

# **Reversing the Paradigm: Quantification and Participatory Methods**

**Submitted to the EDIAIS Conference on  
“New Directions in Impact Assessment for Development:  
Methods and Practice” University of Manchester, UK  
24-25 November, 2003**

by

**Robert Chambers and Linda Mayoux<sup>1</sup>**

---

<sup>1</sup> Paper draws on Chambers !! ref and Mayoux papers for EDIAIS website.

## **Abstract**

In recent years there has been increasing interest in 'integrated impact assessment', using varying combinations of quantitative, qualitative and participatory methods. However participatory methods have often been relegated to a 'politically correct' frill to the more serious task of 'expert' quantitative and qualitative research. It is commonly assumed firstly that rigorous quantitative data can only be produced by questionnaire surveys or scientific measurement and secondly that participatory approaches only generate qualitative insights.

This paper discusses numerous experiences and innovations since the early 1990s which show both these assumptions to be false. It argues that participatory methods should form the basis, not an optional frill, for monitoring, evaluation and impact assessment. When used well, participatory approaches and methods can generate both qualitative insights and usually more accurate quantitative data than more conventional approaches and methods. They are also far more cost-effective and can form a sound basis for much better targeting and focusing of more expensive quantitative and qualitative investigation to where they are really needed. Although empowerment of participants cannot be assumed, participatory methods have the potential to substantially increase the downward accountability of the development process and contribute in and of themselves to empowerment and civil society development. The main challenge for wider use and acceptance of participatory methods is not so much any inherent limitations to rigour and reliability of the data produced compared with conventional quantitative methods. It is rather how to preserve their potential for enabling very poor women and men to really have a voice in definitions and policies for pro-poor growth and civil society development in the face of institutional prejudice against a process which challenges conventional norms of expertise and vested interests.

## **Introduction**

In recent years there has been increasing interest in 'integrated impact assessment', using varying combinations of quantitative, qualitative and participatory methods (e.g. Hulme !!!; Booth et al 1998; Marsland et al 2000; Kanbur 2003). Complementarities have been recognised particularly between the depth and detail contributed by qualitative research and the objectivity and statistical robustness contributed by quantitative research.

Since the 1980s participation has been an established part of the political agenda and a number of donor agencies have produced manuals and tools for participatory research (!! Refs) However participatory methods have generally continued to be seen as a 'politically correct' frill to the more serious task of 'expert' quantitative and (more rarely) qualitative research. It is commonly assumed firstly that 'rigorous' quantitative data can only be produced by questionnaire surveys or scientific measurement and secondly that participatory approaches only generate qualitative insights.

This paper discusses numerous experiences since the early 1990s which show both these assumptions to be false. It argues that participatory methods should form the basis, not an optional frill, for monitoring, evaluation and impact assessment. It argues that participatory methods should form the basis, not an optional frill, for monitoring, evaluation and impact assessment. When used well, participatory approaches and methods can generate both qualitative insights and usually more accurate quantitative data than more conventional approaches and methods. They are also far more cost-effective and can form a sound basis for much better targeting and focusing of more expensive quantitative and qualitative investigation to where they are really needed. Although empowerment of participants cannot be assumed, participatory methods have the potential to substantially increase the downward accountability of the development process and contribute in and of themselves to empowerment and civil society development. The main challenge for wider use and acceptance of participatory methods is not so much any inherent limitations to rigour and reliability of the data produced compared with conventional quantitative methods. It is rather how to preserve their potential for enabling very poor women and men to really have a voice in definitions and policies for pro-poor growth and civil society development in the face of institutional prejudice against a process which challenges conventional norms of expertise and vested interests.

## **Quantification and Quantitative Methods: Assumptions and Realities**

Impact assessment, monitoring and evaluation<sup>2</sup> are now an established part of development activity. Many NGOs and programmes have always had a concern with understanding and improving the development impacts of their activities. However the main push towards more systematic quantification of programme impacts has come largely from donor agencies and international funding NGOs. Historically the process has been a gradual extension of budgetary accounting to donors to ensure money was spent as agreed. With increasing use of logical frameworks and donor policy guidelines, the focus on 'agreed outputs' has been extended to 'agreed goals and impacts'. This has partly been a result of pressure from donor governments and their taxpayers and partly

---

<sup>2</sup> In this paper impact assessment is used as a shorthand to refer to impact assessment itself and also monitoring and evaluation processes which attempt to collect information on impact.

response to critical research which has questioned the wider impacts of development aid<sup>3</sup>.

The demand for quantification has also recently increased with the growing interest in macro-level strategic impact assessment for developing future policy work. These require not only much better project and programme-level strategic<sup>4</sup> assessments but also strategic sector-wide assessments (See papers by !! this volume). This extends the methods used for ex ante social and environmental assessments to follow-up studies. Strategic impact assessments of this type are becoming increasingly important in the context of sector-wide approaches involving networks and partnerships between governments, donors, NGOs and other stakeholders.

Alongside this demand for ever more quantitative data have also been widening demands of impact assessment itself. As outlined in Box 1 the range of types of question for which quantitative information might now be useful goes beyond simple measurement. Firstly there has been growing recognition of the multidimensional nature of poverty. This has raised questions not only about reliable means of quantifying economic dimensions of livelihoods like non-market income and services, but also whether and how social and political dimensions like decision-making, power relations and political participation might be quantified. Secondly there has been increasing concern with levels of analysis beyond the household to account for intra-household inequalities and interlinkages between different dimensions of inequality within and outside markets and communities. Thirdly, impact assessment is not free of costs which must be diverted from programme and policy implementation or other uses. This has led to a growing concern that impact assessment should be more practically useful, moving from a focus on 'proving impact' to 'improving practice' (!!ref to Hulme).

In these debates it has often been assumed that quantitative information can only be collected using conventional quantitative methods, generally seen as consisting of a standard package of structured questionnaires to collect quantitative information on prespecified indicators conducted for a random sample of respondents and analysed using statistical techniques. Quantitative methods are generally treated as inherently superior to both qualitative and participatory methods in terms of rigour and credibility.<sup>5</sup>

---

<sup>3</sup> This has been particularly the case in microfinance where critical literature on poverty and gender impacts has led to a widespread implementation of impact assessment exercises.

<sup>4</sup> In this paper the term 'strategy' is used to imply an explicit attempt to design an intervention to achieve an explicit development goal. Strategies are required at all levels: projects, programmes and macro level policy and 'strategic plans' are produced at all these levels. In this paper the term 'Strategic Impact Assessment' refers to assessments which not only assess the degree to which existing strategies achieve their goals at any of these different levels, but also assess the options for strategic improvement. This usage differs from that in some other papers where Strategic Impact Assessment refers only to macro level policy (eg Lee 2002). These are here referred to as macro-level or sectoral strategic impact assessments.

<sup>5</sup> A full review of these debates is outside the scope of this paper. For an overview see Hulme!! and papers in Kanbur ed 2003.

**BOX 1: QUESTIONS WHICH IMPACT ASSESSMENT might need TO quantify**

**Measuring economic, social and political dimensions of impact:** What is happening? How much?

**Counting and aggregation for different stakeholders:** To how many people is it happening? To whom?

**Tracking changes over time:** How much have particular changes taken place for which stakeholders?

**Evaluating changes:** Which changes are significant enough to matter? Comparing one or more set of impacts affecting one or more stakeholders with other impacts and stakeholders.

**Attributing changes:** Why is so much of importance (or so little) happening to so many (or so few)? What is the relative magnitude or importance of the different factors: different aspects of the programme, contextual opportunities and constraints?

**Assessing alternatives:** What can or should be done about it? How can or should the range of practical options be compared or valued?

**Setting goals for future changes:** What targets can or should be set for increasing positive impacts or decreasing negative impacts? For whom?

*Dev from Mayoux SSL paper; Chambers 2003; Uphoff 2003*

However quantitative methods, whatever their potential for rigour in relation to measuring specific types of impacts, in practice generally fall short of current requirements for impact assessment<sup>6</sup>. This is partly because of inherent limitations in statistical methods and analysis for addressing what are inevitably areas of value judgement and political negotiation. Merely measuring what is happening says very little about what can or should be done about positive or negative impacts identified. This requires different questions, different investigative and analytical methodologies. Moreover, merely making recommendations for improvement is no guarantee that they will be implemented – this requires effective dissemination of information and negotiation of often competing or conflicting interests to bring about the required change. Whatever the robustness of the findings of the assessment about the types of impacts occurring, practical conclusions are often based at best on information outside the quantitative study which has not been collected in a systematic manner. At worst they are based mainly on the preconceptions of the investigators who made *a priori* decisions about the indicators and how the various statistical correlations should be interpreted in terms of causal relations.

---

<sup>6</sup> The assertions made here are on the basis of detailed reading of the micro-finance impact literature and detailed discussions with those involved in doing them. For an overview of impact assessment methods in micro-finance see Mayoux 2002 EDIAIS paper and for the ways in which some programmes are attempting to address some of the challenges see IDS Bulletin!!.

There are inherent limitations in the ability of statistical methods to explain patterns of correlation or identify alternative courses of action. Even very sophisticated surveys like the World Bank's LSMS<sup>7</sup> have serious shortcomings when used in isolation from qualitative analysis and clear specification of hypotheses and stakeholder analysis. For example many quantitative surveys have found a lack of statistical correlation between household expenditure/income data and consumption data. This cannot however necessarily be interpreted as a lack of correlation, but a failure to sufficiently take intra-household inequalities into account in the design of the questionnaire and the ways in which correlations have been specified and tested. A lack of correlation was also found in one LSMS survey between poverty levels and child labour. This was not because of a lack of correlation, but because different categories of child labour had not been sufficiently specified to distinguish between work on family farms in better-off households from child wage labour in very poor households. In both cases it is the more detailed analysis which is important in drawing conclusions for interventions to address the negative consequences for very poor people<sup>8</sup>.

Furthermore even the quantification of impacts themselves are frequently less robust and rigorous than is often claimed in the final report. Firstly, many impact assessments attempt to collect 'complete information' on various economic measures of poverty: incomes, consumption and/or expenditure. This leads to very long questionnaires which still fail to cover important non-market dimensions of poverty: the many foraging activities, which women in particular, often perform, unpaid domestic services, e.g. childcare, water collection and so on. The time spent on these measurements also generally means that there is no space for looking at impacts on social dimensions of poverty, like control over resources and decision-making. This means that both positive and negative impacts of programmes on key areas of poverty, essential to people's well-being are completely missed. Practicalities of people's lives also mean that much of the data is suspect because towards the end at least, people are likely to tell the interviewer what they want to hear simply in order to end the interview.

Secondly, in most impact assessments, the sample size is too small to reliably draw statistical inferences. It is generally determined by what is feasible within available resources, rather than the statistical requirements of the complexity of the question and the assessment of statistical variation and margin of error. Moreover time and resource constraints frequently mean that samples are not random, with unavailable respondents e.g. migrants, women who have married away being substituted by those most easily available. Importantly also, the types of information required may not be known by all respondents in the random sample and/or there may be insufficient incentive for respondents to spend time to give reliable information. The reliability of household level information is particularly suspect. Unless all household members are interviewed, the information which people give about the incomes, assets, savings and consumption of other family members is often at best approximate and at worst completely misleading. There is nothing magical about the reliability of random samples of this type. More information is not necessarily better information, it may merely mean more bad information. In many cases, more useful information can be collected through carefully focused purposive samples and key informants.

---

<sup>7</sup> !! Explanation of LSMS

<sup>8</sup> In relation to child labour see for example recent research by Bhalotra and ref!! In relation to gender and poverty see Mayoux 2004 forthcoming.

Thirdly, the move from 'proving impact' to 'improving practice' raises ethical and moral issues about how identification and evaluation of possible alternatives are made, and by whom. There are very serious questions to be asked about the validity of a process of 'improving practice' in which the intended beneficiaries have little say about which particular practices are to be improved and how it is to be done. In conventional impact assessment, external assessors write a report based on their assessment, which is then submitted, in English or another European language, to the agency commissioning the assessment. Those who gave their valuable time to supply the information used in the assessment very rarely see even the quantitative findings, much less the recommendations made by the assessors. Moreover, the impact of such assessments is often marginal if the vested interests involved do not agree with the recommendations. In order for pro-poor development to become a reality, poor people themselves must be not only be involved as respondents, but also have access to the information generated, a role in its analysis and in identifying the practical implications for change.

None of the above implies that quantitative methods should not be used, or do not have an important role in many types of impact assessment, particularly in macro-level strategic impact assessment. However the 'mist of mystique' which automatically assigns inherent objectivity and rigor to quantitative methods and statistical analysis is seriously misplaced in view of both the inherent limitations and practical challenges. This is particularly the case in view of the current demands and purpose of impact assessment.

### **Participatory Methods: Assumptions and Challenges in Quantification**

Participatory approaches and methods can generate data and numbers on numerous topics similar to outputs from questionnaires. They can also form the basis for a systematic and strategic process of participatory consultation and analysis of the findings, practical implications and support implementation of recommendations. One of the main problems with participatory methods has been that with rapid spread and heavy demand, many claimed to be PRA trainers and practitioners who lacked experience, and whose behaviour and attitudes were inappropriate. Much practice was not just mediocre, but plain bad – top-down, routinised, insensitive, unimaginative, unethical and producing data which were unusable and unused. This has led to the widespread view that such methods are inherently less reliable and capable only of collecting qualitative information and yielding qualitative insights. However both assumptions of inherent empowerment benefits and inherent lack of rigour in relation to quantification need to be questioned in the light of recent evidence discussed here.

Participatory methods as commonly understood are characterised by one or both of two key characteristics as outlined in Box 2:

- ⌘ A participatory process involving more than one respondent
- ⌘ Use of diagram tools and techniques in collecting and recording information

However it is possible to have participatory focus group discussions and processes without using diagrams. It is also possible to use diagrams as part of qualitative research with only one person. Increasing the rigour of participatory methods requires looking at both the participatory process and the types of diagram tools used and crucially the ways in which both are recorded and interpreted and fed into decision-making.

There are now many examples of deriving numbers from participatory approaches and methods. Increasingly since the early 1990s, a quiet tide of innovation has developed ways, often visual and tangible, by which local people generate numbers (known for short as participatory numbers or “party numbers”). As discussed in detail below the examples and scope for innovation are almost infinite<sup>9</sup>: to identify the seasonal patterns incidence of different activities, credit availability, incidence of health problems. The information is immediately accessible to everybody present in a form which illiterate people and outsiders who do not speak the local language can understand.

## **BOX 2: PARTICIPATORY METHODS: AN OVERVIEW**

### **PARTICIPATORY PROCESS**

- ☞ Focus Group discussions
- ☞ Role-play
- ☞ Participatory workshops
- ☞ Community research

### **DIAGRAM TOOLS**

- ☞ Diagrams: flow/causal diagram; Venn/chapatti/circle diagram; Systems diagrams; Pie charts; Histograms; value chain analysis
- ☞ Ranking Techniques: preference ranking and scoring; pairwise ranking; direct matrix ranking; ranking by voting; wealth ranking; pile and card sorting
- ☞ Time Trends Analysis: Historical and future (visioning) mapping; Time trends charts; Oral Histories
- ☞ Mapping Techniques: resource mapping, mobility mapping; social mapping; transect (walks)
- ☞ Calendars: Seasonal calendar; Historical seasonal calendar
- ☞ Ethno-Classifications: Proverbs, Stories, Indigenous Categories and Terms, Taxonomies

**Source: Chambers !! Mayoux EDIAIS**

A key advantage of participatory methods is their cost effectiveness in rapidly bringing together information and knowledge from many participants in roughly the same time as it takes to interview two or three people. The information obtained on many topics is likely to be more accurate and reliable because individual responses are subjected to immediate examination and cross-verification from other participants. The actual process of counting in a participatory setting is relatively straightforward. There are a range of easy methods which can be used in a group meeting which can rapidly obtain numerical

<sup>9</sup> See for example Neela Mukherjee’s latest (2002) book Participatory Learning and Action with 100 field methods. For discussion of quantification of a number of key diagram forms and their applications see Mayoux 2002!!.



data and where necessary overcome the sensitivity of revealing information to other members of the group:

- ## Voting by showing of hands with numbers then marked on the diagram.
- ## An energiser which asks people to group themselves by particular characteristics to encourage them to move and change places as well as be counted.
- ## Voting by secret ballot, using symbols and diagrams, can be used for more sensitive issues.
- ## People can plot themselves on a flip chart diagram going behind a stand turned away from the other participants.
- ## Pocket voting (van Wijk-Sebesma 2001: 130)

The participatory process itself can take many forms. Most commonly it takes the form of participatory focus groups facilitated by outside facilitators: NGO staff, consultants or researchers. Numbers involved vary from small groups of 3 or 4 to large participatory workshops. In some mapping exercises participation is random as analysts interview people as they meet them on a transect walk – with little or no distinction between this type of ‘participatory’ exercise and forms of conventional qualitative research. In a few cases local can themselves also be involved in community research without significant external facilitation, though how far this can be done by very poor people without assistance from literate community facilitators remains to be seen (See below and Mayoux, Kakyo and Andharia paper this volume).

Quantitative data has been generated by almost all of the numerous participatory diagram methods devised in different parts of the world through measuring, counting, estimating, valuing, ranking, and scoring.

Examples of *participatory measuring* can be found with timber stocks, water flows, arm circumferences, and land use areas from participatory GIS modelling (Rambaldi and Callosa-Tarr 2000), though in this last case it is not clear whether the measurements on the modelling were made in a participatory manner.

Examples of *counting* are social and census maps, which have tended to be very accurate for identifying and listing households, for headcounts and for household characteristics which are common knowledge (for seven cases see Chambers 1997: 143-5). Community censuses from participatory mapping in 54 villages in Malawi is an illustration of how this can be done at scale (Levy and Barahona forthcoming), suggesting that the 8.5 million census count of the rural population should have been 11.5 million.

Examples of *estimating* are often associated with *comparing* and *relative proportions*, as in historical matrices (e.g. Freudenberger 1995; PRAXIS 2001: 98 and 102) which indicate trends and changes; seasonal food calendars which show seasonal variations in things like amount and type of food consumed (e.g. Mukherjee and Jena 2001: 51) and health problems (Shah 1999: 61); and as in proportional piling for income and food sources (e.g. Watson 1994; Eldridge 2001a; and Stephen Devereux and Henry Lucas

pers comms). There are many applications with variants of methods such as the Ten Seed Technique (Jayakaran 2002) or the use of 100 seeds, stones or other counters to give percentages.

Examples of *valuing* occur often with preference ranking, matrix ranking and matrix scoring (Jones 1995). Applications range from crop varieties in Zambia (Drinkwater 1993) and India (Manoharan et al 1993) to contraceptive methods, from markets in Bangladesh (Kar and Datta 1998) to political parties, from girls' preferences for sex-partners in Zambia (Shah 1999: 51) to wild plants collected for winter feeding of goats in Afghanistan (Leyland 1994). Examples in the UK include health providers and candidates interviewed for a university post.

*Comparing* which combines *estimating* and *valuing* is also common. Perhaps the best known and most widespread example is wealth or wellbeing ranking, where analysts group households according to their judgements of personal or household conditions (see e.g. RRA Notes 15, 1992 for an introduction).

There have now been many situations where information from group exercises has been aggregated over a whole area. A degree of standardisation was designed to assure comparability and enhance the validity of aggregation.

- ## A pioneering effort in Kenya used wealth ranking to enable pastoralists to separate out three groups – rich, middle, and poor. A ranking game was then played for the relative importance of problems, and the results averaged for 24 rich, 17 middle and 27 poor groups. There were sharp differences between the groups in the priorities they identified. Livestock management scored 87 for the rich, for example, but only 7 for the poor (Swift and Umar 1991: 56).
- ## The earliest case of a large-scale survey with participatory visual analysis and no questionnaire may have been in 1992 with ActionAid's use of PRA-related methods, mainly mapping, classifying and counting, in over 130 villages in Nepal (ActionAid-Nepal 1992). This was a survey of utilisation of services. It covered the whole population in the villages and generated 13 tables similar to those from a questionnaire. The population summed to 35,414.
- ## An SCF (UK) study in 20 Districts in Malawi, Zambia and Zimbabwe used pile sorting and other participatory methods for a retrospective study on how individual poor farmers coped with the 1992 drought (Eldridge refs). The resulting tables were similar to those from a questionnaire survey.
- ## Aggregating from focus groups has been a feature of some Participatory Poverty Assessments, for example Bangladesh (UNDP 1996) where poor women and poor men's priorities were elicited separately, and Tanzania (Narayan 1997)
- ## Focus groups have undertaken participatory studies of urban violence in Jamaica, Guatemala and Colombia with identification of different types of violence, their seriousness, and the importance, positive or negative, of different institutions (using Venn diagramming) (Moser and Holland 1997; Moser and McIlwaine 2000a; Moser and McIlwaine 2000b; and Moser 2002). In the Guatemala study this led, for example, to a table derived from 176 focus group listings which showed the frequency of mention of 22 different strategies for coping with violence (Moser and McIlwaine 2001: 140)
- ## Aggregation from focus groups was also undertaken in the Voices of the Poor study (Narayan et al 2000) in 23 countries. This involved aggregating the views

- of many hundreds of discussion groups in some 272 communities on directions of change in violence against women (ibid: 124-131) and of characteristics of institutions (ibid: 184 and 199-202), the results of which could be presented in pie charts and \*\*\*\*\*
- # A participatory study was undertaken in Malawi of the “starter pack” [of seeds, fertiliser etc] programme and of small farmers’ ideas of sustainability (Cromwell et al 2001). In each of 30 villages, analysis by 3 focus groups, each of a different category of farmer, included pairwise ranking of the relative importance of 15 indicators of sustainability. The results were combined in a table of mean values across villages by region.
  - # Participatory techniques were used with 24 focus groups in Western Kenya to evaluate agroforestry dissemination practices. Pile sorting to score with 100 beans or grains of maize was used to evaluate the usefulness of, for example, 7 external providers of information, and 10 media used (Adato and Nyasimi 2002). Similar methods have been used in other countries as part of poverty impact research coordinated by IFPRI for the Consultative Group for International Agricultural Research.
  - § Levy and Barahona

Aggregation has also been done through comparative analysis of secondary data from participatory exercises. Karen Brock (1999) gathered findings from participatory research on poverty. She then analysed work with 58 groups and individuals in 12 countries who had been asked to identify key criteria for poverty, ill-being or vulnerability. She then used the NUDIST programme to classify and count these by criteria, separated into urban and rural, and into men and women, and presented the results diagrammatically to show frequency of mention as percentages (ibid 9-13).

Participatory spatial analysis can be a step towards generating figures for different local categories for areas. The analysis of aerial photographs by local people (Sandford 1988; Dewees 1989; Mearns 1989), drawing their local knowledge on transparent overlays, has proved powerful. It can provide precise location and area data given for different land tenure and uses, soils, soil-vegetation associations and the like. Various forms of participatory GIS have also been explored (Abbott et al 1999; Jordan 1999). Perhaps the most remarkable is a series of innovations in the Philippines and which have now been applied also in Vietnam. The participatory process developed enables local people to combine their knowledge with digital contour data to make detailed coloured 3-D models. These locate areas under different land uses and provide numerical area data which are considered to be very accurate (Rambaldi and Callosa-Tarr 2000).

Further innovation and spread in use of participatory methods for serious quantification have already taken place on some scale. Participatory numbers seem set to become more widely used. It is more than a straw in the wind that the International and Rural Development Department and the Statistical Services Centre at the University of Reading in September 2002 convened a workshop for PRA/PLA practitioners on “Dealing with data from participatory studies: Bridging the gap between qualitative and quantitative methods”. There are also a number of recent publications such as Participation and Combined Methods in African Poverty Assessment: Renewing the Agenda (Booth et al 1998), a series of publications of the Statistical Services Centre at Reading University, the Cornell March 2001 Qual-Quant Workshop (Kanbur 2003) and the Swansea July 2002 Conference on Qualitative and Quantitative Methods in

Development Research. And this is only part of a burgeoning literature and interest. Participatory monitoring and evaluation (Estrella et al 2000) is spreading and is fertile ground for the seeding and growth of these approaches and methods.

### **How Reliable Has It Been?**

Inherent challenges of participatory methods have been well documented, even by many of their proponents<sup>10</sup>. Their very potential advantages, also imply challenges:

- ## Although bringing together people may increase rapid access to a range of different sources of information and assist filling gaps, cross-checking and refinement of data, participation in discussions may also be biased. As participants influence and interact with each other some participants may dominate the process and/or divert the discussion. This may lead to false and unreliable information being given.
- ## Systematic sampling is often difficult in participatory methods. Even with careful preparation there is much more dependence on people's willingness to turn up and be involved than in the 'captive' interview situation. There may also be logistical problems in identifying a venue and time accessible or conducive for everyone.
- ## Information may be difficult to analyse. Its holistic and comprehensive nature means that information must often be filtered to make sense. It is the process of producing diagrams: the questions asked and not asked which are often as important in their interpretation as the diagram product itself. This requires in-depth understanding also of context and who is and who is not present.
- ## Diagrams may be difficult to understand for outsiders without good documentation. Numbers generated may be less credible for those who did not see the process and context in which they were produced.
- ## Although information from one participatory exercise is immediately accessible to direct participants, its significance may only emerge on aggregation of findings from many such exercises. This means that analysis of practical implications often needs to be part of an ongoing process rather than a series of one-off exercises.

Nevertheless, these approaches and methods have often given access to sensitive or surprising information that would have been difficult to obtain through questionnaires. A participatory study in India gave the castewise breakdown of number of families with addiction to alcohol (PRAXIS 2001: 33). Moser and McIlwaine's work in nine urban communities in Colombia elicited numerous types of violence, and (2000a: 24) produced the unexpected finding that 54 per cent of the types of violence identified were economic, as against only 14 per cent political, contrary to the common belief that political violence was the bigger problem (Moser forthcoming 2002).

Other examples can illustrate the sorts of findings from these approaches. The SCF study in Southern Africa found that in any year the poor spent more on mealie meal and

---

<sup>10</sup> !!refs to critiques

maize than the rich, had more income-generating activities than the rich, and were especially hit because these non-agricultural activities were reduced during the drought. The starter pack study in Malawi found farmers short of crops and varieties, keenly seeking new sources of seeds, and unlikely to follow the current recommendations for agroforestry. The UNDP PPA in Bangladesh found that across groups of poor urban women their first priority for “doables” was, perhaps not surprisingly, water, but then their second was private places where they could wash, and their third that something should be done about dowry (UNDP 1996 :68). Brock’s comparative analysis of participatory studies of poverty found that inadequate access to water was mentioned frequently in urban conditions, and dramatically more often in urban than in rural<sup>ii</sup> (1999: 10). The participatory 3-D modelling in the Mount Pulag National Park identified discrepancies with satellite data: the 3-D model at 1:10,000 had 27 per cent of the area under farmland compared with 0.4 per cent from satellite imagery, and 40 per cent under forest cover compared with 57 per cent. The authors concluded that “pooled people’s knowledge” was more accurate and useful for community-based analysis than information maintained in official circles (Rambaldi and Callosa-Tarr 2000: 40-41).

With careful and sensitive pilot testing, many if not most of the problems associated with participatory methods can be addressed to get both reliable qualitative and quantitative information. This will require the combined skills and insights of different disciplines, not least statistics. Some examples of aggregation, and exploration of methodological issues are as follows:

- ## *Causal diagrams.* Diagrams of the causes and effects of poverty generated in the Voices of the Poor (Narayan et al 2000) were counted and aggregated (Brock 1999b). Methodological and especially statistical issues in aggregation and analysis of causal diagrams have been explored by R.W. Burn (2000).
- ## *Matrix ranking and scoring.* This has given rise to considerable debate about how the scores in matrices can and cannot be interpreted and used (Maxwell and Duff 1995; Fielding et al 1999; Fielding and Riley 2000; and a recent full treatment by Abeyasekera 2001).
- ## *Preference ranking.* Aggregation of preferences expressed by groups has been quite common. For example, Volume 3 Poor People’s Perspectives of the UNDP 1996 Report on Human Development in Bangladesh was based on 159 sessions with focus groups of poor people who identified and ranked their priorities for “doables”. A final ranking and scoring, attempting to summarise the “underview” of poor people, used a statistical technique described as a Prioritised Problem Index of Poor Communities (UNDP 1996: 36-37). Another example is the Starter Pack study in Malawi (Cromwell 2001).
- ## *Wellbeing grouping or ranking.* Ranking, as in wealth or wellbeing ranking of households, has a growing literature and has been subject to various comparisons and statistical analyses (see e.g. Grandin 1988; RRA Notes 15,1992, especially Mearns et al; Richards et al 1999; Simanowitz 1999, 2000; Temu and Due 2000; McCulloch 2002). It raises difficult questions of aggregation, interpretation and validity especially if comparisons are sought of levels between different communities. There is here much fertile and fascinating ground for further exploration.

Undoubtedly for many issues participatory methods require carefully trained facilitators. Not only is there a need to understand how to produce the diagrams, but also skill in

facilitating the participatory process in a balanced and equitable manner. The open-ended questioning, the use of techniques such as pauses and probes and knowing when and how to move into new topic areas require a degree of expertise typically not possessed by untrained interviewers.

Outsiders' skills (and crucially time and resources) are usually needed where participatory activities occur on a scale which requires aggregation, with or without statistical analysis. The outcomes are often presented in tables which look (and are) similar to those generated by questionnaire surveys. However, even here calculations can be carried out by competent local people. In Bangladesh, for example, as part of the processes of community-led total sanitation, people calculate the number of cartloads of faeces the community produces in a year (Kar forthcoming).

### **Reversing the Paradigm? Do We Need Questionnaires Then?**

It is not the purpose of what follows to minimise the challenges posed for participatory methods. Nevertheless when used well participatory figures are often more accurate, sometimes spectacularly so, and better to reflect and reveal local realities. Not only can participatory approaches and methods complement existing practices, they can calibrate them, as in the case of the Malawi census. Technical, often statistical, questions do arise concerning rigour, validity and trustworthiness, and how numbers can be generated or derived, and then analysed and used. However these questions are often the same as those which are inherent challenges for all methods, but which fail to be addressed in the complacency surrounding the inherent rigour and robustness of conventional quantitative methods.

The question is now if participatory methods can be so reliable or cost-effective, to what extent can or should they replace more expensive conventional quantitative methods which have such serious shortcomings in relation to the demands currently placed on impact assessment. Even in an ideal world there can rarely be 'complete information'. Given the limitations in time and resources quantification is likely inevitably to be less than the optimal required by statistical theory. There is therefore arguably a need for a significant shift in discussions about quantification from attempts at completeness of information and statistical elegance to much more critical consideration of:

- ## For which particular types of impact is quantification needed, and with what degree of precision?
- ## For how many people is information required to draw reliable practical conclusions? Which particular people are most important for the analysis or likely to be able to give reliable information?
- ## What are the main priorities for change as perceived by the various stakeholders? How can preferences and priorities be determined?
- ## How feasible are the various options proposed? What do we need to know about the programme and contextual opportunities and constraints in order to make this decision?

- ## In what form is quantitative data needed and by whom in order to persuade and convince the relevant stakeholders to make the required changes in behaviour and policy?

This requires a very different combination and prioritisation of different types of methods. What is needed is a much more reliable and rigorous process for selection of relevant indicators, better targeting of key stakeholders, participatory analysis of the findings and identification of the practical implications and conclusions. This requires a reversal here of mental set and reflex, with participatory approaches, not questionnaires, becoming the first option thought of when numbers are needed.

Evidence suggests that participatory approaches are particularly effective for rapidly collecting:

- ## Information for a total community or population on a range of simple and uncontentious measures: population size, household size, ethnicity, female headed-households etc. Here mapping techniques are very reliable.
- ## Information where different people have 'bits of the jigsaw': market analysis, value chains analysis where numbers of people/values/prices at each level of the value chain can be estimated and counted, net value at each level estimated and so on. These can be monitored over time or recall information discussed more reliably than on an individual level.

They are as effective as quantitative methods, and often more so, for:

- ## collecting information where some individuals may wish to give false information or where some information may be disputed e.g. poverty assessments of households in communities. Wealth and wellbeing ranking, however, are again and again found to be less sensitive than outsiders to communities suppose, especially in communities where what is expressed is common knowledge.

Particularly for really sensitive issues it may be necessary to conduct individual qualitative interviews because certain things cannot be discussed in public. Here again either symbol-based questionnaires or diagrams for individuals can be used even by people who are illiterate to record information on themselves or to interview others. In some cases though this may be the main task for external investigators skilled in qualitative research and analysis to preserve the anonymity of respondents and collect unbiased information without increasing peoples' vulnerability to repercussions.

Quantitative surveys would then be reserved for rigorous testing of particularly important hypotheses and findings thrown up by the participatory or qualitative research. This would be information and issues for which information collected by other means was deemed for some reason to be particularly suspect. The insights from the participatory and qualitative research would however give greater validity and relevance to identification of measurable indicators, sampling frame and interpretation of the findings.

## **But the Best of All Worlds? Remaining Ethical Challenges**

At the same time, there remain undoubtedly challenges and trade-offs involved in increasing rigour and credibility because of the complex nature of reality itself:

- ## Commensurability: trade-offs between the rigidity of preset categories needed for aggregation and comparison and diversity of parameters to increase local accuracy and relevance (Booth 2003). A partial solution has been progressive participatory piloting and evolution towards degrees of standardisation as in the Malawi starter pack study (Cromwell et al 2001).

Also practicalities:

- ## Relative costs: assessments of relative costs of participatory approaches and questionnaires have tended to show that the participatory approaches are cheaper but an up-to-date collation and analysis of evidence is desirable.
- ## Quality of facilitation: the process is sensitive to quality of facilitation. Good selection, training and commitment of facilitators are vital, as are adequate time and resources devoted to training.

More seriously however are the potential trade-offs between. Possibly one of the main reasons why such methods are not treated as seriously as they deserve, they raise serious questions of ethics and power relations inherent in much current impact assessment. They raise questions about whose voices are to be taken seriously: those of poor people or external 'experts', whose interests are served by impact assessment: donors or assumed 'intervention beneficiaries' and how impact assessments are used: sitting on a desk in head office or as a guide for lobbying and action in villages and community centres.

But it is the empowerment dimension rather than rigour which is potentially most problematic in the movement to scale. When well facilitated people generally enjoy and learn from the processes of analysis and sharing of knowledge, values and priorities, and feel good at discovering what they can show and express, and having their views heard<sup>11</sup>. In good PRA practice there is a tradition that the data – the maps, matrices and diagrams – belong to those who created them. There are also encouraging pointers that participatory numbers resonate with and support decentralised and democratic governance and local empowerment. For example in Philippines grass roots health workers made their own classifications and disease maps, conducted their own analyses, and produced village figures at variance with official statistics, but which officials came to accept. Moreover, they identified priority actions which led in a matter of months to a sharp decrease in mortality (Nierras 2002). Participatory investigation of land holdings in the Philippines led to revisions of figures which doubled local government takings from the land tax which was the principal source of revenue.

Nevertheless it cannot be assumed that participants will necessarily benefit:

---

<sup>11</sup> A typical observation is that "People participating in the groups seemed to enjoy the discussions and exercises and most stayed for the entire duration" (Adato and Nyasimi 2002: 6).



- €# Participatory methods are more cost-effective for researchers, but more time-consuming for participants. Blocks of people's time are taken. These have opportunity costs. At some seasons (e.g. when weeding is needed) these may be very high indeed.
- €# Much PRA practice is extractive more than empowering and data is often removed for analysis outside with little left in the community itself.
- €# Expectations are liable to be raised. Participatory approaches are vulnerable because of the interest and enthusiasm often generated. People may participate from a mixture of politeness, curiosity, social pressure or expectations of benefits. With PRA/PLA generally it is lamentably common for expectations to be raised and then disappointed.
- €# In the enthusiasm of a process people may reveal information which is sensitive or exposes them or others to danger. Children are vulnerable to "giving away" information damaging to others, such as their parents.
- €# Participatory research to generate numbers is not likely to be an exception.

The question with participatory numbers is who is empowered, who owns the data, how it can be shared, and whether as a minimum local analysts can substantially gain themselves.

In the rush for increased scale and rigour the number of trade-offs must be constantly considered and negotiated. There must therefore remain a constant concern with a number of key questions about ownership and empowerment of both the assessment and development process:

- €# Whose interests does or should the assessment serve?
- €# Whose indicators are the most relevant to assessing the development process?
- €# Whose numbers count?
- €# Whose analysis is most relevant and reliable?
- €# Who needs to use the information?
- €# Who can or should be empowered through the process?

These questions in must be asked of every process, and again and again and not only of the relative power of the investigators and the commissioners of the assessment versus participants, but also between different participants and grassroots stakeholders themselves<sup>12</sup>.

Nevertheless, although empowerment of participants cannot be assumed, participatory methods have the potential to substantially increase the downward accountability of the development process and contribute in and of themselves to empowerment and civil society development. The main challenge for wider use and acceptance of participatory methods is not so much any inherent limitations to rigour and reliability of the data produced compared with conventional quantitative methods. It is rather how to preserve their potential for enabling very poor women and men to really have a voice in definitions

---

<sup>12</sup> A draft Code of Conduct is being finalised by Jeremy Holland [j.d.holland@swansea.ac.uk](mailto:j.d.holland@swansea.ac.uk)

and policies for pro-poor growth and civil society development in the face of institutional prejudice against a process which challenges conventional norms of expertise and vested interests.

## References

Abbot, Jo (et al) (1999) 'Participatory GIS: opportunity or oxymoron?' PLA Notes 33: 27-33, International Institute for Environment and Development, London.

Abeyasekera, Savitri (2001) Analysis Approaches in Participatory Work involving Ranks or Scores, Statistical Guides Series, Statistical Services Centre, University of Reading, P.O.Box 240 Reading RG6 6FN, UK [www.reading.ac.uk/ssc/](http://www.reading.ac.uk/ssc/)

Absalom, Elkanah (et al) (1995) 'Participatory methods and approaches: sharing our concerns and looking to the future', PLA Notes 22: 5-10

ActionAid-Nepal (1992) Participatory Rural Appraisal Utilization Survey Report Part 1: Rural Development Area Sindhupalchowk, Monitoring and Evaluation Unit, ActionAid-Nepal, P.O.Box 3192, Kathmandu, July

Adato, Michelle and Mary Nyasimi (2002) 'Combining Qualitative and Quantitative Techniques in PRA to evaluate Agroforestry Dissemination Practices in Western Kenya' draft, International Food Policy Research Institute, Washington DC, June 10

Booth, David and Jeremy Holland, Jesko Hentschel and Peter Lanjouw, and Alicia Herbert (1998) Participation and Combined Methods in African Poverty Assessment: Renewing the Agenda, Report commissioned by DFID for the Working Group on Social Policy, Special Program of Assistance for Africa

Booth, David (2003) 'Towards a better combination of the quantitative and the qualitative: some design issues from Pakistan's Participatory Poverty Assessment', in Ravi Kanbur ed. Qual-Quant

Brock, Karen (1999) 'It's not only wealth that matters – it's peace of mind too': A Review of Participatory Work on Poverty and Illbeing, Consultations with the Poor, prepared for Global Synthesis Workshop September 22-23, 1999, Poverty Group, PREM, World Bank, Washington D.C.

Brock, Karen (1999) (unpublished) Analysis of Consultations with the Poor wellbeing ranking and causal diagramming data, Participation Group, Institute of Development Studies, University of Sussex, UK

Burn, R.W. (2000) Quantifying and Combining Causal Diagrams, Statistical Guides Series, Statistical Services Centre, University of Reading, P.O. Box 240 Reading RG6 6FN, UK [www.reading.ac.uk/ssc/](http://www.reading.ac.uk/ssc/)

Chambers, Robert (1997) *Whose Reality Counts? Putting the First Last*, Intermediate Technology Publications, London.

Chambers, Robert (2003) 'The Best of Both Worlds?' in Ravi Kanbur ed. Qual-Quant

Conway, Gordon (1985) 'Agroecosystem Analysis' *Agricultural Administration* 20: 21-55

Cornwell, Elizabeth, Patrick Kambewa, Richard Mwanza and Rowland Chriwa with KWERA Development Centre (2001) Impact Assessment Using Participatory

Approaches: "Starter Pack" and Sustainable Agriculture in Malawi, Network Paper No 112, Agricultural Research and Extension Network, Overseas Development Institute, January

Deweese, Peter (1989) 'Aerial photography and household studies in Kenya' RRA Notes 7: 9-12

Drinkwater, Michael (1993) 'Sorting Fact from Opinion: the use of a direct matrix to evaluate finger millet varieties', RRA Notes 17: 24-8, March

Eldridge (1995) Methodological notes, instructions to facilitators, household responses to drought study in Malawi, Zambia and Zimbabwe, Save the Children UK

Eldridge, Chris (1998) Summary of the Main Findings of a PRA Study on the 1992 Drought in Zimbabwe, Save the Children UK

Eldridge, Chris (2001a) Investigating Change and Relationships in the Livelihoods of the Poor Using an Adaptation of Proportional Piling, Save the Children UK, 9 March

Eldridge, Chris (2001b) Brief information on the development of the "Two-dimensional scoring" approach, Save the Children UK

Estrella, Marisol with Jutta Blauert, Dindo Campilan, John Gaventa, Julian Gonsalves, Irene Guijt, Deb Johnson and Roger Ricafort eds (2000) Learning from Change: Issues and experiences in participatory monitoring and evaluation, Intermediate Technology Publications, London

Fielding, William J., Janet Riley and Ben. A. Oyejola (1998) 'Ranks are statistics: some advice on their interpretation' PLA Notes 33, October 35-39

Fielding, William J. and Janet Riley (2000) 'Preference ranking: a cautionary tale from Papua New Guinea' PLA Notes 37: 113-117

Freudenberger, Karen Schoonmaker (1995) 'The Historical Matrix – Breaking Away from Static Analysis', Forests, Trees and People Newsletter, 26/27:78-9 April

Gill, Gerard J. 1993 OK, The Data's Lousy, But It's All We've Got (Being a Critique of Conventional Methods), Gatekeeper Series 38, IIED, London

Gladwin, Christina H., Jennifer S. Peterson and Abiud C. Mwale (2002) 'The Quality of Science in Participatory Research: a Case Study from Eastern Zambia', World Development 30 (4) 523-543

Grandin, Barbara (1988) Wealth Ranking in Smallholder Communities: a Field Manual, Intermediate Technology Publications, London

Guijt, Irene (2000) 'Methodological issues in participatory monitoring and evaluation', in Estrella with others eds Learning from Change pp 201-216

Jayakaran, Ravi (2002) The Ten Seed Technique, World Vision China, ravi\_jayakaran@wvi.org

Jones, Carolyn (1995) Matrices, ranking and scoring: participatory appraisal "methods" paper, Participation Group, IDS, University of Sussex

Jordan, Gavin (1999) 'Public participation and GIS: report back', PLA Notes 34: 16-17

Kanbur, Ravi (ed) (2003) Qual-Quant: Qualitative and Quantitative Poverty Appraisal: Complementarities, Tensions and the Way Forward, Permanent Black, Delhi

Kar, Kamal (forthcoming) (2003) Subsidy or Self-respect: community-based total sanitation, IDS Working Paper, IDS, Sussex

Kar, Kamal and Dipankar Datta (1998) 'Understanding market mobility: perceptions of smallholder farmers in Bangladesh', PLA Notes 33 54-58

Khon Kaen (1987) Proceedings of the 1985 International Conference on Rapid Rural Appraisal, University of Khon Kaen, Thailand

Levy, Sarah and Carlos Barahona (2003) How to generate statistics and influence policy using participatory methods, draft Working Paper, IDS Sussex, June

Leyland, T. (1994) 'Planning a Community Animal Health Care Programme in Afghanistan', RRA Notes 20: 48-50

Manoharan, M., K. Velayudham and N. Shunmugavalli (1993) 'PRA: an approach to find felt needs of crop varieties', RRA Notes 18: 66-8, June

Marsland, N., I.M. Wilson, S. Abeyasekera and U.K.Kleih (2000) A Methodological Framework for Combining Quantitative and Qualitative Survey Methods, Statistical Guide, Statistical Services Centre, University of Reading, P.O. Box 240 Reading RG6 6FN, UK [www.reading.ac.uk/ssc/](http://www.reading.ac.uk/ssc/)

Maxwell, Simon and Bart Duff (1995) 'Beyond ranking: exploring relative preferences in P/RRA' PLA Notes 22: 28-35

Mayoux, L. (2001a) Participatory Methods, EDIAIS.  
<http://www.enterprise-impact.org.uk/informationresources/toolbox/particmethods.shtml>

Mayoux, L. (2001b) What Do We Want to Know? Selecting Indicators, EDIAIS.  
<http://www.enterprise-impact.org.uk/informationresources/toolbox/selectingindicators.shtml>

Mayoux, L. (2001c) Whom Do We Talk To? Issues in Sampling, EDIAIS.  
<http://www.enterprise-impact.org.uk/informationresources/toolbox/sampling.shtml>

Mayoux, L. (2002) From Impact Assessment to Sustainable Strategic Learning, EDIAIS.  
<http://www.enterprise-impact.org.uk/overview/index.shtml#Strategic>

Mayoux, L. (2003a) Thinking It Through: Using Diagrams in Impact Assessment, EDIAIS.

<http://www.enterprise-impact.org.uk/informationresources/toolbox/thinkingitthrough-usingdiagramsinIA.shtml>

Mayoux, L. (2003b) Trickle-down, trickle-up or puddle? Participatory Value Chains Analysis for Pro-poor Enterprise Development, EDIAIS.

<http://www.enterprise-impact.org.uk/informationresources/toolbox/valuechainsanalysis.shtml>

McCulloch, Neil (2002) Wellbeing Ranking – an Economist’s Perspective, typescript, Institute of Development Studies, Sussex, 25 February

Mearns, Robin (1989) ‘Aerial photographs in rapid land resource appraisal, Papua New Guinea’ RRA Notes 7: 12-14

Mearns, Robin, D. Shombodon, G. Narangarel, U. Turul and others (1992) ‘Direct and Indirect Uses of Wealth Ranking in Mongolia’ RRA Notes 15: 29-38

Moser, Caroline (2003) “Apt Illustration” or “Anecdotal Information”? Can Qualitative Data be Representative or Robust?’ in Ravi Kanbur ed Qual-Quant.

Moser, Caroline and Jeremy Holland (1997) Urban Poverty and Violence in Jamaica, World Bank Latin American and Caribbean Studies Viewpoints, World Bank, Washington

Moser, Caroline and Cathy McIlwaine (2000a) Urban Poor Perceptions of Violence and Exclusion in Colombia, Latin American and Caribbean Region, Environmentally and Socially Sustainable Development Sector Management Unit, the World Bank, Washington D.C.

Moser, Caroline and Cathy McIlwaine (2000b) Violence in a Post-Conflict World: Urban Poor Perceptions from Guatemala, Latin America and Caribbean Region, Environmentally and Socially Sustainable Development Sector Management Unit, the World Bank, Washington D.C.

Mukherjee, Neela (1995) Participatory Rural Appraisal and Questionnaire Survey: Comparative Field Experience and Methodological Innovations, Concept Publishing Company, A/15-16, Commercial Block, Mohan Garden, New Delhi 110059

Mukherjee, Neela (2001) Participatory Learning and Action, with 100 field methods, Concept Publishing Company, New Delhi 110059

Mukherjee, Neela and Bratindi Jena (eds) (2001) Learning to Share: Experiences and Reflections on PRA and Other Participatory Approaches, Volume 2, Concept Publishing Company, A/15-16, Commercial Block, Mohan Garden, New Delhi 110059

Mukherjee, Nilanjana and Christine van Wijk (eds) (2003) Sustainability Planning and Monitoring in Community Water Supply and Sanitation, a guide on the methodology for participatory assessment (MPA) for community-driven development programs, The World Bank, Washington DC and IRC International Water and Sanitation Centre, The Netherlands

Narayan, Deepa (1997) *Voices of the Poor: Poverty and Social Capital in Tanzania*, Environmentally and Socially Sustainable Development Network, World Bank

Narayan, Deepa, Robert Chambers, Meera K. Shah and Patti Petesch (2000) *Voices of the Poor: Crying Out for Change*, Oxford University Press for the World Bank, August

Nierras, Rose Marie (2002) *Generating Numbers with Local Governments in the Philippines*, Working Draft, IDS, Sussex

NRI and SSC (2001) *Combining Quantitative and Qualitative Survey Work: Methodological Framework, Practical Issues, and Case Studies*, NRI Report No 2591, Natural Resources Institute, DFID, and Statistical Services Centre, University of Reading, March

PRAXIS (1997) *PRA Reflections from the Field and Practitioners*, Institute for Participatory Practices, 12 Pataliputra Colony, Patna 800 013, India (also available from Participation Group, IDS, University of Sussex, Brighton BN1 9RRE, UK)

PRAXIS (2001) *The Politics of Poverty: a tale of the living dead in Bolangir*, Books for Change, SKIP House, 25/1 Museum Road, Bangalore 560 025

Rambaldi, Giacomo and Jasmin Callosa-Tarr (2000) *Manual on Participatory 3-Dimensional Modeling for Natural Resource Management, Essentials of Protected Area Management in the Philippines*, Vol 7, NIPAP, PAWB-DENR, Philippines [available from Protected Areas and Wildlife Bureau, DENR Compound, Visayas Avenue, Diliman, 1101 Quezon City, Philippines] [http://www.iapad.org/p3dm\\_guiding\\_principles.htm](http://www.iapad.org/p3dm_guiding_principles.htm)

Richards, Michael, Jonathan Davies and William Cavendish (1999) 'Can PRA methods be used to collect economic data? A non-timber forest product case study from Zimbabwe' *PLA Notes* 36: 34-40

RRA Notes 15 (1992) *Special Issue on Applications of Wealth Ranking*, International Institute for Environment and Development, London

Sandford, Dick (1988) 'A note on the use of aerial photographs for land use planning on a settlement site in Ethiopia' *RRA Notes* 6: 18-19

Shah, Meera K. (1999) 'Chapter 2: A Step-by step guide to popular PLA tools and techniques' in Shah et al (eds) *Embracing Participation in Development* :31-78

Shah, Meera Kaul, Sarah Degnan Kambou and Barbara Monahan (eds) (1999) *Embracing Participation in Development: Worldwide experience from CARE's Reproductive Health Programs...*, CARE, 151 Ellis Street, Atlanta. Georgia 30303, USA

Simanowitz, Anton (1999) 'Pushing the limits of mapping and wealth ranking', *PLA Notes* 34: 4-8

Simanowitz, Anton (2000) 'Targeting the poor – comparing visual and participatory methods', *Small Enterprise Development*, 11,1: 29-39

Swift, Jeremy and Abdi Noor Umar (1991) Participatory Pastoral Development in Isiolo District, Socio-economic research in the Isiolo Livestock Development Project, Final Report, EMI ASAL Programme, Kenya

Temu, A. and J/ Due (2000) 'Participatory appraisal approaches versus sample survey data collectgion: a case of smallholder farmers wellbeing ranking in Njombe District, Tanzania', Journal of African Economies 9 (1) pp 444-62

UNDP, Bangladesh (1996) UNDP's 1996 Report on Human Development in Bangladesh, Volume 3 Poor people's perspectives, UNDP, Dhaka

Van Wijk-Sijbesma, Christine (2001?) The Best of Two Worlds? Methodology for Participatory Assessment of Community Water Services, Ageningen Agricultural University and IRC International Water and Sanitation Centre, The Netherlands

Watson, Kathy (1994) 'Proportional piling in Turkana: a case study', RRA Notes 20: 131-132

World Bank (1999) Consultations with the Poor: Process Guide for the 20 Country Study for the World Development Report 2000/01, Poverty Group, PREM Network, The World Bank

---