

Reversing the Paradigm: Quantification and Participatory Methods

by

Robert Chambers and Linda Mayoux¹

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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 has been 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 be the normal basis, not an optional frill, for monitoring, evaluation and impact assessment. There is much evidence that when used well, participatory approaches and methods have their own rigour and can generate not only qualitative insights but also quantitative data that are usually more accurate than those from more conventional approaches and methods such as questionnaire surveys.. Participatory methods for generating numbers have proved more cost-effective. They can, too, be used as a basis for the better targeting and focusing of more expensive quantitative and qualitative investigation if these are still needed. Although empowerment of participants cannot be assumed, participatory methods have substantial potential to contribute to civil society development and to downward accountability in development processes.

Participatory methods and approaches for generating numbers and statistics present major opportunities. However, they confront conventional norms of expertise and power relations within development agencies and communities. Their wider development, adoption and spread are inhibited by professional conservatism and institutional inertia. The challenge now is how to overcome these and achieve the potential for participatory quantification which enables poor women and men to have more voice in priorities, policies and practices.

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 2000; 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.

In the 1990s participation rose in prominence in the agenda of aid and development. Manuals and tools for participatory research were compiled and produced (e.g. Mikkelsen 1995; Selener et al 1999; Shah with Zambezi and Simasiku 1999; van Wijk-Sijbesma 2001). 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 has been commonly assumed firstly that 'rigorous' quantitative data could only be produced by questionnaire surveys or scientific measurement and secondly that participatory approaches could only generate qualitative insights.

This paper refers to and draws on 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. 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 better targeting and focusing of more conventional and expensive quantitative and qualitative investigation to where these are still 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 overcome institutional inertia and professional prejudice against methods and approaches which challenge conventional norms of expertise and vested interests, and so to achieve more of their potential for enabling very poor women and men to have a voice in definitions and policies for pro-poor development.*

Quantification and Quantitative Methods: Assumptions and Realities

Impact assessment, monitoring and evaluation² are now an established part of development activity. Many NGOs and programmes have *for long* 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 been partly a result of pressure from donor governments and their taxpayers and partly a

2 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 aid³.

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 strategic⁴ assessments but also strategic sector-wide assessments. This extends the methods used for ex ante social and environmental assessments to follow-up studies⁵. 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' (Hulme 2000).

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 with prespecified indicators *applied to* 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.⁶

BOX 1: QUESTIONS WHICH IMPACT ASSESSMENT MIGHT NEED TO QUANTIFY

Measuring economic, social and political dimensions of impact: What is

3 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.

4 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.

5 See for example Kirkpatrick and George 2003.

6 A full review of these debates is outside the scope of this paper. For an overview see Hulme 2000 and papers in Kanbur ed 2003.

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?

Based on Mayoux 2002; 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 assessment⁷. This is partly because of limitations in statistical methods and analysis as they are conventionally used for addressing what are inevitably areas of value judgement and political negotiation⁸. 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 and 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 investigators who made a priori

7 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 October 2003.

8 There is now a large critical literature by statisticians and economists themselves debating the limitations of statistical analysis and quantitative measurement of poverty (See for example papers on the SEEP website www.SEEP.org). Another example where indicators underlying quantitative investigation have been the subject of continual contention has been the studies of the impact of microfinance on women's empowerment (See overview by Kabeer 2003).

decisions about the indicators and how the various statistical correlations should be interpreted in terms of causal relations and their practical implications.

*Statistical methods cannot explain patterns of correlation or identify alternative courses of action. Even very sophisticated surveys like the World Bank's Living Standards Measurement Survey (LSMS) have serious shortcomings when used in isolation from qualitative analysis, clear specification of hypotheses, and stakeholder analysis to determine sampling criteria. For example many questionnaire-based surveys have found a lack of statistical correlation between household expenditure/income data and consumption.⁹ This may represent a failure to sufficiently take intra-household inequalities into account in the design of the questionnaire or be related to the ways in which correlations have been specified and tested. A lack of correlation was found in one LSMS survey between poverty levels and child labour 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 households¹⁰. In such cases more detailed and in-depth analysis is important in drawing conclusions for policy interventions.

Furthermore even the quantification of impacts themselves is frequently less robust and rigorous than is often claimed in final evaluation reports. 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 covering impacts on social dimensions of poverty, like control over resources and decision-making. Both positive and negative impacts of programmes on key areas of poverty, essential to people's well-being are then 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 many programme level 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 error¹¹. 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

9 This was reported by a number of NGOs, including Freedom From Hunger, who have recently conducted poverty assessments attending the SEEP annual conference in Washington 2003.

10 Informal conversation with the main statistician involved in the exercise.

11 In micro finance for example 2-300 is often advocated as a blueprint 'practicable sample size' without any reference to either stakeholder analysis or the questions being asked.

of this type. More information is not necessarily better information. It may merely mean more bad information. It certainly does not necessarily mean that sample sizes necessarily need to be larger. For many purposes more useful information can be collected through carefully focused interviews with purposive samples and key informants.

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 serious questions to be asked about the validity of a process of 'improving practice' if the intended beneficiaries have little say about which practices are to be improved and how. In conventional impact assessment, external assessors write a report 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 even highly rigorous and expensive assessments is often marginal if those who receive them 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 statistical analysis does not have an important role in impact assessment. Indeed as argued below good statistical analysis complements the use of participatory methods and is essential in macro-level strategic impact assessment. It also does not mean that quantitative survey methods should not be used where necessary. However the 'mist of mystique' which automatically assigns inherent objectivity and rigor to conventional quantitative methods and statistical analysis per se is misplaced in view of both their limitations and the practical challenges they present. Shortcomings are particularly glaring 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 be the basis for participatory consultation, appraisal, analysis of findings, identification of practical implications, and support for implementation of recommendations.

Participatory approaches and methods have, though, had their problems. One 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 then not just mediocre, but plain bad – top-down, routinised, insensitive, unimaginative, unethical and producing data which were unusable and unused. This has reinforced the widespread but ill-founded view that such methods are inherently less reliable and capable only of collecting qualitative information and yielding qualitative insights.

Many participatory methods as commonly understood are characterised by one or both of two key characteristics as outlined in Box 2: Participatory focus group discussions and processes do not have to use diagrams, and diagrams can be part of qualitative research with only one person. But those processes with which we are most concerned

have two characteristics, they involve more than one respondent, and use diagramming for the presentation, analysis, collection and recording of information

Increasing the rigour of participatory methods requires looking at both the participatory process and the types of diagram tools used and 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 below the examples and scope for innovation are many^{12*} With group-visual methods the information is typically immediately accessible to everybody present in a form which can be understood both by illiterate people and by outsiders who do not speak the local language.

BOX 2: PARTICIPATORY METHODS: SOME EXAMPLES

SOME PARTICIPATORY PROCESSES

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

SOME 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, historical matrices ; Oral Histories **are not diagrams?**
- Mapping Techniques: resource mapping, mobility mapping; social mapping; transect (walks) **transects are not maps**
- Calendars: Seasonal calendar; Historical seasonal calendar
- Ethno-Classifications: Proverbs, Stories, Indigenous Categories and Terms, Taxonomies

A key advantage of participatory methods is their cost effectiveness in rapidly bringing together information and knowledge from many participants. 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.

12 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.

The actual process of counting in a participatory setting is relatively straightforward. There are a range of methods which can be used in a group meeting which can *generate* numerical data. Even if information or views are sensitive, there are ways in which anonymity can be assured. Methods include, but are by no means confined to:

- 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 transect walks participation is random as analysts interview people as they meet them. It is also possible for local people to be involved in community research without significant external facilitation. For example Meera and Parmesh Shah showed that women who were not literate could facilitate a community census map. Poor people have shown a greater ability to facilitate group visual analysis than has been commonly supposed.

The quantitative data generated can come from 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 (Barahona and Levy 2003: 4-7), 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 2001; Stephen

Devereux and Henry Lucas pers comms; Sharp 2003). 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.
- 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.
 - In Malawi in 1999-2002, research studies using participatory methods generated rural population estimates, estimates of the proportion of people in the population with certain characteristics (e.g. the very food insecure) and estimates of the proportion of people who should be targeted by an intervention (Barahona and Levy 2003)

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 have these methods been?

Inherent challenges of participatory methods have been well documented, even by many of their proponents. 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 caste-wise 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 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 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 ruralⁱⁱ (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).

Exploration and innovation in these areas have been rapid. Wealth or wellbeing ranking is an example. It has raised difficult questions of aggregation, interpretation and validity especially when comparisons are sought of levels between different communities. For a time these appeared insoluble. However, two solutions have been found:

- In South Africa, an ingenious standardised method (Simanowitz and Nkuna 1998, Simanowitz 1999, 2000, Hargreaves and Howe 2004) has been evolved for eliciting wealth or wellbeing criteria, scoring these and then applying them to identify three comparable groups – very poor, poor but a bit better off, and doing OK in each community. Further refinements are likely in the context of development of PWR as a possible tool for poverty monitoring in a current USAID initiative¹³.
- In China, a process has been devised for identifying villages' relative degrees of deprivation, and at the same time their priorities (ADB 2002; Woldon 2004; Li and Remenyi in draft). Each household scores itself from 1 to 5 against eight "village-friendly poverty indicators" which have been found to have a certain universality covering livelihood poverty, infrastructure poverty and human resource poverty. These are aggregated for each community to give relative weights which sum to one. This permits comparisons between communities and the mapping of relative deprivations to assist planning¹⁴.

There will undoubtedly always remain 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). The solution commonly sought is extensive and progressive participatory piloting and evolution towards degrees of standardisation, as in the Malawi starter pack study (Cromwell et al 2001). Similarly, both participatory wealth ranking in South Africa (Hargreaves et al 2004) and the participatory poverty index in China (Li and Remenyi in draft) only settled on standardisation after long and careful exploration of local people's realities and priorities. Acknowledging and addressing the trade-offs through participatory methods is however preferable to ignoring local priorities altogether as is generally the case in quantitative surveys.

For many issues participatory methods require carefully trained facilitators. This is especially stressed, for example, for the South African wealth ranking (Hargreaves et al 2004). Not only is there a need to understand how to produce the diagrams, but also skill in facilitating the participatory process in a balanced, equitable and ethical 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

13 For details and updates see the IRIS website

14 This has been written up in summary form and can be downloaded from www.chinadevelopmentbrief.com and is also in more detail in an ADB document Preparing a Methodology for Development Planning in Poverty Alleviation under the New Poverty Strategy of PRC, TA3610-PRC July 2002. The idea is that this methodology will be used in all communities in China that have been identified as poor. There is a write up of this by Jim Woldon at www.chinadevelopmentbrief.com

statistical analysis. The outcomes are often presented in tables which look (and are) similar to those generated by questionnaire surveys. Some 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 2003).

Reversing the Paradigm? Do We Need Questionnaires Then?

The challenges posed for participatory methods should not be minimised. Nevertheless as we have shown, participatory figures have often proved more accurate, sometimes spectacularly so. They also better 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 arise concerning rigour, validity and trustworthiness, and how numbers can be generated or derived, and then analysed and used, just as they do with 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 conventional quantitative survey methods for quantitative as well as qualitative impact assessment? Given the limitations in time and resources use of conventional quantitative survey methods is inevitably likely to be less than the optimal required by statistical theory. Even in an ideal world there can rarely be 'complete information'. 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 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?

In view of the above discussion and recent advances in integration of participatory methods with statistical analysis, we would like to argue that participatory approaches should be considered first, rather than survey questionnaires.

The experience discussed above indicates that participatory approaches are particularly effective for rapidly collecting:

- Information which is common knowledge and visually cross-checked in a group process, for example population size, household size, ethnicity, or female headed-households etc. Here mapping techniques have proved 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.

For personally sensitive issues it may be necessary to conduct individual qualitative interviews because certain things cannot be discussed in public. 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.

Questionnaire surveys would then be reserved for use where information collected by participatory means was deemed for some reason to be particularly suspect. In some contexts participatory processes may be impossible or make participants too vulnerable (though arguably similar problems would also be faced by any systematic quantitative investigation). There may also be circumstances where representation in participatory processes proves highly skewed despite following established guidelines for reaching the poorest and most vulnerable. Standard surveys may also be needed where the wider generalisability of sensitive qualitative questions needs to be ascertained and the qualitative investigation has not served to remove this sensitivity or indicated ways it can be addressed. The insights from the prior participatory and qualitative research would however give greater validity and relevance to identification of measurable indicators, sampling frame and interpretation of the findings.

The Best of All Worlds? Synergies, Trade-offs and Ethics

Challenges and trade-offs undoubtedly remain for participatory methods in seeking to increase rigour and credibility and also to balance these with concerns of cost and resources. Perhaps the most serious challenges are however the questions of ethics and power relations. These challenges are inherent in all impact assessment, but generally ignored. There are serious questions to be asked 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.

Particularly in the movement to scale it is the empowerment dimension rather than rigour which is potentially most problematic. 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 heard¹⁵. 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:

- 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.

Critical questions must be asked of participatory numbers, as much as more conventional methods, about 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:

15 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).

- 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 themselves¹⁶.

Nevertheless, although empowerment of participants cannot be assumed, participatory methods do at least 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 power relations within development agencies and communities themselves.

16 A draft Code of Conduct is being finalised by Jeremy Holland j.d.holland@swansea.ac.uk

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