the use of livestock as a livelihood asset in Bolivia and investigated the development of **livelihood asset indicators** to show the changing contribution that livestock keeping can make to livestock-keeper's livelihoods. A set of methods was developed, based on an understanding of livelihood assets and their functions. Central to this was the recognition that assets have diverse functions, for example livestock may act as a form of consumption, savings, a buffer or insurance. Furthermore, each asset has diverse attributes which might make them more effective in fulfilling particular functions. These functions were acknowledged to vary in importance, as was the effectiveness of assets and activities to fulfill such functions, both over time and according to people's individual circumstances shaped by market and other external opportunities and constraints (Dorward et al. 2005) .

The Missing Links - the M&E of Processes within the Logframe

Recent literature shows that purely focusing on logframe elements (inputs and activities, outputs, outcomes and impacts) fails to capture the complexity of the intervening processes that take place. The relationships between these are dependent on processes or pathways which facilitate the uptake, adoption and adaptation of research products (see figure 1 below). Pathway analysis places research within the broader social and political contexts and attempts to construct possible sequences of events that will lead from one stage (such as outputs) to another (such as outcomes).

> **Uptake Pathways and Farmers Involvement**
> In 1999 the Crop Protection Programme commissioned a series of multidisciplinary studies to better understand the factors affecting uptake and adoption of outputs of research in banana, maize, yam, rice and vegetable cropping systems in Sub Saharan Africa and South Asia. The case studies revealed that even if farmers are made aware of improved procedures or new technologies, there are many and complex reasons why they may still fail to adopt. It concluded that farmers should be more systematically consulted and involved during the technology development process in order to ensure that expected uptake pathways are relevant and hence successful.
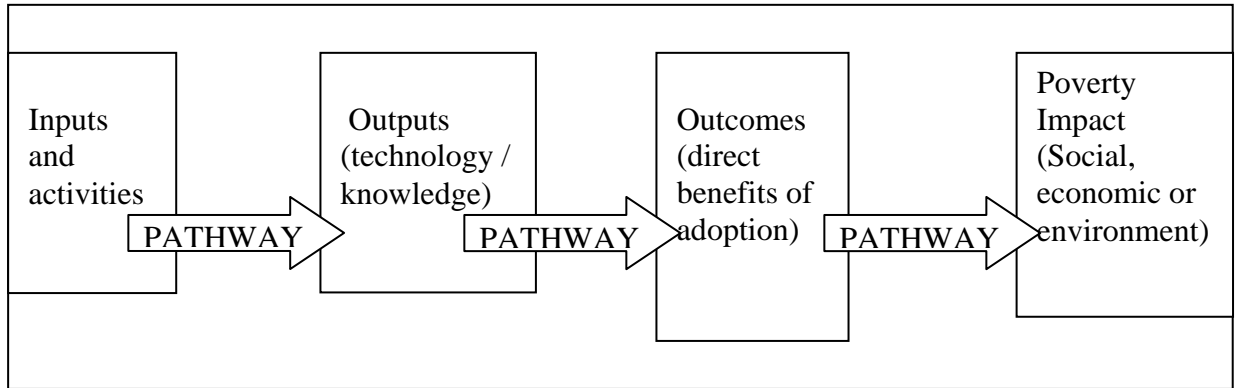
Figure 1: The Logical Framework sequence including pathways between different levels

The generic logical framework sequence therefore serves as a starting point for pathway analysis, but the focus is on mapping and monitoring the process of moving from one stage to another. Pathway analysis explores the causal links along a chain from activity to impact. Analysis may take place at different stages of a pathway and as such it has different names from uptake mapping, outcome mapping, critical path analysis amongst others. Most approaches involve developing a visual representation of the various segments of the pathway into smaller sequences of events and intermediary steps. Such methods were used within the RNRRS , as the examples below illustrate.

Uptake mapping methods, for monitoring technology adoption and spread at the village level, were developed by a Crop Post Harvest Programme (CPHP) project (R6639) which aimed to develop improved cassava processing methods (Kajimbwa et al, 1998). The approach involved developing local indicators such as technology borrowing and technology fabrication which were recorded using symbols on a 'social map'. The experiences with participatory M&E further strengthened the research-farmer linkages and the capacity of extension staff to develop and apply a new technology and analyse its impact.

The above uptake mapping method, and most other similar methods used in the RNRRS , were reflective, aiming to draw lessons from adoption processes that have already occurred. Ideally the pathway is constructed at the project planning stage to establish the necessary factors and assumptions relating to how research uptake and/or impacts will be achieved.

The Forestry Research Programme project Malawi Miombo Forest Management project (R6709, R7925) sought to predict uptake pathways by use of a **Bayesian Belief Network** (BBN) approach using software. A Bayesian Belief Network is essentially a causal flow diagram which plots possible outcomes through a series of 'nodes', which represent events, or critical success factors, connected by 'links' that show the relationships of influence or dependency between them. The BBN approach addresses risk and the implications of variance from plan which other simpler pathway models do not (Marsland et al, no date).

Understanding the Institutional Context – Innovation Systems

It is increasingly recognised that an understanding of the context in which research is implemented or disseminated is also important in order to ensure an appropriate environment for successful uptake of a research product. It is acknowledged that greater impact from research implies stronger interaction and exchange between many actors and institutions who play different roles in the development and promotion of innovations.

Over the past nine years the Crop Post Harvest Programme (CPHP) has been evolving what it describes as "a new research paradigm, which emphasises the importance of understanding and working with national institutional systems in order to convert research into successful innovation". The National Systems of Innovation (NSI) concept posits that innovations emerge from systems of actors, and that these systems are embedded in social, political and institutional contexts that determine how individual actors behave and how they interact with other elements of the system. Institutional context and relationships amongst actors are key components of such systems and understanding and monitoring these can be critical to the success of research undertakings.

The Participatory Monitoring and Evaluation procedures developed by CPHP in East Africa (DFID CPHP 2005) offer guidance on how to monitor changes in the institutional context within which the project is operating and the partnerships and relations between key organisations and individuals involved. It emphasises the importance of establishing a baseline study of the institutional context highlighting the organisations which will be involved in the project and their relationships to one another; and the context within which those organisations and relationships are operating, including incentives and disincentives, norms of interaction and market factors. Hypotheses and assumptions about the institutional environment required for effective production and uptake of outputs should be carefully examined at this stage and the aspects that need to be monitored should be identified on this basis.

Two tools are proposed for monitoring of relationships and context: **quarterly reflection and lesson learning workshops**; and construction of **institutional histories**. Reflection and lesson learning workshops would not only involve reporting on actions taken during a period, but critical analysis of project experiences and questioning of assumptions around key themes, namely: partnerships; institutional arrangements within the coalition; institutional arrangements with external organisations; and how learning is happening. Institutional histories are used to reflect on the evolution of processes and institutional arrangements in a project in order to draw lessons and improve performance. The process involves interviews to construct a time line, gain a clear understanding of roles and relationships, enquire into what triggers successful innovation, and reflect on any failures. Other relevant tools used in the Chars Bangladesh include actor linkage maps and actor linkage matrices (see Biggs and Matsaert, 2004) .

Organisational and Institutional Learning

The concept of **organisational or institutional learning** is about creating the context for reflective learning which helps actors to question and understand processes, to learn lessons from practice, and to apply what is learned to change behaviour and improve performance. It is not so much about developing methods and procedures, but about creating a context and environment in which the results of M&E exercises genuinely contribute to reflective learning and critical self awareness amongst professionals, and lead to action for change.

CPHP work on national systems of innovation explored ways to shift towards more of an organisational learning approach and the kinds of arrangements necessary to support learning and institutional change amongst groups of stakeholders. This requires not only appropriate staff skills and attitudes, but a broader supportive organisational culture, with top level legitimisation, that permits experimentation and potential failure.

Lessons from the RNRRS for the new Sustainable Agriculture Strategy

Whilst the innovative tools developed and used under RNRRS are useful for individual programme and project planning and application, the study also drew important **general lessons** relating to how M&E was conceptualised and developed by DFID, of which the recommendations for the new strategy are presented here:

Develop an M&E and Impact Assessment Strategy from the Outset
To avoid some of the challenges and frustrations experienced under RNRRS an M&E framework should be developed from the outset of the new strategy outlining objectives, expectations, and different levels of M&E/IA at different stages, clarifying roles and responsibilities, and identifying how the systems contribute to longer term impact assessment. The need for baseline data and common indicators should also be set out. Appropriate methods for data collection should be left to institutions.

Use the Wealth of Existing Methods and Tools
The plethora of methods and tools which have been developed within the RNRRS and beyond should be capitalised on rather than 'reinventing the wheel'. Participatory approaches and the sustainable livelihoods framework offer particularly successful directions for future innovation. A systematic review of existing methods would be valuable as a practical resource for those developing an M&E strategy.

Pathway Analysis
Pathway analysis should be more systematically used from the outset to predict uptake, outcomes and impacts of research outputs and technologies within the new strategy. The pathway should be monitored and challenged on an ongoing basis in terms of the external and internal factors affecting it, including unanticipated changes, if lessons are to be learnt.

Enhance harmonisation of M&E with other donors
Many projects with multiple sources of funding find they have a number of different reporting requirements. Taking steps towards matching reporting demands across institutions is important, particularly given the move towards more collaborative types of research systems.

A greater allocation of resources for M&E
Sufficient allocation of staff and financial resources is vital for developing effective M&E systems. A failure to ensure the spending of a reasonable proportion of resources on this important aspect of programme and project management is likely to reduce internal learning and result in poor performance.

Foster organisational incentives and a culture of learning, within and across institutions
The new strategy will comprise a number of different programmes in different regions of the globe. It is important to encourage learning across programmes and institutions and seek areas for potential collaboration. Institutional incentives are

needed, as well as individual's capacity in order for effective learning to take place. The development of a genuine organisational culture of learning and reflection will be a huge challenge, but a critical one if the approach is to flourish.

Conclusion

This summary has illustrated that there have been a number of innovative and creative methods and tools developed within the RNRRS, as well as more general lessons. It is encouraging to see that these lessons are being captured, but critical that both lessons and innovations are shared widely and incorporated into activities within the new research strategy.

Further Details

Full Report Title: A Synthesis of Monitoring and Evaluation Experience in the Renewable Natural Resources Research Strategy , 2006, Pasteur, K. and Turrall, S.

Contact for Further Information
Susanne Turrall (neé Clark)   Katherine Pasteur
Freelance Consultant   Freelance Consultant
E-mail: susanneturrall@tiscali.co.uk E-mail: katherine@pasteur.net
Tel: 01582 467261   Tel: 07814 605245

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