

## So what difference does it make? - assessing the outcomes and impacts of farmer participatory research.

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### Abstract

This paper provides a brief overview of what constitutes valid evidence for the efficacy and impact of participatory research drawing on the participatory research impact assessment literature and the author's experience of advising, reviewing and evaluating projects and programmes which have participatory research components, or are undertaking research within multistakeholder participatory processes. There has been important progress in demonstrating the different outcomes made by participatory approaches, but there remain differences in how the contribution of participatory research is judged, what evidence is considered valid and by whom.

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### Introduction

Early work in participatory research was concerned with both with a value orientation in research – values of participation and empowerment, and a pragmatic emphasis on achieving greater relevance of research, particularly for resource poor farmers through conducting agricultural research with the active participation of potential users of research outputs. The literature of the 1980s focused on the many examples of approaches and tools which facilitated this participation, primarily in the technology development process. Evidence was primarily drawn from case studies, identifying common issues and synthesising lessons. Unsurprisingly, it was noted in the early years of participatory research, that “the effectiveness of participatory methods in terms of time and costs is rarely assessed” and that “several case studies of projects using innovative methods at the outset ... have not yet produced an evaluation of their experience”. (Farrington and Martin, 1988:30).

Subsequent work broadened to include the institutional and policy context for participatory research, focusing on institutional change, policy dimensions and stakeholder relationships. However, it seems that despite the great wealth of participatory experience, and a large body of literature on the impact of research and development programmes, including impact of participatory research (under the PRGA<sup>1</sup> amongst others), that there is still a significant degree of controversy on how the impact of participatory research approaches should be assessed. This is becoming more relevant as agricultural research is increasingly located within multistakeholder innovation platforms and integrated research for development processes.

This paper is a short reflection on what constitutes valid evidence for the efficacy and impact of participatory research drawing in part on the large impact assessment literature and my own experience of advising, reviewing and evaluating projects and programmes which have participatory research components, or are undertaking research within multistakeholder participatory processes. It suggests that there has been important progress in demonstrating the difference in outcomes and impacts made by participatory approaches, but there remain differences in how the contribution of participatory research is judged, what evidence is considered valid and by whom.

### What difference? – the construction of comparisons.

Judging impact or assessing the difference made by FPR involves some form of comparison. There are different models of comparison, for example, ‘before and after’ comparisons’, assessing change against planned outputs and outcomes using specified indicators; methods which track change over time, such as outcome mapping (Earl et al, 2001) and Most

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<sup>1</sup> Participatory Research and Gender Analysis – CGIAR System Wide Initiative.

Significant Change (Davies and Dart, 2005) and, most common in impact assessment of agricultural research, the 'with/without' comparison which compares the results of the intervention with a comparable situation – real or modelled - without the intervention (Raitzer, 2003; Waibel, 2006).

The limitations of these methods are extensively discussed in the M&E and participatory research literature. In particular, the range and complexity of FPR is such that it is difficult to clearly distinguish what is being compared to what.

For example, comparisons over time involve a description of the starting situation through a situational analysis or baseline study, followed by a repeat study at mid term, and at the end of the project. These can be based on participatory assessment of the historical context and starting situation, followed by assessment of the changes that have occurred. They usually rely on detailed narratives from specific groups of stakeholders and can include researchers' assessments and reflections on change processes. However, in many cases where a baseline of the situation at the outset is lacking, the comparison has to be constructed retrospectively. This approach is vulnerable to being dismissed as anecdotal or 'subjective', indicating levels of participant satisfaction, but not providing evidence of what has actually made the difference and how.

In other cases, baseline studies are more formally designed to measure initial values in relation to the specified objectives and indicators and to provide the basis for monitoring and assessing change. However, baseline studies themselves frequently have important weaknesses, the most common being a design which does not relate to project objectives, delayed implementation and/or data analysis, lack of ownership and use of the results. Some of these problems can be overcome where participatory methods are used, but a more important problem in this context is that baselines often fail to examine processes or relationships to allow later assessment of changes in these. Heavily focused on quantitative measurement, many baselines are designed to show impact at aggregate level in overall productivity and incomes, rather than disaggregated to show differential impacts on processes and institutional relationships.

Many projects do not differentiate between testing of their methods and testing of the outcomes. They judge their contribution by the extent to which project objectives are being achieved, e.g. in terms of uptake of technologies, improvements in productivity and incomes for resource poor farmers, livestock keepers, and small enterprises, and are less concerned to demonstrate in a systematic fashion how far participatory approaches or other paradigm shifts have contributed to these outcomes.

A more process based approach compared to 'before and after' models are those which include more detailed 'visioning' of the intended changes and which track and monitor the process whereby these changes emerge (or not!). These can be compiled as a participatory process with different stakeholder groups. The best known version is outcome mapping which focuses on changes in behaviour and relationships and these are the basis for monitoring and process documentation.

Other versions, termed 'impact pathways' or 'theory of change', aim to analyse the logic of interventions as they relate to intended changes and impacts. The further along the impact pathway, the more complex attribution becomes, becoming more about plausible attribution than direct consequence. The theory of change is developed prior to project intervention and the testing of the theory is done through monitoring observed changes against the theoretical model. To a large extent these have been focused more on technology uptake and performance, seeking to identify what difference research outputs have made on productivity and income. Using this approach for participatory research, would require a definition of the means and processes through which participatory approaches are expected to have certain outcomes.

A more participatory version of this method is used by the Users' Perspectives With Agricultural Research and Development (UPWARD), an Asian network sponsored by CIP, which promotes user participatory approaches in root crop research and development

(Campilan and Prain, nd). Following stakeholder participation in planning impact assessment, a theory of impact (technical and socio-economic) is constructed from the empirical findings of participatory assessments at different levels (community, local agency and external R&D institutions) discussed in a validation workshop.

#### **'With and without' models.**

The main critique of the above approaches is that they do not consider what the situation would have been without the intervention. This is relatively straightforward to construct in relation to impacts from adoption of technology – particularly improved germplasm, but much more challenging when complex system changes are involved, or when changes in the ways of doing research are the subject of the enquiry.

Within the international agricultural research community, the construction of the 'counterfactual' scenario, or a comparison of the project intervention with a situation in which the intervention did not take place, either in reality or as a hypothetical model, has become a methodological requirement in impact assessment.

While the early FPR literature accepts the necessity for this approach, the limitations were clearly recognised. Treating 'participatory research' as an experimental variable poses problems. Participatory research, in common with other approaches (participatory action learning, integrated agricultural research for development, innovation systems etc) is not a single methodology but a complex of methods, attitudinal changes and underlying values. Some projects have found that such an experimental design was not feasible. For example, the UPWARD programme did not do this both for ethical reasons, and because it was not appropriate to isolate factors in a naturalistic setting, and therefore used a case study approach instead of having a 'control' and 'treatment'.

To examine a 'with and without' scenario, definition of the elements for comparison are required in the form of testable hypotheses. Work within the PRGA programme developed 22 hypotheses relating to benefits from participatory research in relation to four broad areas; technology impact, social and human capital impacts, feedback to formal research impacts and cost of research impacts, associated with different research phases (design, testing and diffusion) and different types of participation – consultative, collaborative or collegial (Johnson et al 2001). These hypotheses or statements of different dimensions of change provide the basis for guiding impact assessment. There are also hypotheses about changed relationships between farmers, communities and outsiders (other stakeholders and researchers); changes in skills and knowledge and information sharing and methods of working, and on research costs. These hypotheses, formulated to apply to farmers and farming communities could well be adapted for other groups participating in research, including development and extension workers, both government and NGO, private sector service providers, small enterprises and traders etc. They have contributed an important conceptual basis for the assessment of the impact of participatory research and gender analysis (Stevenson, 2007).

But more challenging than the development of hypotheses is the specification of what is being compared to what. Finding a comparable area of research with *no* elements of participation is becoming unusual, making it difficult to compare participatory research with non participatory research on the same topic. The principle of randomness is not often possible in participatory research since participants are usually self selected or selected by their community or purposively selected on the basis of specific criteria (Johnson et al 2004). There may therefore, be limitations in the extent to which participants can represent a broader population. Selection of communities is also subject to biases since outcomes of participatory research are influenced by pre existing social characteristics. Replication of the research in a large number of randomly selected communities is often not feasible; therefore the closest compromise is to select for diversity and to match control communities as closely as possible to the communities where research is taking place.

#### **Multiple methods**

Some of the best evidence comes from combining different approaches to assessing the impact of participatory research. For example, a review of the impact of participatory plant breeding (Ashby and Lilja (2004) draws on evidence from a survey of PPB practitioners and

expert opinion, 55% of whom indicated that PPB enhanced the project's effectiveness in targeting the poor and 43% that it was more effective in reaching women. Increased benefits to resource poor farmers were indicated by economic analysis of PPB barley breeding in Syria, comparing conventional and PPB approaches. Although this was an ex-ante analysis, it incorporated data from farmer surveys and data on actual research costs. Benefits arose from the reduction in research time, the yield increase, and faster adoption speed. The cost benefit ratios of breeding programmes were not lowered and could possibly improve.

The use of multiple assessment methods is particularly relevant in assessing the impact of participatory research in natural resource management (Johnson et al, 2003), where there are multiple impacts and complex interrelationships. In the study reported, conventional adoption studies and econometric analysis was used, complemented by qualitative data from interviews with farmers. The impact of participation on human and social capital among participants and on the feedback links between users and formal research was assessed through interviews with key informants and focus group meetings in project and non-project communities.

### **Some examples**

The impact assessment study of the **CIAT Cassava Programme in Asia** (Dalton et al 2005; Agrifood Consulting International, 2004) is a detailed assessment of participatory research within a broader natural resources management context. The programme in Thailand and Vietnam (in two phases covering 1994-2003), developed and testing technologies (varieties, erosion control, fertilizer and intercropping) with farmers in cassava farming systems and used participatory extension approaches over a larger number of sites. Researchers were also trained in participatory research methods.

The impact assessment attempted a rigorous comparison of the 'with' and 'without' situation, in each country selecting 4 villages where the project had worked and 4 closely comparable and nearby villages where they had not worked. A range of methods, including survey questionnaires (767 households) and focus group discussions were used with participants and non participants. They found that participatory approaches were particularly important in encouraging the adoption of cassava management technologies. Differences in adoption rates between participants and non participants and wealthier compared to poorer farmers were more pronounced in soil conservation practices including contour ridging hedgerows and farm yard manure than in improved varieties and chemical fertiliser. Participation had an impact on yield gain, independent of technologies. The study suggests that this is related to the enhanced knowledge, experience and managerial capacity gained via participation and experimentation (Dalton et al 2005:17). The institutional impacts within the research and extension system were explored relying on research and extension personnel perceptions (Calkins and Vu Thi Thao 2005). This study suggested that additional approaches were needed to target the poorest to overcome the disincentives of deferred benefits and labour and land requirements.

The cassava case illustrates some of the methodological difficulties in impact assessment of participatory approaches. There were difficulties in matching participant and non participant villages to minimise differences in initial agricultural assets, activities and cassava yields. There was no initial baseline or estimation of farmers' knowledge and practices or the institutional practices of research and extension.

A recent review of the programme's work in Laos and Cambodia (Triomphe and Martin, 2005) recognised the programme's important regional impact on cassava yields and incomes. However, the limited resources and skills available to the programme have made it difficult to follow up on further refinement of the earlier findings - particularly the more strategic objective to investigate and consolidate lessons and evidence on which methodologies are suitable for particular production systems and institutional arrangements. This has limited the extent to which monitoring of participatory processes can be integrated into regular monitoring practice, initially through baseline studies, covering areas for later comparison and through participatory monitoring of learning and change among farmers, local researchers and extensionists, but also among other actors in the cassava supply chain. This raises the

question of whether better evidence of impact could be provided by incorporating participatory issues into M&E during projects, in order to complement external impact assessment.

Experience working on Impact Assessment in the inception phase of the Sub Saharan Challenge Programme (2005-2006) illustrates some of the issues and debates connected with providing evidence for the efficacy of different research approaches.

The goal of the **Sub Saharan Africa Challenge Programme, (SSA CP)** is to enhance the contribution of agriculture and natural resource systems to improved rural livelihoods, increased food and nutrition security and sustainable natural resource management. It is committed to the challenge of engaging in a different approach to conducting research, working within a broader innovation system context and based on the paradigm of 'integrated agricultural research for development' (IAR4D). The purpose is to enhance the impact of IAR4D on production-to-consumption value chains, rural household incomes and policy and institutional environments, for sustainable productivity of smallholder agricultural and NR systems in Sub Saharan Africa.

The programme is coordinated by the Forum for Agricultural Research in Africa, which also provides a link to the wider policy context of NEPAD. The sub regional organisations (SROs) (ASARECA, CORAF/WE CARD and SADC/FANR) manage and implement the SSA CP at the sub-regional level, providing general oversight and coordination to the programme implementation and monitoring progress. The CGIAR Science Council is responsible for reviewing the progress of the SSA CP via reports and external review panels and providing advice.

The IAR4D approach emphasises integrated approaches across value chains, establishing broader partnerships and 'innovation platforms', strengthening participation, building linkages with policy processes and stimulating institutional change. "*The SSA-CP seeks to change the way stakeholders conduct agricultural research by mainstreaming a new way or approach of doing the business of agricultural research that integrates all sectors and disciplines involved in the production to consumption chain*". (FARA 2006).

Following the launching workshops at each of the three pilot learning sites and stakeholder workshops to develop logical frameworks and indicators, the programme developed through a process of competitive selection of concept notes and full proposals. The facilitation and mentoring (including M&E) and impact assessment functions were supported by contracted service providers. Activities included workshops for teams whose concept notes were selected, to assist in proposal development, covering participatory M&E and impact assessment, IAR4D and participatory research and extension.

Following selection of the successful proposals, workshops were held with teams at one of the pilot learning sites to critically review logical frameworks for the projects, identify indicators, discuss and visualise impact pathways and plan baseline studies. The research teams discussed the processes whereby indicators are defined (whose indicators count and how this process could be more participatory) and developed gender, poverty and vulnerability related indicators. The teams discussed the pathways, processes and institutional relationships through which research outputs (technologies, information and ways of operating) might contribute to intended outcomes and eventual impact on poverty. The basic principles of comparison were discussed and incorporated into preliminary plans for baseline studies covering areas where participatory research work would take place and similar areas where it would not.

The dimension of institutional change and new approaches to partnerships and learning presented particular challenges for M&E and impact assessment. How would changes in institutional relationships and approaches to integrated research embracing joint learning and information sharing, be tracked and understood? How could this effectively take place given the diversity of key players who were widely dispersed geographically and institutionally?

Qualitative but systematic approaches were designed to establish a 'baseline', which included self assessment by team members of their individual experiences and understandings of

development oriented research and expectations regarding IAR4D at the start of the programme. A second set of questions explored organisational experiences with collaboration for research and development and assessed the extent of organisational guidance and support for partnerships in the context of IAR4D. The members of the teams saw their work as allowing them to operate according to IAR4D principles, but also saw their organisations as needing to further improve in key aspects relating to IAR4D. Areas most commonly identified for improvement related to trust, transparency, support and guidance for partnership management and mutual respect and recognition. There was initial introduction to outcome mapping as a method for stakeholders and participants to more precisely define the kind of institutional changes required, to monitor them over time and allow for reflection and learning, and to share lessons across different sites.

The processes of development of the programme's medium term plan and the Science Council commissioned external review, raised some important questions about the research focus of the programme and hence the design and implementation of its M&E systems and impact assessment plans. There was already existing variation in the extent to which research teams had included enhancing the contribution of IAR4D in their research purpose, although most had included monitoring of institutional change and interaction among partners in the innovation platform as important areas in process monitoring. But for the most part, the emphasis in M&E and impact assessment was on understanding how programme activities have brought about changes in value chains, household incomes and policy and institutional environments which in turn have contributed to improved livelihoods, food and nutrition security and sustainable natural resource management. The focus was not on assessing the impact of the IAR4D methodology *per se*.

In contrast, feed-back from the CGIAR Science Council emphasised the need to define research hypotheses and research designs that could allow the program to identify the effects of the different components of the IAR4D approach in a scientific, statistically-based manner. The concern was to show whether the IAR4D concept works and can generate deliverable international or regional public goods for the end users. Related questions were whether the IAR4D framework delivers more benefits to the end user than conventional approaches (given the same level of finance and resources) and whether the approach is sustainable and usable outside the initial research environment and would therefore justify scaling up.

Clearly M&E and impact assessment is critical to this discussion. The question of what approaches, processes and tools would be appropriate in these circumstances relates to the discussion in the first part of the paper. The feedback comments recognised that traditional M&E approaches are not adequate to the task, but the requirement for robust measurement of real outcomes was considered to require something more than 'participatory feedback and reflection approaches'. While the programme is encouraged to seek wider support for designing appropriate M&E and IA approaches, some may doubt whether the required counterfactual can be created to allow the experimental comparison necessary for 'proof of concept'. This particularly so, since the nexus of partnerships and institutional interrelationships within IAR4D cannot be replicated as a 'treatment'. The programme's intention of learning across cases or the different pilot sites recognised this reality. Furthermore, as IAR4D principles become more mainstreamed in associated research networks (e.g. ASARECA training programme) there are fewer examples of wholly 'conventional' research approaches and more frequent cases of partial and variant integration of IAR4D principles in particular institutional contexts.

From the programme's perspective, it is supported by a wide range of stakeholders and consistent with the IAR4D and innovation systems approach, research is being conducted in partnership with organisations across the research and development continuum. Among these organisations there are different views on what would constitute evidence for the effectiveness of IAR4D and whether there is need for 'proof of concept'.

It is ironic that integrated approaches have developed in response to critiques of reductionism and yet to assess impact it appears necessary to reintroduce reductionism to examine the specific components of IAR4D.

The programme nevertheless has worked on developing an improved framework with experimental design, sampling strategy, indicators, outcomes etc. Comparisons are relatively easier at the level of research sites (as was noted by the research teams during baseline study planning) but less straightforward at the level of institutional change and participation in innovation platforms, where simpler testable hypotheses may be less relevant. Here a combination of impact pathway mapping, individual and group monitoring of institutional and behavioural changes and participatory assessments is likely to be required and the systematic design, presentation and justification of these represent a current practical challenge.

### **Challenges for future**

An underlying justification for participatory research approaches has been their ultimate contribution to poverty reduction and improved livelihoods. This is explicit in the more recent linking of research for development goals with the Millennium development goals and underpins much donor funding. It has been noted that “some donors want to see impact at the level of resource-poor farmers, while others emphasise that the mandate and comparative advantage of the IARCs is to conduct ‘*strategic*’ research and produce ‘*international public goods*’ that can be extrapolated” (Probst & Hagmann, 2003).

As participatory research becomes part of wider approaches in research for development increasingly including a stronger emphasis on institutional transformation and broader joint learning, the methods for impact assessment will need to develop accordingly. How to explore impact among disparate actors in different contexts including farmers and strategic researchers? What combination of approaches is appropriate given different objectives and time frames? What will convince different stakeholders and what recognition is given to the requirements of each other? Answers to these questions will be important if impact assessment is to provide a constructive contribution to improving the developmental outcomes of research.

### **REFERENCES**

Campilan, Dindo and Gordon Prain (nd) Self evaluation as an approach to assessing participatory research: an Asian experience, in Lilja et al (nd), Assessing the impact of Participatory Research and Gender Analysis pp 172-182.

Dalton T; Lilja N; Johnson N; Howeler R, 2005. Impact of participatory natural resource management research in cassava-based cropping systems in Vietnam and Thailand. Working Document 23, CGIAR Systemwide Programme on Participatory Research and Gender Analysis.

[http://www.prgaprogram.org/modules/DownloadsPlus/uploads/PRGA\\_Publications/General/W D23\\_CIAT-PRGA.pdf](http://www.prgaprogram.org/modules/DownloadsPlus/uploads/PRGA_Publications/General/W D23_CIAT-PRGA.pdf)

Davies, R.J and J. Dart, 2005. The Most Significant Change (MSC) technique; a guide to its use. [www.mande.co.uk/docs/MSCGuide.pdf](http://www.mande.co.uk/docs/MSCGuide.pdf)

Earl, Sarah, Fred Carden, and Terry Smutylo, 2001. Outcome mapping: Building Learning and Reflection into Development Programs. IDRC. [http://www.idrc.ca/en/ev-9330-201-1-DO\\_TOPIC.html](http://www.idrc.ca/en/ev-9330-201-1-DO_TOPIC.html)

FARA (2006) SSA CP Progress Report Year 1 2005-2006. Forum for Agricultural Research in Africa, Accra, Ghana.

Johnson N; Lilja N; Ashby JA, 2001. Characterizing and Measuring the Effects of Incorporating Stakeholder Participation in Natural Resource Management Research: Analysis of Research Benefits and Costs in Three Case Studies. Working Document 17, CGIAR Systemwide Program on Participatory Research and Gender Analysis (PRGA Program), Cali, Colombia.

Johnson, Nancy L., Nina Lilja, Jacqueline A. Ashby (2003), Measuring the impact of user participation in agricultural and natural resource management research, *Agricultural Systems* 78 (2003) 287–306.

Johnson, Nancy, Nina Lilja, Jacqueline A. Ashby and James A. Garcia (2004) The practice of participatory research and gender analysis in natural resource management, *Natural Resources Forum* 28 (2004) 189–200.

Lilja, Nina, Jacqueline A Ashby, and Louise Sperling eds. with the collaboration of Annie L Jones Assessing the impact of Participatory Research and Gender Analysis  
[http://www.prgaprogram.org/modules/DownloadsPlus/uploads/PRGA\\_Publications/quito.pdf](http://www.prgaprogram.org/modules/DownloadsPlus/uploads/PRGA_Publications/quito.pdf)

Probst, Kirsten and Jürgen Hagmann, with Maria Fernandez and Jacqueline A. Ashby (2003) Understanding participatory research in the context of natural resource management – paradigms, approaches and typologies. Agren Network Paper No. 130 July 2003

Raitzer, (2003): Benefit-Cost Meta-Analysis of Investment in the International Agricultural Research Centres of the CGIAR. Rome, Italy: Science Council Secretariat, FAO. 45 p.

Stevenson, James (2007) A literature review of the documentation of ex-post impact of participatory research with a focus on work by the PRGA program and its partners.  
<http://www.sciencecouncil.cgiar.org/meetings/meeting/SC7/PRGA%20IA%20literature%20review.pdf>

Waibel, Hermann (2006) Impact Assessment of Agricultural Research for Development and Poverty Reduction. Working Paper 2006 No. 2, Development and Agricultural Economics, Faculty of Economics and Management University of Hannover, Germany  
[http://www.ifgb.uni-hannover.de/fileadmin/EUE\\_files/Lehre/working\\_pap2006/waibel\\_wp02.pdf](http://www.ifgb.uni-hannover.de/fileadmin/EUE_files/Lehre/working_pap2006/waibel_wp02.pdf)

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