

WHOM DO WE TALK TO? ISSUES IN SAMPLING

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SECTION 1 WHY DO WE NEED SAMPLING? SOME UNDERLYING ISSUES IN INTEGRATED IMPACT ASSESSMENT

1.1 What is sampling and why do we need it? Clarifying the questions

Sampling is necessary in order to avoid bias in impact assessment. Many evaluations and even research projects commonly suffer from a number of biases which reduce investigation to 'development tourism' (building on Chambers 1997):

- **spatial bias:** urban, tarmac and roadside where only those who are easily accessible to vehicles are interviewed
- **professional and project bias:** where only direct primary stakeholders are interviewed
- **person bias:** whereby articulate elites, men, direct users of services or technology and those who are 'active, present and living' are the only people interviewed or are over-represented relative to their numerical strength
- **temporal bias:** where only the situation in dry and reasonably cool seasons is captured
- **diplomatic bias:** where only superficial and non-sensitive questions are asked, particularly of those who are most disadvantaged
- **language and conceptual bias:** where only those who speak majority languages are interviewed (or even only those who speak European lingua franca) and/or those who are articulate and already familiar with the specific concepts under investigation

Key dimensions of poverty are ignored:

- the most remote communities
- those excluded from projects
- the poorest and most disadvantaged people, women, children and old people
- those who may have died, become disabled or been forced to migrate as a result of particular policies
- problems in rainy or very hot seasons which are also often the most difficult for very poor people, times of low employment, difficult communications and high incidence of disease
- those who speak minority languages and/or have not attended the right training courses or educational establishments

Even if very poor people are interviewed, sensitive and difficult questions may not have been asked systematically or in the right context or at the right time or in the right conceptual terminology (Chambers 1997). These biases seriously limit the usefulness or credibility of assessment findings about the impacts of enterprise interventions on poverty reduction and/or ways of improving projects and policy.

Careful sampling is therefore essential to any credible impact assessment. Importantly if assessments are to lead to useful and realistic

recommendations for practice and policy, we are concerned with sampling not only to avoid bias in information, but in order to:

- ***ensure representation of different stakeholders in both the assessment process and decision-making*** in order to link impact assessment with practice and policy.

and particularly to:

- ***counter the inherent biases against the poorest and most disadvantaged individuals and communities*** whose views and participation are essential to reaching credible and reliable conclusions about policies for poverty elimination.

This means that conventional approaches to sampling are inadequate. In many impact assessments sampling has been seen mainly in terms of ***statistical sampling***. However statistical sampling is not necessarily the best or most cost-effective type of sampling for all questions or at all stages of an impact assessment. Statistical methods are costly and need to be carefully focused. This requires proper integration with qualitative and participatory investigation. Moreover the over-emphasis given to statistical sampling in terms of time and resources means that qualitative and participatory investigation is often reduced to ill-thought through anecdotal add-ons. ***Careful sampling is equally important in qualitative and participatory methods*** if their crucial contribution to increasing the credibility, reliability and practical impact of assessments is to be realised (!! Links to papers on qualitative and participatory methods).

In integrated impact assessment we are therefore talking not about one single sampling methodology, but

- ***the most cost-effective and credible way of combining statistical, qualitative and participatory sampling methodologies for different questions at different stages in the impact assessment.***

Each of the methodologies has a different potential contribution to make to the assessment process and different principles on which sampling is based. (See Box 1). They have different initial requirements which will affect their feasibility within particular budget, time and resource constraints. At the same time the combination of different methods gives considerable potential for cross-checking and using one method to identify samples to be investigated by other methods. Once the relative strengths and weaknesses of different sampling methods are recognised, it is possible to increase the credibility and reliability of all the data collected through cross checking across different types of samples.

<u>BOX 1: SAMPLING IN INTEGRATED IMPACT ASSESSMENT: UNDERLYING PRINCIPLES AND DIFFERENT METHODOLOGIES</u>
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Underlying principles			
<ul style="list-style-type: none"> • combination of different statistical, qualitative and participatory sampling methodologies for different questions at different stages in the impact assessment • representation of different stakeholders in both the assessment process and decision-making • correction of inherent biases against the poorest and most disadvantaged individuals and communities 			
Methodology	Statistical methods	Qualitative methods	Participatory methods
Type of sampling	Random as far as possible	Non-random but sometimes ad hoc	Non-random but sometimes self-selecting
Contribution to credibility of IA	Counter bias in investigation	Probing investigation of specific issues	Stakeholder representation, particularly minorities and the most disadvantaged
Contribution to ensuring representation	The random nature of sampling can be useful in throwing up unexpected categories and exceptional cases for further investigation	In-depth investigation of minority and/or disadvantaged views	Articulation of minority and/or disadvantaged needs and views and linking these with decision-making
Initial requirements	<ul style="list-style-type: none"> • Availability of complete lists or maps from which random samples can be selected • Understanding of any inherent limitations of incomplete lists • Prior understanding of relevant units and categories of analysis 	<ul style="list-style-type: none"> • Prior knowledge of 'who knows what' • Availability and willingness of respondents to give in-depth information • Understanding of possible biases in information from each individual 	<ul style="list-style-type: none"> • Existence of participatory structures which can be used • Understanding of processes of participation – who is excluded, what views may be publicly expressed
Use in deriving samples in integrated	To identify specific cases or clusters of respondents for	To identify possible sources of bias in random and/or non-	Techniques like mapping can be used to generate lists for target

assessment	more detailed investigation by qualitative or participatory methods	random sampling methods	populations from which random and/or non-random samples can be selected
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1. 2 Countering bias in representation: sampling and stakeholder analysis

In all types of sampling, it is necessary to begin by a process of **stakeholder analysis** in order to identify the relevant **categories and dimensions of differentiation**. In most assessments it will be necessary at some stage to go beyond broad categories. It will be necessary to:

- go beyond a simple dichotomous disaggregation by sex. For example in microfinance programmes, it may not be sex of loanee itself which is the relevant category in explaining income impacts, but which person within the household actually controls the loan and/or manages any economic activity in which it is invested.
- differentiate at some stage between different types of entrepreneur and different types of employee. Arbitrary classifications by large, medium, small and micro- entrepreneurs say little about differences between those involved in particular types of market, different geographical location and so on. Broad distinctions between permanent and casual workers say little about differences between different types of labour contract, other dimensions of livelihood vulnerability and so on. These may again be very significant in explaining impacts.

It is likely that different types of stakeholder category will be relevant at different stages of the assessment:

- the investigation itself
- for subsequent analysis
- for representation

For example it may be necessary to use broad categories at the beginning of the investigation, these may then need to be refined as investigation proceeds and/or for investigation of particular issues and/or for subsequent analysis. Very different concerns may guide choice of participants for representation.

Considerable thought must also be given to the **units for analysis** and selection of respondents within them (!!link to Core Paper). For example in most cases interviews with only entrepreneurs or only with permanent employees will not be a representative picture of impact at the enterprise level. Interviews with only men or only women within households may not be representative of impacts of the household level. It is important that either:

- all potential respondents within particular units are interviewed,
- or some systematic means of sampling within units is devised

- or the potential implications of any bias is fully taken into consideration in the process of data collection and interpretation of responses and at the analysis stage.

The reliability and representativeness of the data depends not only on who is interviewed, but on:

- **When** information is collected to ensure seasonal fluctuations and changes over time are taken into account
- **Where** information is collected to ensure proper coverage of more remote or difficult contexts

Again it is important that:

- interviews are conducted at different times a year and/or in different contexts
- or some systematic means of determining timing and location is devised
- or the potential implications of any bias is fully taken into consideration in the process of data collection and interpretation of responses and at the analysis stage

A particularly contentious issue is the use of **control groups**¹. Inclusion of statistical controls are often expensive and inherently problematic. Moreover the types of classification identified at the beginning of the investigation to ensure comparability may in the light of subsequent evidence prove to have been incorrect or inadequate.

1.3 Adapting sampling to purpose: levels of analysis and linking with practice

The type of sampling design needed will depend on the particular issues under investigation, levels of analysis and the ways in which it is envisaged that the impact assessment will feed into ongoing monitoring and evaluation and/or decision-making processes.

Most impact assessments to date have been of **micro-level projects** like micro-finance, fair trade organisations or training programmes. Here there is usually a ready-made list from which samples of direct beneficiaries can be selected for statistical sampling. However even here there is a need to go beyond lists of names. Firstly it will be necessary to consider the nature of the lists themselves and whether or not these systematically introduce specific biases. As noted above in microfinance women listed as participants may not be users of loans, and therefore not the best people to ask about impact on enterprise profits. On the other hand, lists of registered entrepreneurs may overemphasise the importance of male formal sector owners and miss interviewing many women who are important to crucial aspects of men's enterprises and/or involved in the informal sector.

¹ For a detailed discussion of control groups see Mosley 1998.

Secondly, even at this micro-level, there are strong arguments for including a broader level of stakeholders including:

- household members of direct beneficiaries
- other actors in the same markets
- employees in any enterprises involved
- programme dropouts
- non-members who may be excluded, or may not wish for some reason to be part of the project

All these respondents are likely to have important information relevant to assessing impact including: impact on gender equality within households, positive or negative impacts on market opportunities and constraints for entrepreneurs and employees, negative programme impacts which force people to leave the programme and/or discourage them from joining.

Recently there has been more emphasis on the need for macro level assessment, both:

- ***the impact of macro level policies on different types of enterprise and poverty reduction and***
- ***the macro level impact of project interventions like advocacy, lobbying and networking.***

In these cases sampling may be more problematic. In both cases no ready list may exist of target populations, although a range of different lists of different sectors of those affected may exist. This means that selection of samples of respondents must be thought through even more carefully in order to avoid bias towards particular groups. Considerable care must be taken in many cases to include actors in the informal sector, influential individuals with informal power and so on.

It is particularly important to bear in mind that including respondents like programme dropouts or the poorest in quantitative investigation, does not ensure that their views and needs are adequately reflected or fed into practical recommendations. Much will depend on ***what questions are asked and how they are asked.*** Representation requires not only inclusion in a statistical sample, but a specific focus in analysis of quantitative information. Where costs and resources are not permit their inclusion in statistical samples, their views and experiences could be assessed through qualitative and/or participatory methods. This latter is likely to be particularly important in ensuring that not only are minority views included in analysis, but are properly articulated to feed into practical improvement and policy formation.

SECTION 2: SAMPLING DESIGN IN INTEGRATED IMPACT ASSESSMENT

For those accustomed to conventional statistical sampling methods it may at first sight appear that the above discussion merely serves to yet further complicate what is already a very complex process:

- the range of potentially relevant variation between individuals within any stakeholder categorisation is almost as great as the number of respondents
- interviewing all individuals within units like households or enterprises and including a broader range of stakeholders as well as control samples increases the numbers of people to be included
- taking into account temporal variation increases the number of interviews

However incorporating the above concerns does not necessarily increase the length of time or resources needed. It does though require effective integration of different types of methodology and different types of sampling at different stages of the assessment process.

There are many different types of sampling methodology possible, even within the broad categories of random and non-random sampling methods. There are also a number of different possibilities for sampling in longitudinal studies. The different types of sampling technique are summarised in Box 2. More details on different techniques, their specific uses and potential pitfalls are given in Appendix.

BOX 2: TYPES OF SAMPLING

Random sampling

Simple random sampling: a group of people are selected at random from a complete list or map of a given population.

Systematic random sampling: a group of people are selected in a systematically random manner (eg every tenth name) from a complete list of a given population.

Stratified random sampling: when populations are divided into subgroups depending on particular characteristics.

Cluster sampling: where clusters are randomly selected and all individuals or households in particular clusters are interviewed.

Random walk: when the interviewer follows a random route.

Staged sampling: where samples are selected within samples e.g. random sampling or walk within a cluster.

Key questions

- What might have occurred to make the sample atypical of the wider group?
- Could certain types of participant be less likely to be selected than others?
- Could pragmatic criteria such as cost of time constraints introduce bias into the sample selection?

Non-random sampling

Quota sampling: quotas for certain types of people or organisations are selected for interview.

Purposive sampling: similar to quota samples but where respondents within each quota are selected to represent diversity.

Chain sampling or snowballing: A first contact is selected and interviewed and then asked suggest other interviewees and so on.

Genealogy-based sample: entire families and their relatives may be selected.

Matched samples: similar pairs of villages, projects or types of respondents are selected in order to compare them.

Key questions

- Does the sample cover those whose views and opinions are particularly important or normally overlooked, in particular women and the poorest groups?
- Whose views and opinions will not be covered by a given sample, and does their exclusion matter?
- Does the sample cover all groups likely to have differing opinions will views?
- Does the sample help us understand the linkages between different units of analysis (such as individuals and organisations)?

Repeat sampling methods

Repeat survey: where the entire survey processes repeated, including the sampling.

Panel or cohort surveys: the same sample of people or organisations is contacted several times over a relatively long period.

Rotating survey: a combination of panel and repeat survey methods where one fraction of the sample is changed each time the survey is repeated.

Key questions

- what is the likely effect of changes in the sample on the results?

- what about systematic changes for particular groups e.g. out migration on marriage and/or in search of work?

2.1 Sampling issues in using statistical methods

Statistical sampling is the selection of:

' a portion... from a population, the study of which is intended to provide statistical estimates relating to the whole ' (Oxford English Dictionary).

It is used when it is important to assess and quantify the generalisability of particular impacts and use statistical methods to establish relationships between different variables, for example access to credit and increased income. The aim is to obtain as representative a picture as possible of the extent to which particular impacts occur, and for which stakeholders. Statistical sampling is a specialist topic for which a statistical expert will be required. A full discussion of the issues involved is outside the scope of this paper, what follows focuses on general points which it is useful for the general reader to bear in mind².

Statistical random sampling can be used either to produce a broad profile of a population or to provide data for statistical tests. In either case inferences are often made (either explicitly or implicitly assumed) from the sample to the wider population rather than simply reporting on the particular sample. Where inferences are to be made the requirements of statistical analysis mean that:

- sampling needs to be done in as near an approximation to **random sampling** as is feasible within cost and time constraints. Ideally all units in the target population should have an equal, known chance of being selected. This requires both a list or mapping of the complete target population from which random selection can be done and minimising of refusals or non-contacts.
- **sample size is critical and needs to be large enough** to establish plausible associations and minimising the effects of chance errors. The broader the range of issues covered, the larger the sample required to establish plausible associations. Each control variable used increases the minimum sample size that is required. This means that issues and questions need to be kept to a minimum for survey of the total sample. However beyond a certain sample size further increases in numbers of respondents have proportionately less contribution to decreasing errors. So it is not necessarily the case that the larger the sample the more reliable the results
- **issues covered must be very focused** because large samples required in complex investigations also mean large costs that

² For detailed discussion of these issues see a standard textbook on statistical methods for social scientists such as that by Blalock 1981 listed in the resources.

Ideally also there should be:

- **control groups** for comparison
- **baseline samples** which can then be followed up in subsequent assessments. This should be large enough to allow for dropouts.

There is **no 'magic ideal number'** which gives sample size for all assessments. Generally **300 to 500** respondents are required, including controls is considered sufficient. As indicated in Box 2, there are a number of different random sampling techniques which can be used. As indicated in the Appendix each has advantages and disadvantages depending on the particular circumstances under investigation.

In practice a number of elements may serve to introduce biases in the sample, no matter how carefully planned and whatever techniques are used:

- **lists are rarely neutral** – as discussed above even telephone directories generally only list heads of household, voters lists exclude the homeless or migrant populations, lists of registered entrepreneurs may not cover informal sector enterprises or give names of business partners etc.
- **non-responses are often not random.** Even if lists are comprehensive resource and time constraints frequently lead to exclusion of those whom it is too expensive or inconvenient to pursue ie precisely those groups identified by Chambers above.
- **decisions may need to be made about outliers** (exceptions or untypical cases) whether they can be explained and included in the analysis or ignored and excluded. Whether they are to be excluded from statistical analysis but followed up by other methods.

As noted above, it may not be possible to fully address these problems within budgetary constraints. It is however crucial to consider the degree to which any biases might affect the subsequent analysis.

2.2 Sampling issues in using qualitative methods

In using **qualitative methods** sampling is done in a non-random purposive manner in order to probe particular issues. These may provide essential background information for design of statistical surveys, or they may follow up on investigation of statistical correlations, unexpected findings and so on. Investigation may use a combination of different types of interview on specific topics, direct observation and/or compiling of details case studies. It may include repeat interviews with a small sample in different seasons and/or in-depth interviews in different contexts (!!Link to paper on qualitative methods).

It is critical that sampling is done with careful selection of key informants and cases. This may be done in a number of different ways depending on the

purpose of the investigation. In some assessments the types of cases which are likely to be of particular interest may be known in advance and the task is therefore to find examples through non-random sampling techniques like those indicated in Box 2. Samples are likely to include a range of different types of respondent for example:

- **quota or purposive sample of primary stakeholders** to illustrate different types of impacts in detail or to increase understanding of the situation of stakeholder categories who may be underrepresented in the statistical sample
- **respondents who are not direct project beneficiaries** selected either by quota or purposive sampling, or snowballing or genealogy-based sampling
- **case studies** of unusual, extreme, or deviant cases (programme dropouts, failures, or successes)

Qualitative methods can also be used:

- to **follow up or pilot surveys** for a random selection of respondents in a statistical survey, or a purposive selection of respondents who seem particularly interesting.
- for **cluster samples** e.g. in-depth interviews of all members of a women's group. Again, however, as the interviews are more in-depth and detailed, the number and size of such clusters will be much smaller than statistical survey.

At the same time qualitative investigation also uses opportunities for random investigation thrown up by ad hoc chance encounters. These chance encounters may include the above. But they also provide a very useful way of crosschecking information where the reliability of information gained in pre-planned interviews may be somewhat in doubt.

In sampling for using qualitative methods more detailed focus is given to a smaller number of respondents. It is therefore important to be aware of the degree to which particular respondents and participants can, or cannot, be taken to be representative of particular views and interests or particular stakeholder categories. If they are not typical and have been selected to illustrate particular problems, this must be borne in mind and made explicit in the subsequent analysis.

2.3 Sampling issues in using participatory methods

Sampling in participatory methods is generally less predictable than in individual interviews situations. Participatory methods can be used to rapidly explore particular issues through bringing together different groups of stakeholders. They are particularly useful in rapidly examining contexts in order to focus use of statistical or qualitative methods. It can also be used as a means of disseminating information as part of programme policy planning (!! Link to paper on participatory methods). A key aim is generally also to ensure

the representation of disadvantaged people and to link impact assessment to policy formation and practice. A prime focus is therefore to bring together different stakeholders.

There are a range of ways in which participatory methods can be used to complement other sampling methods, for example:

- Participatory diagramming methods can be used with very small groups of people within households or enterprises and/or as part of a survey. In this case sampling can be done either randomly or non-randomly as with qualitative methods to follow up or pilot as a complement to statistical methods.
- Voting techniques can be used for specific questions in a way similar to cluster sampling in surveys.
- Participatory methods like mapping can be used to generate lists from which random samples can be selected. Transect walks can form a basis for random walk sampling.

However participatory methods are also frequently used to bring together different stakeholders in a specified location rather than as part of interviews in their own homes or workplaces. In this case those conducting the assessment have much less control over who comes and who does not come and there is always likely to be an element of self-selection. Nevertheless it is possible to think through much more carefully the ways in which participatory exercises are promoted, located and timed to make them more accessible to particular stakeholder groups (and also less accessible to others if necessary). It is also possible to invite only specified representatives of particular stakeholder groups and make the meeting as attractive to them as possible through particular content, linking with decision-making, inviting outside speakers or just offering a good meal.

It is easier to have more systematic sampling for participatory methods where there are existing participatory structures which can be used to disseminate invitations and/or identify the best people to attend. It is particularly crucial with participatory methods to be aware of and record who is actually present, who participates in discussions and how this influences the ways in which information is obtained and/or decisions reached. It is also important to build up a cumulative understanding of context and also contacts in order to make sampling progressively more precise and effective.

SECTION 3: SUMMARY GUIDELINES FOR SAMPLING DESIGN

No assessment can expect to be foolproof and completely rigorous. Statistical assessments which ignore the issues raised in Section 1 risk jeopardising their credibility and practical usefulness because they fail to recognise the inherent biases in their classifications of stakeholders, selection of units of analysis and timing and location of survey. Moreover in any assessment difficult decisions have to be made regarding:

- potential trade-offs between statistical rigour in sampling to quantify actual and past impacts on the one hand and
- depth of understanding of processes and the implications for future programme and policy improvement on the other.

It is also important to recognise that in practice, no matter how sophisticated the initial statistical framework, ***in the real world it is generally practical considerations which determine who is actually interviewed.*** No matter how sophisticated the sampling methodology, unless there is a realistic assessment of the reliability of the data being collected from each respondent, any analysis will be flawed by ***non-sampling errors***. This is therefore a question of achieving an appropriate match between sampling methodology, the types of question to be asked and the ways in which interviewers relate their respondents (!!!Link to possible forthcoming paper on interview technique)

In impact assessments of the type of budget and resources generally available, what is important is:

- ***clarity about the specific purpose of anyone particular part of an impact assessment***, and how it relates to other parts and use of other methodologies.
- ***effective use of sampling for qualitative and participatory methods*** to get a reasonable idea of the representativeness of response from small samples through appropriate phrasing of questions and crosschecking.
- ***to acknowledge and justify rather than ignore the inevitable partiality and bias in all the sampling methods used*** through systematical investigation of difference and conflict between stakeholders and/or individuals within stakeholder categories and/or units of analysis where they arise
- ***to consider in detail the implications of any limitations or biases in samples and/or differences and conflicts at the analysis stage.***

A checklist of questions based on the above discussion is given in Box 3.

BOX 3: CHECKLIST OF QUESTIONS IN SAMPLING DESIGN

- 1) What is the **purpose** of the assessment e.g. only collection of data or integration into decision-making and representation of the poorest and most disadvantaged? What levels of analysis are to be used? Primarily project level or also macro level? How is the assessment linked with decision-making?
- 2) Which **stakeholders** are involved in the assessment? How are they to be represented? What provision is made for the representation of the poor and those disadvantaged? What provision is made for the appropriate gender and age balance? For ethnic minorities?
- 3) What **mix of methodologies** are to be used? What is the specific purpose of each part of the assessment? How does it relate to other parts and use of other methodologies?
- 4) In use of **statistical methods** what sampling methods are to be used? What lists or other sources are to be the basis for sampling? What categories of analysis are anticipated? What are to be the units of investigation? How are non-responses to be dealt with? What possible biases may these lead to?
- 5) In use of **qualitative methods** what are the aims? On what basis are respondents to be selected and by what methods? Are respondents to be representative of particular stakeholder categories, or is the aim to illustrate specific issues, problems and/or exceptional cases? What are the implications for reliability and representativeness of the information collected?
- 6) In use of **participatory methods** what exercises are to be used? What are the aims eg data collection, supplementing statistical survey and/or qualitative methods, representation decision-making? Are the exercises, time, location etc appropriate for the particular participants involved? How is the participatory process to be recorded? What are the implications for reliability and representativeness of the information collected or decisions reached?

APPENDIX: TYPES OF SAMPLING: USES, METHODS AND POTENTIAL PROBLEMS

Random sampling

Simple random sampling: a group of people are selected at random from a complete list or map of a given population.

Uses: where true random sampling is essential.

Method: One method is to take the list or map and give each unit a number, write the numbers on individual slips of paper, put them in a bag and mix the slips up thoroughly, and then draw out the number of slips required.

Alternatively a random number table can be used. If no suitable list or map exists, it may be possible to use participatory methods to solve this problem.

Potential problems: may be very costly particularly where populations are geographically dispersed and/or individuals are difficult to trace because of for example marriage or migration. Even apparently complete lists may systematically exclude some relevant categories of respondent. In particular lists of registered entrepreneurs are likely to exclude women in enterprises. Conversely lists of female credit beneficiaries may not be a reliable basis for selection of credit users. Whether or not this matters will depend on the nature of the inquiry.

Systematic random sampling: a group of people are selected in a systematically random manner from a complete list of a given population.

Uses: where very large numbers are included in the target population and simple random sampling is difficult. Or where lists are already grouped into sections or classes.

Method and challenges: there are many possible systems e.g. by taking every tenth name for every fifth name.

Potential problems: Similar to simple random sampling. It is also crucial that the system selected does not bias the sample. For example selecting every tenth name from a list compiled of groups of ten members where the first name in each group is that of the President.

Stratified random sampling: when populations are divided into subgroups depending on particular characteristics.

Uses: when the nature of the issues to be investigated means that it is important to give respondents from particular subgroups an equal chance of representation and this would not happen through random sampling.

Method: the relevant characteristics to be used for stratification are identified on the basis of the questions to be asked e.g. membership or non-membership of an organisation, female or male members. A random list is then drawn up for each subgroup and respondents chosen randomly within each.

Potential problems: the identification of the characteristics for classification of respondents is crucial and may need to be refined during investigation.

Cluster sampling: where clusters are randomly selected and all individuals or households in particular clusters are interviewed.

Uses: when the target population is very large and/or geographically dispersed making simple random sampling extremely expensive and time-consuming.

Method and challenges: Clusters maybe geographical, for example villages or markets. They may also be for example microfinance groups or particular social categories within geographical locations e.g. all upper caste households.

Potential problems: It is important to ensure that important subgroups are not left out and also to consider any potential bias in analysis. For example if all the clusters thrown out by random selection are large villages, are the results likely to be different if some of the villages have been very small e.g. because of few facilities or different social structure.

Random walk: when the interviewer follows a random route.

Uses: where no list exists from which a random sample can be selected using the above methods.

Method: the interviewer follows specific random instructions e.g. take the first road right, interview at the second house on your left, continue down the road, interview tenth household on your right etc and interviews individuals as they are encountered.

Potential problems: Care must be taken to avoid bias e.g. by ignoring very small sidestreets.

Staged sampling: where samples are selected within samples e.g. random sampling or walk within a cluster.

Non-random sampling

Quota sampling: quotas for certain types of people or organisations are selected for interview.

Uses: when the nature of the issues to be investigated means that it is important to give respondents from particular subgroups a chance of being selected which is disproportionate to their numerical strength e.g. where it is important to include a significant number of respondents from minority populations, female entrepreneurs etc.

Method and challenges: The categories for which quotas are to be used and the quotas to be allocated are determined based on the issue to be addressed. Common criteria are age, gender, occupation and whether people living project on non-project areas. The quotas are fixed depending on the types of issues to be investigated but respondents within each quota category are selected randomly.

Potential problems: The categories on which quotas are based are crucial and may need to be refined as the investigation progresses.

Purposive sampling: similar to quota samples but where respondents within each quota are selected to represent diversity.

Uses where it is particularly important to explore the range of different potential impacts eg ensuring that the quota for women includes a selection of single women, very old women, a literate woman and so on.

Method: selection of respondents is based on prior analysis and hypotheses of the different possible types of impact on different stakeholders.

Potential problems: it is important to be continually reflexive in response to information as it is obtained to ensure that diversity is properly understood and captured.

Chain sampling or snowballing: A first contact is selected and interviewed and then asked suggest other interviewees and so on.

Uses: This method is useful for identifying minority groups or occupations within communities.

Method: it is important that all suggested interviewees are followed up in order to avoid bias. Questions may be cumulative to build up a complete picture of the particular population under study.

Potential problems: The chain may be biased because of the particular networks chosen. This can be overcome through probing investigation and/or combining with eg a random walk or selecting a number of such chains by another random method.

Genealogy-based sample: entire families and their relatives may be selected.

Uses: where it is important to include a cross-section of the community by age and sex and where costs do not permit use of a random sampling frame and/or no available map or list exists.

Method: The assistance of the first respondent is used to draw up a genealogy and then each member is followed up as in chain sampling.

Potential problems: In some contexts stratification between families or particular cultural characteristics of particular kin groups means that there are more similarities between family members than members of different families. Here considerable care needs to be taken to ensure that the selection of families is representative.

Matched samples: similar pairs of villages, projects or types of respondents are selected in order to compare them.

Uses: where it is important for control groups to be equivalent in size.

Method:

Potential problems: it is crucial to bear in mind possible ways in which the matched samples may differ and the problems involved in selection of any control group.

Repeat sampling methods

Repeat survey: where the entire survey processes repeated, including the sampling.

Uses: where data is needed to capture seasonal variations or before and after situations and where complete random sampling is needed.

Method: A very similar questionnaire must be used each time, although some questions may be adapted e.g. to particular seasonal circumstances.

Potential problems: a large sample size is needed to make accurate comparisons over time. Also changes over time may become confused with random changes in the sample used.

Panel or cohort surveys: the same sample of people or organisations is contacted several times over a relatively long period.

Uses: where data is needed to capture seasonal variations or before and after situations but where it is important to follow through processes over time and/or complete random sampling is too expensive.

Method: Here questionnaires may be cumulative to build up case studies over time.

Potential problems: there may be problems of respondents fatigue and drop out. Another danger is that they may change the way they act because they are in the study.

Rotating survey: a combination of panel and repeat survey methods where one fraction of the sample is changed each time the survey is repeated.

Uses: where data is needed to capture seasonal variations or before and after situations. This avoids the problems of respondent fatigue and lessens the problems of random variations. It also enables some processes to be followed through.

Method: Each interviewee is only interviewed a fixed number of times and then replaced. For the repeat interviewees questions maybe varied to capture processes of change.

Potential problems: although this method combines the advantages of the two other methods, it may also suffer from similar drawbacks.

Source: L.Mayoux 2001 forthcoming, developed from Nichols 1991.

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