## CHAPTER 8

# ANALYSIS, REPORTING AND DISSEMINATION

This chapter is for survey coordinators, technical resource persons and anyone involved in the analysis of survey data or in reporting on and disseminating survey results. It will help you:

- Become familiar with your data before starting to write reports
- Prepare a preliminary report
- Prepare a full technical report
- Plan for dissemination of the results
- > Plan for analysis beyond the descriptive reports.

#### **ANALYSIS AND REPORTING**

Analysing the data obtained from MICS3, producing survey reports, building awareness of the data and disseminating the survey results are the final steps in the survey process. The results will be used in many ways – to assess progress on the rights of children and women in your country, to provide a baseline for the future, and to plan and modify programmes. It is very important, therefore, that the analysis be carried out with careful attention to the details of calculation and interpretation. In this chapter, step-by-step guidance is provided on analysing the data in order to produce indicators and on preparing timely reports that adhere to rigorous standards of technical quality and usefulness. The chapter also includes general guidelines on how to disseminate the survey results and carry out analyses beyond the descriptive reports.

#### **ANALYSING THE DATA: FIRST STEPS**

You should plan to produce two reports based on MICS3 data: a preliminary report and a full technical report. Each of these is described in detail below. When you start your analysis, you should have 'clean' data files. These files will have been checked for structural and range errors and edited for internal consistency (see Chapter 7). Before producing tabulations and writing the reports, however, there are a number of additional tasks that you should complete.

- Carry out basic checks of data quality (non-sampling errors).
- Calculate response rates. In the sample design for the survey, a target number of

households and individual respondents was specified.<sup>1</sup> Check the number of households and respondents that were successfully interviewed. Were the targets achieved? If not, were there particular regions or areas with unusually low response rates? Make note of the major reasons for non-response. Sample surveys like MICS3 are usually able to obtain response rates of at least 90 per cent. If your survey has response rates lower than 90 per cent, you should be aware that your results may be biased. Response rates should be included in the reports you will produce.

- Check for variables with large numbers of missing values. Make sure that the missing values are not the result of a data-entry or editing error that could be repaired. Any variable with 10 per cent or more of the values missing should be used with caution since this usually indicates a problem with the structure of the questionnaire or with the interviewers' understanding of how to administer the questionnaire. If the proportion of missing values is very high, you may decide not to use the variable in the analysis at all.
- Check for variables with large numbers of 'Doesn't know' or 'Other' answers. Depending on the question, 'Doesn't know' responses can indicate that the respondents had difficulty understanding the question. High proportions of 'Other' answers often indicate that the questionnaire did not account for the most common responses. Sometimes interviewers mistakenly code questions as 'Other' when the response actually fits into a category listed on the questionnaire. For variables with many 'Other' responses, it may be possible to retrieve the questionnaires to see if some of the responses can be recoded into existing categories.
- *Check for expected patterns in the data.* Some variables are expected to exhibit particular patterns. If your data deviate significantly from these expected patterns, you need to try to ascertain the reasons and be cautious in the analysis and interpretation. Unexpected patterns may result from faulty sample design, improper implementation of the sample, interviewer errors, or respondents' inaccurate answers.

The age distribution by sex of the population enumerated in the Household Listing Forms should be examined. If available, you can compare the age distribution from the MICS3 with other recent surveys or a census. In any case, there should be a smooth decline in the numbers of respondents with increasing age, especially in growing populations. Large fluctuations in the number of respondents at each year of age, with heaping of responses on particular ages (usually those ending in 0 or 5), are implausible and indicate poor quality. Since respondent eligibility for the Questionnaire for Individual Women is based on age, you should look for

<sup>&</sup>lt;sup>1</sup> During the fieldwork stage you should be aware of any deviations from sample targets as they develop. At the analysis stage, it is usually too late to correct these problems.

'boundary effects' in the age distribution. If there seems to be a disproportionately large number of women just outside the boundary of eligibility (that is, aged 13-14 and aged 50-51), this may constitute evidence that eligible respondents were excluded during the fieldwork. The same would apply in the case of an excess in the number of children 5-6 years old, and may indicate out-transference of children to avoid the administration of the Questionnaire for Children Under Five. Also, the number of males and females under age five should be roughly the same.

- Decide on basic background variables and their groupings. In the tables that will be produced for the survey reports (see Appendix Seven), results are usually reported according to a set of standard background variables. Most often, these will include geographic areas, level of education, urban/rural residence, sociocultural groups and socio-economic levels. For geographic areas, the sample design will determine the lowest administrative or geographic unit at which it is feasible to display results, but you may decide to group these into larger units for most tables. For education, the categories will vary according to the educational system and overall levels of education in the country, but will usually be broken down into: no education, primary, secondary and higher.
- *Decide on minimum sample sizes for displaying results.* Depending on the overall size of your sample, some tabulation may yield cells that are based on very small numbers of cases. This may happen, for example, when you are tabulating results by categories of background variables

in which relatively few respondents fall (for example, women with higher education, or a specific ethnic group). These estimates will not be reliable and should not be shown. In general, it is not advisable to present results based on (that is, with a

The margin of error for estimates by background variables will usually be greater (in some cases, much greater) than the error around national-level estimates. Avoid the temptation to break down the results into narrow categories.

denominator of) fewer than 25 unweighted cases. For some estimates, such as maternal mortality ratios, the margins of error are known to be very high with sample sizes in the range recommended for MICS3, and you will only be able to present national-level estimates.

### **PRODUCING A PRELIMINARY REPORT**

The primary objectives of the preliminary report are to convey the main results of the survey quickly and to stimulate interest in the current situation among government agencies, non-governmental organizations (NGOs), other multilateral donors, the press and the general public. You should aim to produce a 15-20 page preliminary report within 1 month to 6 weeks following the end of fieldwork.

A template for the preliminary report will be available at <u>www.childinfo.org</u> to facilitate its production in each country. Countries will be required to produce their preliminary reports by taking into account the style, structure and contents of the preliminary report template.

The preliminary report is a brief and early version of the full technical report. Sections that should be included in the report are:

- Background and objectives of the survey
- Results
- Sample and fieldwork methodology.

All of the sections, except the results, can be written as the survey operation progresses. Once the data are analysed, all that will remain to do will be to add the tables containing the indicators.

#### BACKGROUND AND OBJECTIVES OF THE SURVEY

In this section (which may consist of just a few paragraphs), you should list the major objectives of the survey. A sentence or two about how the MICS3 findings fit into an overall plan to assess the situation in the country would be appropriate. In this context, you may consider mentioning national development strategies, poverty reduction strategies, national action plans for children, the Millennium Development Goals, the World Fit for Children goals, the UNICEF Country Programme, UN Development Assistance Framework, and reporting on the Convention on the Rights of the Child and the Convention on the Elimination of All Forms of Discrimination against Women. You should also provide a list of institutions participating in the survey and the sources of funding. You should emphasize that the results in the report are preliminary and that a full report will be produced at a later date.

#### RESULTS

It may be difficult to select the set of findings to include in the preliminary report. Since the objective of the preliminary report is to present initial results quickly, it is not advisable to include the more complicated indicators until you have had a chance to fully evaluate the quality of the data and the interpretation of the results. The tables that are recommended for inclusion in the preliminary report are specified in Appendix Seven.

At this stage, there will most likely be interest in comparing the results from the survey with results from a previous MICS or other data sources to assess trends. However, at this point in the analysis process, it is premature to report on trends. Trend analysis requires a thorough understanding of the sample coverage, methodology and operational definitions used in the data sources being compared. Furthermore, an estimate of the sampling errors surrounding the estimates from each data source is necessary to assess the statistical significance of any observed changes. For these reasons, presenting trend data in the preliminary report is not recommended.

### SAMPLE AND METHODOLOGY

It is important to have a section on methodology, even in the preliminary report. A detailed description of the sampling procedures and fieldwork can wait for the full report. However, a basic description of the survey process, including documentation of any major problems, is an expected component of rigorous survey reporting and gives credibility to the results. This section should include information on:

- The sample design
- Response rates
- The questionnaires
- The fieldwork and field staff
- Processing of data.

An example of a methodology section for a preliminary report is given in Table 8.1.

#### CIRCULATION OF THE PRELIMINARY REPORT AND DISSEMINATION OF THE FINDINGS

The preliminary report should be distributed to relevant government institutions, NGOs, donors and the press. In addition to circulating the report, it may be advantageous to present the results at a press conference or review meeting to which you have invited representatives of key agencies and the media. In order to ensure that survey findings are accurately reported, a press release should be prepared summarizing the main results. It is also useful to make the report available on the Internet to expand its reach to a wider audience.

#### Table 8.1

#### Example of a Sample and Methodology Section for the Preliminary Report

The sample for the [country] Multiple Indicator Cluster Survey (MICS) was designed to provide estimates of health indicators at the national level, for urban and rural areas and for four regions: north, south, east and west. The sample was selected in two stages. Within each region, 50 census enumeration areas were selected with probability proportional to size. Within the 200 selected enumeration areas, a systematic sample of 6,000 households was drawn. Three of the selected enumeration areas were not visited because they were inaccessible during the fieldwork period. The sample was stratified by region and is not self-weighting. For reporting national-level results, sample weights are used.

In addition to a household questionnaire, questionnaires were administered in each household to women aged 15-49 and for children under age five. The questionnaires are based on the MICS3 model questionnaire. From the English version, the questionnaires were translated into four languages: A, B, C and D. The questionnaires were pre-tested in September 2005. Based on the results of the pre-test, modifications were made to the wording and translation of the questionnaires.

The field staff were trained for 12 days in early January 2006. The data were collected by nine teams, each comprising four female interviewers, one editor, one driver and a supervisor. The fieldwork began in February 2006 and concluded in March 2006.

Of the 6,000 households selected for the sample, 5,880 were found to be occupied. Of these, 5,557 were successfully interviewed for a household response rate of 94.5 per cent. In the interviewed households, 5,200 eligible women (aged 15-49) were identified. Of these, 5,000 were successfully interviewed, yielding a response rate of 96 per cent. The response rate for the Questionnaire for Children Under Five was 94 per cent. Mothers/caretakers of 2,125 children under five were successfully interviewed, from among 2,260 children under five identified in the interviewed households.

### **PRODUCING THE FULL TECHNICAL REPORT**

The full technical report will allow you to present your data in the most accurate and useful way. It will also give you the option of contrasting and comparing the findings from MICS3 with other sources of data in the country. The report will become an important reference tool within your country and will be widely cited for several years.

The full technical report is also essential if your survey results are to be used internationally. The report will enable readers to judge the technical aspects of the survey operation, and to evaluate for themselves the quality of the data it produced (and upon which your results are based). These surveys must produce results that can withstand the heat of intense scrutiny and international comparison. For this reason, it is important to give all interested parties the information necessary to evaluate your results, and to be clear and transparent about the strengths and weaknesses of the data.

The technical report is the document governments will use for international reporting. Technical reports should be drafted in close collaboration with UNICEF, and copies of the report should be transmitted to all interested parties.

The report will have several chapters and should also include an executive summary. Note that some of the material written for the In the full report, it is useful to include a simple table listing the MICS indicators and the survey results for each, highlighting those that relate to the Millennium Development Goals. Place the table in a prominent place, such as the inside front cover of the report or in the executive summary.

preliminary report can be reused in the full report. The recommended chapters are:

- Executive summary
- Introduction and background
- Data quality and sample characteristics
- Results (with sections by topic)
- Sample design and implementation (including sampling errors)
- Survey instruments.

A template for the full technical report will be available at <u>www.childinfo.org</u>. As with the preliminary report, countries will be required to produce their full technical reports by taking into account the style, structure and contents of the template.

The following three points can be crucial to the successful completion and credibility of the full technical report (as well as the preliminary report): First, major time gains are possible if report writing is started early, beginning with those sections that can be drafted before the completion of fieldwork. Report writing can therefore be an ongoing process, which will allow you to concentrate on survey results at a later stage and to review sections that were drafted earlier. Second, it is important that members of the Steering Committee as well as all organizations supporting the survey are made aware of the survey results before publication. Agreement must also be reached on the handling of sensitive issues, such as attribution and authorship, including how each of the supporting organizations will be made visible and acknowledged, and how and when the report will be launched. Third, the logistics of production, including proofreading, translation (if applicable), picture and diagram production, printing and print run, should be planned well in advance.

#### THE EXECUTIVE SUMMARY

After the preface, table of contents and other front matter, your full technical report should begin with an executive summary (see Table 8.2). Keep the executive summary short; it should not exceed a few pages. It should highlight the results of the survey, but contain more descriptive and comparative information than technical data. Be absolutely sure of your findings before you disseminate the summary, since policy decisions will likely be made on the basis of this document. You may wish to include a few well-designed and simple diagrams, since these often have more impact than long lists of numbers.

The executive summary is a tool for introducing the indicators to a wide audience. It can also be used to explain to policy makers the quality of previous information available on these indicators. In many countries, some indicators have never been measured at the national level. Your presentation of results to policy makers should make this clear. The presentation should help to stimulate debate and lead to programmatic decisions when results indicate that action is needed.

#### Table 8.2 Items to Include in an Executive Summary

- Purpose of the survey
- A brief description of the survey steps
- Summary of the main results
- Main recommendations.

#### INTRODUCTION AND BACKGROUND

The introductory chapter serves to document the objectives of the survey and the background against which the survey results will be seen and understood. Remember that many of the readers of the report may not be familiar with your country. Explain the reasons for conducting the survey. Discuss the needs for reporting on the World Fit for Children and Millennium Development Goals. The chapter should also contain some background information on previous data collection exercises conducted in the country, highlight gaps in previous data collection and explain how MICS3 fits into the overall monitoring system. If a previous MICS has been carried out in your country, note this also. Make reference to the preliminary report and to the global MICS3 project.

You may also decide to include in this chapter some basic demographic and health information on the country. For example, there may be significant and persistent regional differentials in health outcomes of which the reader should be aware. Also, make sure to delineate any significant events that may have affected the results, such as civil unrest, a natural disaster or economic decline.

#### SURVEY METHODOLOGY

In this chapter, describe fully all of the steps involved in the design and implementation of the survey. It can be organized in much the same way as the methodology section of the preliminary report, but will document the survey process in greater detail. The chapter should contain descriptions of the survey steps listed in Table 8.3. It should also include information on problems encountered in any of the steps, how they were addressed, and timelines for implementing these activities.

Table 8.3   Elements of the Survey Methodology Chapter	
Survey organization	Survey management Steering committee Organizations that carried out the survey Organizations that funded the survey External technical assistance
Sample design (full technical details to be included in an appendix)	Sample frame utilized, strata, stages, number and type of units selected at each stage, oversampling, response rates
Survey instruments (copies of instruments to be included in an appendix)	Types of questionnaires used and data collected with each, modules included, revisions to standard instruments, translations, pre-test
Data collection	Number and type of field staff, content and dates of training of field staff, dates of fieldwork, supervision, any major problems encountered
Data processing	Number and type of data processing staff, software used, dates of data entry and editing

#### DATA QUALITY AND SAMPLE CHARACTERISTICS

This chapter should include a discussion of the quality of the data produced and the basic characteristics of the sample population. This is important since it demonstrates that you have examined the data carefully and are equipped to interpret the main findings in the context of this examination. As discussed above, some basic checks of the data quality should be performed prior to tabulating the indicators. The basic tabulations for performing these checks and your assessment of their implications should be included in this chapter.

At the minimum, you should report: the rate of non-response for households and for the Questionnaires for Individual Women and for Children Under Five, age and sex distributions, and background characteristics of the respondents. In addition, specific types of data-quality checks should be carried out prior to calculating child mortality rates.<sup>2</sup> If you conducted a focus group discussion or group interview with the survey interviewers after the fieldwork, this is an appropriate place to include any insights they may have provided that could have affected the quality of the data, such as questions that the respondents had trouble answering or seemed reluctant to answer.

<sup>&</sup>lt;sup>2</sup> These quality checks are covered in two sources: Patricia H. David, Leila Bisharat, Alan G. Hill and Steve Bennett, *Measuring Childhood Mortality: A Guide for Simple Surveys*, UNICEF Amman, 1990; and United Nations, *Step-by-step Guide to the Estimation of Child Mortality*, Department of Economic and Social Affairs, Population Studies No. 107, 1990 (accompanying program: *Qfive-United Nations Program for Child Mortality Estimation*).

The chapter should also include a description of the basic socio-economic characteristics of the sample. This serves as both background for the reader and a basic check on sample implementation. For example, you should report on the percentage of surveyed households in urban areas. If this percentage is significantly lower than expected, it may indicate a problem with the implementation of the sample in urban areas. It will also provide the reader with a sense of the urban/rural composition of the country. Sample tables for basic characteristics are shown in Appendix Seven.

### RESULTS

The results chapter of the report should be organized into sections by topic. The recommended sections are:

- Child mortality
- Nutrition
- Child health
- Environment
- Reproductive health
- Child development
- Education
- Child protection
- HIV/AIDS, Sexual Behaviour and Orphaned and Vulnerable Children

A detailed set of sample tabulations according to sections is presented in Appendix Seven. Taken together, these tabulations provide basic information on all the indicators that could be measured by MICS, with the inclusion of all additional and optional modules. Analysis issues regarding some of the more complicated indicators will be posted at <u>www.childinfo.org</u>. If you make modifications, additions or deletions to the model MICS questionnaires, the sample tabulations should be adapted as necessary. Some results are well suited to presentation by graphics, particularly if you want to highlight differences in the value of indicators among groups or geographic units. Suggestions for graphic representation of some of the findings will be provided in the report template for the full technical report, which will also be available at <u>www.childinfo.org</u>.

For each section of the report, the discussion of the results should begin with a brief description of the programmes and policies that are relevant to the information presented. For example, in the section on vitamin A, you would describe vitamin A supplementation programmes implemented in the country. In the section on immunization coverage, you would outline the recommended vaccination schedule in the country, significant elements of the programme, and whether National Immunization Days have been held. In the section on education, describe the education system in the country.

For each table, you should be sure that the method of calculation and the data used in the calculations are clear to the reader. In the case of simple percentage calculations, it may not be necessary to explain this in great detail. In other cases, however, such as the tables on immunization coverage and nutritional status, an explanation of the method used for arriving at the results is crucial.

Next, report the value of each indicator. If needed, report the confidence intervals. Point out subgroups or regions that may be lagging behind others. Describe patterns across age, education and socio-economic groups, particularly if these patterns are consistent and substantial.

Try to identify any known problems in the implementation of health programmes that may help in interpreting the results, such as problems in vaccine or contraceptive procurement. Acknowledge puzzling or inconsistent results. A comprehensive analysis of such results may have to be deferred to later analysis.

The analysis of trends in the indicators is also best deferred until a full assessment of the relevant data can be undertaken. Such an assessment requires a thorough examination of previous data sources, data-collection methodologies and calculations of previous estimates. While it is tempting to over-interpret small changes in indicators between surveys, it is important to keep in mind that drawing reliable, defensible conclusions about trends can be time-consuming and difficult.

### SAMPLE DESIGN AND IMPLEMENTATION

Complete documentation of the sample design and implementation should be provided. This is an area in which many surveys and survey reports are deficient. By fully disclosing the sampling scheme and its results, you will demonstrate confidence in your results. Items that should be described in the documentation are: the population coverage, the sampling frame used, whether and how the sampling frame was updated, sample selection procedures with specification of strata, selection probabilities, sampling weights and sampling errors for selected indicators and for selected reporting domains (such as regions and urban-rural areas).

### QUESTIONNAIRES

Be sure to include a copy of the survey questionnaires in the report. These are valuable resources for readers who are evaluating the survey results or comparing them to results from other surveys. They also complete the documentation of the survey methodology and may be useful for researchers conducting surveys in the future.

Finally, circulate an early draft of the report to all collaborators and others who may be able to provide valuable comments before it is published.

### CIRCULATION OF THE FULL REPORT AND DISSEMINATION OF THE FINDINGS

The full technical report of the survey should be distributed to key government agencies, NGOs, donors, researchers and the press. The report may also be circulated regionally and internationally via UNICEF and at meetings and conferences. All major participants in the survey who were involved in the planning, implementation or analysis stages can be invited to participate in a meeting to present and discuss the main findings. Meetings and presentations that focus on specific topics can also be arranged. This publicity may result in additional interest in the survey results and lead to additional analysis of the data.

It should not be forgotten that the production of a full technical report – though a major accomplishment in itself – is not the final outcome of MICS3. The ultimate goal is to stimulate actions that will impact the situation of children, both at national and subnational levels, through the dissemination and discussion of survey findings among relevant audiences. Appropriate resources (both financial and human) should be allocated to reach such audiences. A survey report that is not used by policy makers and administrators at various levels, and that has little or no impact on public policies and programmes, represents a lost opportunity.

To ensure that MICS3 results are disseminated effectively and systematically, it is important to develop a utilization plan before survey results become available. The plan should include, but not be limited to, the following:

- At the international level, MICS3 reports should be disseminated to relevant international organizations. If possible, they should also be presented and discussed at the headquarters and regional offices of UNICEF and other UN agencies.
- At the national level, MICS3 findings should be presented and discussed before parliament and various ministers, technical teams of relevant ministries, civil society organizations, academia, UN and other international agencies, and political and religious leaders. This will help to ensure that MICS3 results are translated into improvements in the situation of women and children.
- At the subnational level, MICS3 results should be disseminated to local authorities, such as governors and mayors, to technical teams of various technical departments, local civil society organizations, local media representatives, traditional chiefs and religious leaders. Healthy competition can be stimulated by comparing findings from one region with the national average or with a neighbouring region that may be better off.

For each action, a responsible institution should be identified, preferably with one focal point. A time frame and budget for each activity should be created.

Various tools can be used for disseminating the survey results. The most important in terms of their reach and scope are websites and CD-ROMs that contain the full data sets, manuals, questionnaires in all relevant languages, presentations and reports. This will enable universities,

research institutions and other interested organizations (both governmental and nongovernmental) to have free access to survey data and to the tools needed to carry out further analysis. Such spin-offs will multiply the impact of survey findings. To accomplish this goal, careful archiving of all survey material is essential.

MICS3 results should be easy to access. Summary reports, ready-made presentation files, pocket cards and posters are among the tools that can be used to inform the general public about the survey and to effectively disseminate results.

An important utilization and advocacy tool is DevInfo. DevInfo is a "database system which contains indicators, time periods, and geographic areas organized to monitor global and national commitments to sustained human development."<sup>3</sup> MICS3 results can be easily transferred into DevInfo and highlighted through the use of graphs and maps.

In addition to the utilization plan, which will be implemented soon after the main survey results become available, it is also useful to develop an advocacy plan. The advocacy plan should focus on increasing the chances that MICS3 results will influence public policies. It should take into account other advocacy plans for children in the country, and could be integrated into them. Specifically, you should: (a) identify the major violations of women's and children's rights, including disparities among different groups of the population; (b) identify where further analysis of MICS3 results is needed in order to understand the causes and correlates of detected problems; (c) draw up an advocacy plan, based on existing MICS3 findings and additional analyses, which can be used to influence policy; and (d) set out specific advocacy actions targeted to various groups.

<sup>&</sup>lt;sup>3</sup> www.devinfo.org

### **ANALYSIS BEYOND THE FULL REPORT**

MICS3 is designed primarily for reporting on indicators for the World Fit for Children and the Millennium Development Goals, as well as other international commitments. The full technical survey report described above fulfils this primary aim, but data collected in MICS3 can also be used for statistical analysis beyond that contained in the survey report. Collecting survey data is a costly and labour-intensive activity. In order to justify this investment, the data collected should be exploited as fully as possible.

As you are writing the full report, ideas for further analysis will no doubt arise. Make note of these for possible future research after the publication of the survey report. Some examples of further studies are shown in Table 8.4.

#### Table 8.4 Topics for Further Analysis

- Investigation of puzzling or surprising results
- Analysis of data quality
- Analysis of trends
- Identification of 'most vulnerable' children
- Profile of children by socio-economic status
- In-depth look at a subgroup, such as adolescent mothers
- Multivariate analyses of determinants of child health or schooling outcomes.

#### Table 8.5 **Checklist for Reporting Your Results** Produce a preliminary report. Include: Objectives of the survey • Major results and discussion Sample and fieldwork methodology. Produce a full technical report. Include: • An executive summary Objectives of the survey • Details of the training, pre-test and fieldwork • Data entry and editing procedures • An evaluation of data quality • The results • An interpretation of the results, comparing them with results from other sources and . with data from neighbouring countries Details of the sampling techniques used • A copy of the questionnaire used • Conclusions, recommendations and acknowledgements. • Make the reports of survey results fully accessible to all organizations that might make use of them.

Ensure the widest possible dissemination of results by calling discussion meetings with donors, ministry officials and community leaders, and by ensuring press coverage of these meetings.