

**Evaluation of the UNICEF
Multiple Indicator Cluster Surveys**

May 1998

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New York

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EXECUTIVE SUMMARY

Background of the Evaluation

At the World Summit for Children (WSC) in 1990, all countries committed to measuring progress towards a set of goals for the health and well-being of children. Later, a subset of these goals was chosen to measure progress at mid-decade. Progress towards these mid-decade goals (MDGs) was measured in an unprecedented set of survey activities. In all, about 100 countries conducted surveys to measure some or all of the indicators for MDGs in the years 1994-6. Of those countries, about 60 carried out Multiple Indicator Cluster Surveys (MICS), a survey instrument developed by UNICEF.

In July 1997, UNICEF assembled a team of four independent experts to conduct an evaluation of the MICS. The overall objective was to assess whether and how the MICS could be adapted for future monitoring of the WSC goals and the implementation of the Convention on the Rights of the Child (CRC). Specifically, the evaluation addresses the following key issues :

- (1) How was the MICS managed at the global and regional levels?
- (2) How was the MICS implemented?
- (3) What were the outputs?
- (4) How were the results used?
- (5) Was capacity built? and
- (6) Which future monitoring needs could best be served by MICS?

The evaluation objectives were met through the use of three complementary methodologies: (1) a desktop review of existing documentation on MICS; (2) a questionnaire-based survey of all the UNICEF offices regardless of whether they conducted a MICS, some other kind of survey, or no survey at all; and (3) key-informant interviews through field visits to six countries (China, India, Turkmenistan, Iran, Lesotho, and Burkina Faso) and face-to-face or telephone interviews at the global and regional levels.

Conclusions

Overall, the MICS has been a worthwhile process. The manual that was developed as a practical guide for the surveys, and the regional workshops used to introduce and train staff in preparation for the surveys, were highly rated by the countries that participated in them. The workshops were, however, too few in some regions. The surveys were generally implemented with some assistance from local consultants where necessary, without relying upon international consultants.

There was a high level of satisfaction with the quality of the data produced for monitoring the MDGs. Although the data were only used in half the countries for the mid-decade review, they were used for several other important purposes, including advocacy on children's health issues, supplementing or confirming data from routine reporting systems, guiding policy and programmes, and planning and conducting further research. Moreover, the MICS was reported to have improved the capacity to conduct survey research among government and UNICEF staff, which should contribute substantially to the sustainability of these activities in the future.

While there were no complaints about the quality of technical assistance from headquarters with respect to MICS, there were reports that the initial support for MICS had disappeared. Many UNICEF country and regional offices reported a general lack of direction regarding monitoring the WSC and CRC. The shift in management and policy in UNICEF has left many staff members confused about the future of the MICS.

Although the MICS is relatively inexpensive, it still requires substantial commitment of both financial and time resources. Without clear direction about the need for timely and internationally comparable data, such resources are unlikely to be made available.

Some specific suggestions are made for improvement:

- (1) Increase government ownership by actively involving all government sectors and other local institutions who would use the data;
- (2) Revise the MICS Handbook, especially on sampling;
- (3) Provide training and technical assistance for data analysis and report writing;
- (4) Extend the training period for interviewers and supervisors; and
- (5) Target technical assistance to the countries who didn't do a MICS from lack of expertise.

The MICS should be used in the future to monitor the WSC goals and the implementation of the CRC. However, before the MICS can be adapted to collect information on CRC indicators, these indicators must be specified. The measurement of the concerns of the CRC, especially those relating to the areas of street children, child labour and child disability, will pose data-collection problems for MICS as formidable as for other approaches.

The MICS has a comparative advantage over other methods and/or surveys because it produces national estimates of indicators/goals based on probability samples, requires a shorter time frame to complete, and is more cost-efficient. Further, in order to maximize the utility of the MICS, the use of MICS for advocacy on policy reform, programme planning and fund raising should be encouraged.

I. INTRODUCTION

A. BACKGROUND

In September 1990, 71 Heads of State and 88 ministerial representatives convened at United Nations Headquarters in New York for the World Summit for Children (WSC). A Declaration on the Survival, Protection, and Development of Children and a Plan of Action for its implementation were adopted. The Plan of Action identified seven major goals and 20 supporting goals relating to the survival, health, nutrition, education and protection of children to be reached by the year 2000. The UN system was given the task of assisting countries in achieving these goals and measuring progress. The United Nations Children's Fund (UNICEF) was asked to be the lead agency in this process.

After the WSC, a decision was made to review progress, and a set of goals for the mid decade was agreed upon. The need to measure progress toward these goals increased the demand for high-quality, timely data. In many developing countries, routine reporting systems were often found to be inadequate, and did not uniformly collect information on many of the goals.

As a result, UNICEF began a process to develop an affordable, fast, and reliable household survey system that would fill gaps in knowledge and update available data. UNICEF worked with a number of agencies -- including the World Health Organization (WHO), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the London School of Hygiene and Tropical Medicine, and the Centers for Disease Control and Prevention (CDC) -- to develop a model questionnaire to measure standard indicators for the mid-decade goals (MDGs). The model questionnaire was incorporated into a manual that had detailed instructions for planning and implementing a cluster survey. The UN Statistical Division and United Nations Population Fund (UNFPA) were involved in the development of the manual. The questionnaire and manual were distributed to UNICEF country offices with instructions that they should help carry out a multiple indicator cluster survey (MICS) if there were no other reliable sources of data to report on MDGs. Questionnaire modules from the model questionnaire could also be added to existing surveys where appropriate.

Approximately 60 countries responded by implementing a MICS survey. The MICS have produced much new data, especially from countries which were notably data poor. Most of these data are being used by UNICEF and other agencies in their publications and planning.

An evaluation of the MICS was planned for two reasons (see Supplement A for terms of reference). First, there is a political commitment to achieve the WSC goals and to adhere to the Convention on the Rights of the Child (CRC), and a cost-effective way of monitoring progress will be important to sustain this commitment. It is necessary to assess the future role of MICS in this activity. Second, considerable resources have been invested in the implementation of MICS by various governments and UNICEF. National statistical offices, other agencies and organizations are considering or already using the MICS methodology and want to know about its strengths and weaknesses.

B. OBJECTIVES

The overall objective of the evaluation is to assess whether and how the MICS could be adapted for future (sustainable) monitoring of the situation of children, in particular the WSC goals and the implementation of the CRC. The evaluation reviews the experience gained in different countries in conducting the MICS and in using the information collected. It identifies the lessons learned -- with respect to its effectiveness, efficiency, and capacity building -- from the actual implementation of the MICS in order to make decisions for future use. More specifically, the evaluation addresses the following key issues:

1. How was MICS managed at the global and regional level?
 - What is the quality of the MICS tools developed at UNICEF headquarters?
 - How was the MICS introduced in countries, and how much of a sense of ownership was developed in governments?
 - How was training carried out?
 - How was information exchanged between and within the different levels of UNICEF, including exchange of advice and instruction as well as questions and results?
2. How was the MICS implemented?
 - In what ways was the standard MICS instrument adapted to local conditions? And how much? Which modules were dropped or added, and why?
 - What strategy was used to implement MICS (e.g., relying mainly on consultants or outside contractors; the amount and breadth of government involvement)?
 - What problems were encountered in the fieldwork?
 - What were the major cost elements of the MICS?
 - What financial resources were invested by national counterparts, UNICEF, and other agencies and donors?
3. What were the outputs?
 - Did the survey produce data of good enough quality for the intended use of monitoring MDGs at the international, national and subnational level?
 - Were the results produced in a timely fashion?
 - What problems were faced in analysis and report-writing?

4. How were the MICS results used?
 - Who -- in UNICEF, government, non-governmental organizations (NGOs) and other donor communities at national and international level -- uses the data from the MICS? And who decided not to use MICS data?
 - Are the data used only for MDG reporting, or do uses go beyond that?
5. Was capacity built?
 - How has survey capacity increased, both in UNICEF (at headquarters, regional and country office levels) and in local counterparts?
 - How has understanding of data issues (e.g., the use and abuse of data, the constraints of data) improved in the UNICEF office and among counterparts?
 - Are policy makers and planners better able to make informed decisions for children as a result of MICS?
6. Which future monitoring needs could best be served by MICS?
 - How does MICS compare to other possible methods of data collection for monitoring the WSC goals or the CRC?
 - Can the MICS be adapted from its MDG focus to be used to monitor other indicators?
 - For what purposes would it most be suited in terms of its appropriateness and cost-effectiveness?

II. METHODOLOGY

In July 1997, UNICEF assembled a team of four people to conduct an evaluation of the MICS. The team included an anthropologist/epidemiologist, a sociologist/demographer, a public health physician and a statistical specialist, all with extensive experience in developing countries.

The evaluation uses three complementary methodologies to cover both the breadth and depth of the MICS experience: (1) a desktop review of existing documentation; (2) a questionnaire-based survey of all the UNICEF offices regardless of whether they conducted a MICS, some other kind of survey, or no survey at all; and (3) key informant interviews through field visits to six countries and face-to-face or telephone interviews with UNICEF and other actors at the global and regional levels.

A. DESKTOP REVIEW

The evaluation examined all MICS survey reports and data available in headquarters (whether headquarters, regional or country office material), all trip reports (both by headquarters and regional office staff) to countries in connection with MICS, the database of countries intending to perform MICS, the MICS costing study, and other related documentation (see Supplement B for a list of documents reviewed). This allowed the first assessment of data quality (indicating, if necessary, the need for subsequent more detailed data analysis), and of cost-effectiveness.

B. QUESTIONNAIRE SURVEY

Questionnaires were sent to both MICS and non-MICS countries. All countries that carried out a MICS were sent a questionnaire (Supplement C) that asked detailed questions about the MICS process in their country, including capacity building within the UNICEF office, use of data within the office, adaptation and cost analysis of the MICS, timeliness of the results, collaboration with other agencies, and views of UNICEF staff on the usefulness of the exercise. A separate questionnaire (Supplement D) on sampling was also sent to these countries.

Countries which chose not to do a MICS were sent a questionnaire (Supplement E) that asked what data collection methodologies were used for measuring MDGs, the reasons leading to that decision and the experience of using those methodologies.

The main objective of the questionnaire-based survey was to complement the information available in headquarters. No attempt was made to solicit government counterpart opinions in this survey.

As seen in Table 1, half of the MICS and almost three-fifths of non-MICS countries responded to the questionnaire. The number of countries in each region is too small a base from which percentages could be calculated or frequencies discussed. Hence, the base for the analysis is all of the MICS countries (N=31) responding to the survey questionnaire.

C. KEY-INFORMANT INTERVIEWS

Information from the questionnaires and the desktop review were further complemented by interviews at the headquarters, regional and country levels. This provided a much deeper understanding of the process in-country, and allowed some issues to be investigated in more detail.

**Table 1: Number of Countries by Conduct of a MICS,
Response to Survey Questionnaire and Region**

Region	No. of MICS Countries	No. of MICS Countries Responding to Questionnaire	No. of Non-MICS Countries	No. of Non-MICS Countries Responding to Questionnaire	Total No. of Countries
WCARO	18	10	5	2	23
TACRO	2	1	34	24	36
ROSA	6	3	2	1	8
MENA	9	5	10	4	19
ESARO	13	3	9	4	22
EAPRO	8	5	18	16	26
CEE-CIS	6	4	13	4	19
TOTAL	62	31	91	55	153

1. Headquarters and regional level

Key players -- policy makers, technical experts, and programme managers -- involved in the development and implementation of the MICS were interviewed in person or by telephone. They include: staff from UNICEF (e.g., Statistics and Monitoring Unit of the Division of Evaluation, Policy and Planning, and selected Programme Division sections), the UN Statistical Office, CDC, WHO, and academic institutions (see Supplement G for a list of interviewees).

2. Country level

Interviews with persons from UNICEF, NGOs, government (statistical, policy-making and line ministries) and other agencies were carried out in six countries: Burkina Faso, China, India, Iran, Lesotho and Turkmenistan. The criteria for UNICEF's selection of these countries, in addition to the country's willingness to participate, were: the size of the country; the quality of the MICS

country reports as judged by headquarters; regional representation; language; and the capability/existence of a local statistical system. The final selection of the countries was made in consultation with the regional Monitoring and Evaluation Officers.

After a week-long briefing session at headquarters in August 1997, the evaluation team proceeded to the field. Two members of the team travelled to Burkina Faso, Iran, and Lesotho with a visit to the UNICEF regional office in Nairobi. The other two team members visited China, Turkmenistan, and India. Approximately a week was spent conducting the interviews in each country.

D. LIMITATIONS OF THE EVALUATION

There are several sources of bias that may have contributed to limitations of the evaluation. These are as follows:

1. The countries selected for the site visits may not reflect the same lessons learned from MICS as other countries in the region from which they were chosen. This selection bias could be a result of a host of factors whose influence cannot be controlled, including differences in population size and composition, the level of expertise of UNICEF and government personnel, and institutional, political and resource constraints of the countries. Differences in these factors between countries could produce different results regarding the management, implementation, outputs and use of the MICS.

2. Similarly, although the response rate for the questionnaire survey was around 50% for MICS countries, there is still the issue of how different these countries may be in their MICS activities and attitudes from the countries that did not respond to the survey.

3. UNICEF staff were present at interviews with government counterparts, especially in China and Turkmenistan where all interviews were done in Chinese and Russian, respectively, with UNICEF staff acting as interpreters. This was a potential limitation, because government officials may have been reluctant to express negative opinions in front of UNICEF staff.

4. The results from the survey and the interviews conducted in the countries visited may have been affected by a "courtesy bias" in reporting by the respondents. That is, the respondents may have answered in terms of what they believed the questionnaire or interviewer wanted as an answer.

5. The respondent to all but two of the surveys was the MICS focal point; whilst these staff are well-informed, their responses could be biased to reflect well on their work.

6. A comparison between the MICS and non-MICS data would have been useful to analyse differences in implementation, use and outputs between the approaches. However, the

number of non-MICS countries that responded to questions on these issues was too small to conduct the analysis.

III. RESULTS AND DISCUSSION

This section of the report is organized around the key issues presented above under "objectives". These are, the management, implementation, output, use, capacity building and future monitoring needs of the MICS.

Before addressing these issues, it is necessary to provide an explanation of why some of the countries decided against doing a MICS. Among countries that did not do a MICS, the reason cited most often for not doing it was "insufficient technical expertise" to conduct the survey. This reason was given by two-thirds of the countries that responded to the questionnaire. The "availability of other data sources" for reporting on MDG/WSC goals was the reason cited by about one-third of the countries.

Those countries with insufficient technical expertise to carry out a MICS would, as a result of this, also be unlikely to have alternative data sources for reporting on the MDGs. Since the MICS were developed to help fill existing data gaps, it is important that in the future the constraint of technical expertise be overcome in some way in order to permit this.

A. MANAGEMENT OF THE MICS

The discussion of the management of MICS includes an assessment of the quality of MICS tools developed at headquarters; the ways in which MICS was introduced in countries; government ownership of the MICS; the training provided in preparation for the surveys; and the information exchange that occurred between and within levels of UNICEF and other United Nations agencies.

1. Quality of MICS tools

All of the countries that conducted a MICS reported that they found the MICS manual useful, and within this group 80% indicated that it was "very useful". Further, of the 33 non-MICS countries familiar with the manual, all but one reported that they found it useful, and a third of the countries stated that it was "very useful". Of particular note is that even among these non-MICS countries, more than a quarter that were familiar with the manual still used it to develop other survey instruments.

Suggestions to improve the MICS manual were given by 13 MICS countries and 11 non-MICS countries. The most frequent suggestions for improvement concerned the section of the manual

on sampling. Several countries would like more information included on the "cluster methodology", its limitations, and alternatives when sampling frames are not available.

2. Introduction of MICS

MICS was introduced in some countries through attendance of UNICEF staff and government counterparts at regional workshops in 1995. Often a UNICEF staff member such as the Monitoring and Evaluation Officer would be accompanied by two government counterparts to these regional workshops. In some cases this was followed by a subregional workshop for those countries that decided to do a MICS, or by in-country workshops. The West and Central Africa Regional Office (WCARO) organized a series of workshops with technical assistance from headquarters and CDC, ending with a workshop on data analysis. A planned workshop on report writing was not held because of insufficient funding. In the Middle East and North Africa (MENA) region, an initial workshop held in Amman was followed by a second workshop in Cairo. It was also found useful to send survey coordinators from countries planning a MICS to those that were already carrying one out.

In other countries, MICS was introduced solely by the receipt of various documents from headquarters, i.e., an Executive Directive (CF/EXD/1994-001) including the MICS questionnaire and a set of planning instructions. Following the receipt of these documents UNICEF staff would contact their government counterparts to request participation in the survey.

It was not possible to obtain detailed information on the introduction of MICS through the questionnaire survey. However, the in-depth interviews conducted in the six case-study countries provided an overview of the process that may also have occurred in other countries.

The timing and specifics of the introduction of MICS varied in each of the six countries. In India, the addition of other questions such as those on treatment of diarrhoea to expanded programme on immunization (EPI) surveys (referred to as coverage evaluation surveys - CES) predated the MICS initiative. In September 1994 three participants from India attended the workshop held in Dhaka, Bangladesh which provided the initial global orientation for the MICS. After the workshop discussions began on adding new indicators to the CES surveys. The MICS was formally introduced from NYHQ by an Executive Directive (CF/EXD/1994-011) on 14 November 1994.

In China, discussion about measurement of MDGs also began in 1994 among UNICEF staff and a tentative plan was formulated which involve adding questions onto the household survey that is conducted by the State Statistical Bureau (SSB) every month. In November 1994, the Executive Directive with the accompanying questionnaire and instructions was received, resulting in the initiative to conduct a MICS. A UNICEF staff member from China and two counterparts from the State Statistical Bureau attended a regional workshop on MICS in Manila in May 1995, but the China MICS had already been completed.

Burkina Faso's introduction to MICS came at the Regional Workshop on Monitoring and Evaluation held in Abidjan in December 1994. MICS was discussed again at a regional workshop in Cotonou in February 1995. After the decision was made to conduct a MICS, the regional office and headquarters provided resource persons and arranged for the attendance of technical experts from the CDC for a training workshop in Ouagadougou in May 1995.

In the case of Iran, a UNICEF staff member, a representative of the Ministry of Health and Medical Education and a representative of the Statistical Centre of Iran attended a MICS workshop in Amman, Jordan in March 1995. Participants from Lesotho attended a similar workshop in Swaziland in June 1995.

The MICS was introduced in Turkmenistan by a subregional workshop in July 1995 that focused on survey methodology, epidemiology and vaccinology. Participants from the MOH and Ministry of Education (MOE) attended this workshop, in which the MICS was one aspect of a larger training activity. Assistance for the workshop came from the International Children's Centre in Paris.

3. Government ownership of MICS

Government ownership was defined as the extent to which government staff were involved in the decision to conduct a MICS, how much control they had over it, and how involved they were in its implementation. Again, the questionnaire survey was not helpful, hence the following observation is based on country visits for typologies.

In four of the countries visited, an intersectoral committee or task force was involved in decision making and planning for the MICS. In some cases a special task force was constituted. For instance in Iran, a broad intersectoral committee was formed in August 1995, which included in its membership all Health Deputy Ministers and General Directors, the Statistical Centre, the MOE and the Ministry of Agriculture, along with one person from the UNICEF office. They met to discuss reporting on MDGs and reviewed the information available on each indicator. Although it was UNICEF's initial proposal to conduct the MICS, the Committee made the final decision. In India and Turkmenistan, there were no task forces or intersectoral committees involved in decision making or planning for the MICS.

Government ownership appeared strongest in Iran and Burkina Faso, where in spite of the fact that the initial push came from UNICEF, the countries ultimately took full responsibility and carried out the survey with enthusiasm. In Turkmenistan, India, and Lesotho, government ownership was less, and the MICS was viewed as primarily a UNICEF activity in which there was variable interest. In China, there were differences at the national and provincial levels. At the national level, there was some indication of ownership by the National Working Committee for Children and Women of the MICS, but it still was seen as an activity that required external financial support. However, following the national MICS of 1995, five provinces in China went on to conduct their own MICS in 1996.

4. Training for MICS

Table 2 presents the proportion of countries that received different types of training in preparation for the MICS by the level at which the training was conducted. More than 80% of the countries indicated that training had been received on interviewing, sampling, and data processing and analysis. Around 70% received training on questionnaire design, while 55% and 45%, respectively, received training on report writing and dissemination of findings.

Table 2: Percentage of Countries Whose Staff Received Training for the MICS by Level and Type

Type of Training (N = 31)	Level of Training (%)			No Training (%)
	Regional	National	Regional & National	
Interviewing	7	39	39	16
Sampling Techniques	12	36	32	19
Questionnaire Design	10	39	23	29
Data Processing and Analysis	16	45	26	13
Report Writing	3	42	10	45
Dissemination of Findings	3	19	23	55

It should be mentioned that among non-MICS countries included in the survey, 15% indicated that UNICEF staff participated in MICS training at the regional level, and that 11% of government staff received training at the same level.

Results from four of the countries visited suggest that the amount of time devoted to some of the training was inadequate. In Iran and India there were two to three day workshops to orient the survey coordinators, after which they conducted their own training of interviewers. In India, the subsequent training of interviewers varied, and was sometimes as short as one day or sometimes as long as one week. In Turkmenistan, the training of interviewers was only three days. In Lesotho, supervisors received one day's training, after which they assisted with the training of the

interviewers over a four-day period. The weaknesses of the training became apparent when interviewers made errors because of unfamiliarity with the questionnaire. Some of these errors were identified during the data entry stage, and as a result some clusters had to be redone.

In China, training was more extensive with supervisors receiving 10 days of training, after which they trained interviewers for 10 days. Similarly, in Burkina Faso, the training lasted two weeks, and was quite rigorous. Only the best three-quarters of the trainees were selected for field duty.

5. Information exchange within UNICEF and with other UN agencies

This section is based only on information collected from the country visits, as comparable information was not available from the survey. Four of the six countries visited (China, India, Iran, and Turkmenistan) implemented the MICS without requesting support externally. In the case of Turkmenistan, the Central Asian Republics and Kazakhstan (CARK) office in Islamabad provided technical assistance and arranged for the international consultant for the MICS. The CARK office reported satisfaction with the assistance from headquarters that was requested and received for Kyrgyzstan. In most regions, support by the regional office included recommending consultants, reviewing reports, and organizing training workshops.

In India, there were problems with respect to information exchange between Delhi and the state offices. Management of the MICS encountered problems when responsibility for the surveys was shifted from the Health to the Planning Section in Delhi UNICEF Office. Different questionnaire formats were received from different sections, which created confusion and misunderstanding between the sections on the various roles regarding training and assistance for the MICS.

In some countries, other UN agencies were involved in the MICS. In Burkina Faso, a representative from WHO served on the committee, and WHO, UNFPA, and UNDP all contributed funds to the MICS effort. In Lesotho, WHO and UNFPA took an active interest in the MICS, and lobbied for the addition of a section on reproductive health. WHO also provided vehicles. There was active involvement and collaboration at the regional level in the Eastern and Southern Africa Regional Office (ESARO), which had a strong collaboration with ECA that was important in gaining the support of the national statistical offices. ESARO and Economic Commission for Africa (ECA) organized a workshop to review the MICS in 1996. However, the only active involvement noted in the Asian countries visited was that WHO provided some technical advice about the survey in the planning stage in China. In Turkmenistan, UNICEF staff were the first to begin to work in the country, and the report has subsequently been provided to UNDP. In India, there was no report of collaboration with other UN agencies.

B. IMPLEMENTATION OF THE MICS

This section discusses the adaptation of the MICS modules, i.e., their modification and selection, the strategies used for implementing the MICS, and sampling for the MICS.

1. Adaptation of MICS modules

The MICS questionnaire was designed to have a series of "modules", each of which had questions pertaining to a particular goal or topic. These modules were presented separately to allow flexibility in their use. On the one hand, modules could, if necessary, be added to other surveys so a MICS was unnecessary. On the other hand, they could be dropped from a MICS if other sources of data for the indicators existed. Some modules (such as breastfeeding and mortality) were designated as being "optional", because -- although they covered important and relevant indicators -- they did not directly measure MDGs.

(a) Modifications of Modules. The proportion of countries that reported "major revisions" in the modules is generally low (see Table 3). With the exception of the household module in which over a fifth of the countries made major revisions, only 3% of the countries made major revisions in the diarrhoea and breastfeeding modules, and less than 10% made major revisions in all of the remaining modules. The modules with the highest proportion of countries reporting that no revisions were made are tetanus toxoid, immunization, salt iodization and anthropometry.

(b) Selection of Modules. There is, however, considerable variation in the number of modules that countries chose to include in their survey. Over three-fifths of the countries did not use the mortality module, and around one-third did not use the vitamin A and anthropometry modules. Among the remaining modules the proportion of countries reporting non-use ranges from about 20% for the acute respiratory infection (ARI) module to less than 5% for the household, diarrhoea and immunization modules.

The reason given by 18 out of 19 countries for not using the mortality module, and 8 of 9 countries for not using the anthropometry module, is that other data were available to report on them. In contrast, 6 of the 10 countries indicated they did not use the vitamin A module because it was not relevant for their programming.

The results from the countries visited provide further examples and insights into the use and adaptation of each of the modules. All of the countries used a household module. In China, the household module was revised to include type of housing, building material, and living space. In Lesotho, the household module was modified to include a complete household listing sheet which recorded the age and sex of each member of the household, and then went on to list separately for each woman the details of each child for whom she was responsible. This approach takes longer, but is likely to lead to a more comprehensive coverage of mothers and children, and also offers the chance for checks on household composition, which the approach suggested in the MICS manual does not allow. Burkina Faso reorganized the questionnaire to be administered by the age of the child, rather than by the module.

Table 3: Percentage of Countries That Used Modules and Revised Them for Their MICS

MICS Modules (N=31)	Module Not Used in MICS (%)	Module Used in MICS (%)		
		Revisions		
		None	Minor	Major
1) Household	3	23	52	23
2) Water and Sanitation	7	23	61	10
3) Salt Iodization	16	55	26	3
4) Education	17	40	37	7
5) Tetanus Toxoid	17	62	17	3
6) Acute Respiratory Infections	20	43	33	3
7) Diarrhoea	3	42	42	13
8) Vitamin A	37	37	17	10
9) Breastfeeding	10	39	39	13
10) Immunization	3	60	33	3
11) Anthropometry	29	48	16	3
12) Mortality	66	21	7	7

The only other module that was used by all of the countries was the water and sanitation module, partially reflecting a common lack of survey data on this indicator. Lesotho was the only country among the six countries visited that used the mortality module. In most of the other countries, a decision was made to rely on other sources of data. Among the remaining modules there was considerable variation between countries regarding which ones to use, drop or add.

(c) Additions to the Questionnaire. In each country visited except China and Iran, additions were made to the questionnaire. For example, Burkina Faso added a module on malaria because of the importance of the disease in the country. In Turkmenistan, a question was added to the water and sanitation module to determine the availability of soap.

2. Strategy for MICS implementation

(a) Collaboration. In some countries the MICS was implemented as a collaborative effort by different institutions/agencies, and in other countries they were conducted by individual institutions. The data from the questionnaire does not allow an analysis of the collaborative efforts, but does provide an indication of the range and number of institutions involved. The institutions and/or consultants who had the overall responsibility for coordinating the surveys, selecting the samples, and conducting the fieldwork at the country level are shown in Table 4. Almost three quarters of the countries reported that UNICEF was responsible for survey coordination. National statistical offices (NSOs) and MOHs were responsible for this activity in about half and two fifths of the countries, respectively. Reliance on local and international consultants for survey coordination was minimal. Six countries used a local consultant and only two used an international consultant.

(b) Key Actors in Survey Activities. Sample selection was the primary responsibility of NSOs and UNICEF. Two-thirds of the countries indicated that those institutions were responsible for this activity. Local and international consultants were used for selecting the MICS sample in almost a fifth of the countries.

UNICEF's responsibility for the fieldwork was considerably less than its involvement with survey coordination and sample selection. Less than two-fifths of the countries indicated that UNICEF was responsible for fieldwork, but around three-fifths of the countries reported that MOHs and NSOs were responsible for this activity. A quarter of the countries used a local consultant and only four countries used an international consultant.

Table 5 illustrates the level of involvement of government and UNICEF staff, and consultants, in each phase of the survey. Around four-fifths and two-thirds of the countries reported that government and UNICEF staff, respectively, were involved in training. Only six countries reported that consultants were involved in this phase of the survey.

Government staff played the primary role in data collection and data entry: they were involved in these activities in almost 90% of the countries. However, about a third of the countries did involve local consultants in the data entry.

Almost three-quarters of the countries reported that government staff were involved in the data analysis and report writing. Over half indicated that UNICEF staff were involved in the data analysis, and almost three-quarters said they (UNICEF staff) were involved in report writing. The participation of local consultants in these two activities was higher than their participation in the previous three phases of the surveys. Fourteen countries used local consultants for data analysis and 12 countries used them in the report writing.

Table 4: Percentage of Countries by Different Phases of the Survey and the Institutions/Consultants Involved in These Phases

Institutions/Consultants (N = 31)	Survey Coordination (%)	Sample Selection (%)	Fieldwork (%)
Ministry of Health	42	23	58
Ministry of Planning	29	13	16
National Statistical Office	52	65	61
Ministry of Education	13	-	16
Other Government Agency	23	13	13
Academic Institution	6	19	16
Local NGO	3	-	10
International NGO	-	-	3
Private Company	3	6	6
UNICEF	71	68	39
Local Consultant	19	23	26
International Consultant	7	19	13

In addition to the closed-ended questions on institutional involvement in each phase of the surveys, open-ended questions were asked regarding the main problems encountered in planning the survey including sampling, in the fieldwork, and in processing and analysing the data. A quarter of the countries either did not answer or reported that they had no problem with planning or sampling. However, over half of the remaining countries indicated that they had problems with sampling. This included the unavailability of accurate maps to construct a sampling frame; sampling frames that were outdated or could not be verified; and sampling frames that excluded selected areas of a country. The only other problem reported concerned the timing of the survey: three countries indicated that either the preparation time for the survey was too short or the timing conflicted with other surveys.

Table 5: Percentage of Countries by Survey Activities and the Staff and Consultants Involved in These Activities

Staff and Consultants (N = 31)	Training (%)	Data Collection (%)	Data Entry (%)	Data Analysis (%)	Report Writing (%)
Government Staff	81	87	87	74	71
UNICEF Staff	68	23	26	55	74
Local Consultant	19	19	32	45	39
International Consultant	19	10	13	16	10
Other	19	3	16	16	13

3. Fieldwork

The primary problem reported for the fieldwork was transportation. Over half of the 27 countries that experienced problems said that transportation to and from sample points was inadequate.

Similarly, the most common problem mentioned in the case study countries was the distances that had to be travelled. Transportation and communication were reported as problems for Turkmenistan, but staff interviewed from the cooperating agencies indicated that this was the first time that a cooperative effort between different government agencies had been carried out so successfully. In Lesotho, the team received loan vehicles from other agencies such as the MOE and WHO. However, there were difficulties in finding the exact locations of some of the villages. Villages that were a long distance away also proved to be a problem in India, where some districts were not covered because of distance and logistics.

Four countries mentioned problems with the weighing scales, reporting that they were too heavy and they were not accurate. Two countries reported that the supervision of the fieldwork was too weak and affected data quality.

There were also problems reported with the scales used in some of the later MICS in India. Enumerators in Gujarat often found it difficult to find a flat surface for the scale, and they complained that the digital display frequently changed by a few hundred grams during the weighing. Further, since many interviews were conducted in the evenings, the absence of sufficient lighting made it difficult to read the scale. Similar problems with the scale were reported with a recently completed urban slum survey in Delhi.

4. Sampling

This section is based upon the results of a questionnaire on sampling that was sent to all countries that conducted a MICS. Twenty-eight countries replied the questionnaire. These data are supplemented with information obtained on sample design from the MICS reports of 56 countries. (For more detailed analysis request Supplement G). Many countries wanted to use their MICS to estimate the level of indicators at subnational as well as at national level.

(a) Sampling Frame and Sample Size. Most countries used the most recent population census as their sampling frame. Some countries (such as Lesotho, Tanzania, and Sierra Leone) used a master sample, while some others (such as Swaziland, Zambia, and Nigeria) carried out their MICS on the back of another survey. A few unusual sampling frames were used, such as a food distribution list in Liberia, electricity company lists in Turkey, primary health care lists in Iran, and an election list in Cambodia.

In terms of total sample size, most of the MICS in UNICEF's ESARO and WCARO regions had a total sample (number of clusters multiplied by the 'take' in each cluster) of between 4,000 and 8,000 households. This matches up well with the advice given in the MICS handbook, where it was suggested that a sample of 4,000 to 5,000 households was likely to be sufficient for estimating mid-decade goals at the national level. The only very large sample (over 18,000 households) was in Nigeria, where separate estimates were required for each of the 30 States. The smallest sample of 1,100 households was in Somalia. In CEE/CIS and MENA regions there were some large samples: Croatia had almost 15,000 households, while the MICS in Iran covered 20,000 households. There were also some large samples in the EAPRO and ROSA regions of UNICEF: the MICS in Myanmar covered about 27,000 households, the one in Bangladesh covered 39,000 households, and China's MICS had a sample size of 60,000 households. Only two countries (Bolivia and Panama) in UNICEF's TACRO region conducted a MICS. In Bolivia the sample size was about 2,500 households, and in Panama about 1,200 households.

Most countries conducted their MICS using traditional sampling procedures (i.e., not using random walk methods and with a 'take' in each cluster typically somewhere between 20 and 40 households). This is exactly in line with the advice given in the MICS handbook. An odd exception was Mauritania, where the 'take' in each cluster appeared to be as high as 176 households.

(b) Final Stage Sample Selection. The MICS manual suggests several methods of selecting households to be interviewed. The method recommended is the traditional survey approach, in which a listing of all households in the ultimate area unit is made, and households selected from that list. The next best method ("segmentation") involves segmenting the ultimate area into units of smaller and uniform size, selecting one segment at random, and either listing the households in that segment and choosing households from that list, or simply interviewing all households in the segment.

The other two methods are the so-called "EPI random walk" methods, which do not yield probability samples. They also tend to introduce bias by interviewing households closer to the centre of a village, though the manual tries to show how to reduce that bias.

It is encouraging to note that the majority of MICS countries in Africa, especially in West and Central Africa, used the traditional (recommended) method for selecting their final sample. Among those that did not were several countries in emergency situations (such as Mozambique, Somalia, and Liberia) where the use of traditional methods would have been difficult. Of the countries in the CEE/CIS region, several also used the preferred method. However, the former Yugoslavia used random walk methods after segmentation, Croatia used random walk methods in one of its three geographic strata, and Georgia used the standard EPI-type of sampling design.

Several of the countries in the MENA region used traditional methods, but often combining segmentation and systematic sampling in the one design. However, Iran and Sudan used random walk methods; the case of Iran was particularly surprising, since that country already has an up-to-date listing of households which would have provided an excellent sampling frame for the traditional method.

Most if not all of the countries in the EAPRO region appear to have used fairly traditional methods for selecting their sample of households, though with some segmentation being used in Cambodia, China, Indonesia, and Myanmar.

ROSA appears to have been the UNICEF region with the widest variety in quality of sample designs. The sample design for Bangladesh seems to have been fully satisfactory. Conversely, the sample design used in the Maldives was a collection of different methods, and leaves much to be desired. Perhaps the most disappointing MICS designs (in view of the country's great tradition in sampling and survey methods) were those in the various States of India: instead of using systematic sampling from a list of households in the selected small areas, most states seem to have resorted to using random walk methods.

Details of the sample designs used in Bolivia and Panama -- the only two countries which conducted a MICS in the TACRO region -- are unclear, but Bolivia appears to have used segmentation methods.

5. Adequacy of resources and cost analysis of the MICS

(a) Financial resources for past MICS were reported as adequate by three quarters of the countries that participated in the questionnaire survey. Around 90% of the countries indicated that conducting the MICS was a worthwhile use of these resources.

(b) Technical (human) resources for past MICS were considered adequate by three-quarters of the countries. Almost 95% of the countries believed that the use of these resources was

worthwhile. Moreover, only a fifth of the countries indicated that they would need technical assistance to conduct MICS in the future.

(c) Cost of MICS. For the sample of 25 countries for which cost data are available, the average total cost of conducting the MICS exercise (including UNICEF country staff costs, national and international consultants, government, and other agencies) was US\$129,000. (Request Supplement H for more detailed analysis.) There is, however, considerable variation since the sample comprises small, medium and large countries with the range of costs varying from a low of \$15,000 for Turkmenistan to a high of \$590,000 for China. If the cost of UNICEF staff time and travel is excluded, the average cost is just under \$112,000. The average additional cost to UNICEF, excluding its counterpart staff costs, was \$80,000 with a range of \$14,000 to \$266,000. This may be considered to be the variable cost component of the exercise. If the averages are used as a guide, then the estimated total cost of conducting the "stand alone" MICS in the 60 countries would be in the region of \$5 million, excluding UNICEF country staff and government costs, and \$8 million if these are included.

(d) Cost-effectiveness and Efficiency of MICS. The cost analysis cannot on its own answer the question of whether or not MICS was cost-effective. However, there are no other directly comparable surveys against which the cost-effectiveness of MICS could be judged. Other surveys do not have the same scope (i.e., number of indicators, sample size, and structure). One can only approximate the cost-efficiency indirectly. Given the fact that a MICS costs an average of \$80,000 (excluding UNICEF and government staff which may be interpreted as fixed or sunk costs), while costs of other major sample surveys range from \$250,000 for a Living Standards Measurement Survey to \$500,000 for a Demographic and Health Survey¹, MICS may be considered a cost-efficient undertaking.

Quality of the data gathering is a critical factor in assessing the cost-effectiveness of the exercise. Simple average costs or costs per household do not indicate the cost of obtaining statistically significant data. Household sample size will be affected by the sampling methodology utilized. The MICS manual had suggested that a sample size of 4,000-5,000 was likely to be sufficient for estimating MDGs at the national level. Where country samples are much larger than this, it was usually because they were trying to get estimates of their indicators for various sub-national groups. It is not possible to know from the information available as to which countries have gone well beyond the basic requirements of reporting national data. But this factor would significantly affect the comparison of costs across countries since there would be different outputs in each case. Moreover, because of the difficulty of obtaining a single or composite indicator of the quality of MICS in all the countries, it is difficult to factor this into cost-effectiveness analysis.

¹ Kingsbury, D.S. (1995) 'Alternative Survey Methodologies for Monitoring and Analysing Poverty In Sub-Saharan Africa', A Study for the SPA Working Group on Poverty and Social Policy, USAID.

C. *OUTPUTS OF THE MICS*

Only a third of the countries responding to the questionnaire indicated that concerns had been expressed about the quality of the survey data. These concerns focused on the absence of translation of the questionnaire into local languages, the limited skills of enumerators and supervisors, and the inconsistency between the MICS survey results and the results from the surveys and/or routine reporting systems.

Country offices were also asked about their level of satisfaction with the quality of the data obtained for each of the MDG/WSC goals. As seen in Table 6 almost all of the countries that used MICS data reported that they were satisfied with the quality of the data for each of the MDGs. It is also notable, however, that countries only used MICS data about half the time. This may be because of its timing issues. Among those countries that used non-MICS data for mid-decade review, one half or less were satisfied with the quality of their data for five of the MDGs -- salt iodization, education, tetanus toxoid, diarrhoea, and vitamin A. And only slightly over half of the countries were satisfied with the quality of the data on breastfeeding, immunization, and mortality.

The case-study data provide a number of examples that elucidate the concerns about quality reported in the questionnaire survey regarding the translation of the MICS questionnaire and the inconsistency of the MICS results with other sources of data.

1. Translation of the questionnaire

In most of the case-study countries the questionnaire was translated into one local language. In some countries, such as China and Turkmenistan, it was then administered in other languages, with the interviewers translating as they interviewed. In India, there was variation among the states, but in general the questionnaire was not translated into any of the local languages in which it was administered in. For instance, in the state of Andhra Pradesh, the English questionnaire was used, and interviewers translated the questions into Telegu as they interviewed.

In Burkina Faso the written French version was used because the local languages are not written. Language experts translated the questionnaire into four main local languages and trained the interviewers. In Lesotho, most of the population speaks a single language (Sesotho) and the questionnaire was backtranslated to check for any inconsistencies and misunderstandings. China was the only other of the six countries to backtranslate the questionnaire, though it is not clear whether the backtranslation was used to check for inconsistencies.

Table 6: Number of Countries Satisfied with Data Quality by Source of Data and MDG/WSC

MDG/WSC Goals (N = 31)	Source of Data				
	MICS			Non-MICS	
	Did Module	Used Results	Satisfied	Reported on MDGs	Satisfied
Water & Sanitation	29	14	14	7	5
Salt Iodization	26	16	16	5	2
Education	25	12	12	15	2
Tetanus Toxoid	26	12	12	14	7
Acute Respiratory Infections	25	11	10	11	7
Diarrhoea	30	15	15	8	4
Vitamin A	20	9	7	8	2
Breastfeeding	28	16	15	8	5
Immunization	30	13	13	13	7
Anthropometry	22	12	12	10	9
Mortality	12	5	5	15	8

2. Problems in data analysis and report writing

About one-third of the 23 countries that had a problem with processing and analysing data reported that their main problem was with the EPI-Info program. These countries represent about half of the countries that actually used the programme. According to several countries the programme contained a number of errors, and had to be revised "to suit the data collected".

Other countries reported they had limited expertise available to use the programme to conduct data analysis. Additional problems reported included the absence of a standardized analysis plan for the survey data; establishing the correct definition of selected indicators; the management of processing large data sets; and inconsistencies or differences between the results of the analysis and previous findings from routine reporting.

A third of the countries indicated that they had no problem with writing the MICS report. Among the remaining countries the two problems that were cited most often were the lack of staff experience or expertise in report writing, and insufficient time to complete the report.

3. Timeliness of the report

These issues are illustrated further by the time period taken by countries to complete the final reports of their MICS. (Time period was defined as the difference in months between the date that the MICS data were available and the date of completion of the final report.) Of the 27 countries for which data are available, 8 countries completed the final report in one month, and another 9 took two to four months. However, 10 countries required six months or more to complete the report, which negates the advantage of a quick turn-around time that MICS should have in comparison to other surveys.

4. Inconsistency with other data

UNICEF staff in Turkmenistan noted that the sex ratio of children reported in the MICS was unlikely to be correct. In India, large inconsistencies between MICS and NFHS results at the state level bring serious questions to bear on the quality of MICS data.

The country case studies provided information on another type of data quality issue, i.e., those problems relating to technical errors in sampling and calculations. For example, in at least two countries, there were discrepancies between the sample design and the actual sampling done in the field. In Lesotho, one interviewer, who was conscious of the fact that relatives often live in neighbouring households and that their characteristics might be similar, said that if she found a close family member occupying the next house, she would skip one or two houses before taking another household. In Turkmenistan, according to the MICS report, the supervisors performed the final stage of household selection and were instructed to obtain the most recent census lists, number the occupied dwellings and select 30 households at random. However, a supervisor who was interviewed indicated that she routinely provided a starting point for the interviewer (selected randomly) and the interviewer administered the questionnaire to every household usually in a line from the starting point to obtain the required number of respondents. If no one was available in the household, the next household would be visited. These irregularities have the potential to result in a biased sample.

With regard to calculation errors the evaluation team noted inaccuracies in the weighting of the results in Iran and Burkina Faso, and inconsistencies in some of the tables in the Burkina Faso

report. In the Turkmenistan report, there was a discrepancy in one table between the proportions of children "ever breastfed" and "currently breastfeeding", and the method used for weighting the data was not described. In Lesotho, there appeared to be a problem involving the classification of areas into ecological zones and problems with the denominators in the data on sanitary facilities.

D. USE OF MICS RESULTS

Because the original purpose of the MICS was to fill data gaps and enable countries to report on MDGs, the use of the data to report on MDGs is of special interest. Among the countries that responded to the survey, only half used the MICS data in reporting on MDGs (see Table 6). Similarly, among the case-study countries only three of the six used any of their MICS data to report on MDGs. The data were not available in time to report on MDGs in India and Lesotho, because of the delays in completion of the MICS. Turkmenistan also did not use their MICS data for MDG reporting because of politics and because of their reliance on existing data sources. Only Iran and Burkina Faso were consistent in using the MICS data, in that all of the available data from the MICS were used to report on MDGs.

All but three of the countries responding to the mailed questionnaire provided examples of how MICS data had been used in their country. These examples are categorized into four areas and within each, findings from the case study countries are presented.

1. Advocacy for bringing attention to children's health issues, particularly low levels of immunization and high levels of malnutrition. The measles coverage in Turkmenistan from MICS was substantially lower than official reports (66% versus 90%). Although all government officials interviewed indicated that the MICS data cannot replace official data and that they would continue to use the results of their routine data reporting systems, the data from the MICS were important in focusing attention on the issue and resulted in some changes in immunization practice.

2. Planning and Development for country- and lower-level (province, district, etc.) health programme interventions. Although hampered by the fact that they have not yet been made official by the production of a final report, the results of the MICS in Lesotho are already being used in UNICEF planning and to prepare the National Plan of Action. The press in Lesotho has quoted the MICS results in various news items it produces.

A special full-day meeting was held in Iran to celebrate achieving nearly all the MDGs (except ORT usage and malnutrition decrease). The meeting was attended by the President and received extensive media coverage. The country went on to design interventions to reduce malnutrition and changed its training strategies for diarrhoea control.

There are numerous examples of the data from the MICS in India being used at the state and district levels. The results of the MICS in the state of Gujarat showed that the urban slum

population of children and women was uniformly lower on all health indicators than the rural population. This resulted in action on the part of the state government, which launched intensive programmes on immunization, control of diarrhoea disease, ARI and training of traditional birth attendants (TBAs). In Andhra Pradesh, although the data were considered to have a wide confidence interval, they were still considered useful in ranking districts. The UNICEF State Office Water and Sanitation Officer used the diarrhoea incidence data to identify the district with the highest rate of diarrhoea to target for water and sanitation efforts.

3. Evaluation of programmes by using MICS data as a baseline against which follow-up MICS or other surveys would be compared to assess changes in health indicators. Some of the MICS data were used in the "Report on China's Child Development at the Mid Decade of the 1990's" which was prepared by the National Working Committee for Children and Women. Although the validity of the vitamin A and anthropometry data from the MICS had been questioned, the Committee report concluded that moderate and severe malnutrition among those aged less than five years had declined.

In Burkina Faso the MICS results were "disappointing". However, the data were still used for evaluating their NPA.

4. Supplementing or Confirming data from routine reporting systems. The State Education Commission in China used the MICS data to verify their results from their routine reporting system on level of enrollments. And in Turkmenistan the MOE used the MICS data to confirm their data on high enrolment rates for children.

All of the country offices indicated that MICS data have been important for guiding policy and programmes within UNICEF, and about 70% believed that the data were "very important" for this activity. When asked about possible negative effects on country programmes only one country responded affirmatively, i.e., that MICS was labour intensive and reduced staff time to conduct other planned activities.

The MICS data were also considered important for guiding policy and programmes within government and for planning and conducting further research. Around three-fifths of the country offices responded that MICS data were "very important" for these activities.

E. CAPACITY BUILDING

The country offices believed overwhelmingly that the implementation of the MICS improved the local capacity for conducting survey research. Twenty-seven of the 29 offices responded that capacity was improved. The most frequently cited improvements for government staff were the organization, management and coordination of surveys, followed by increased skills in data processing. Improvements cited most frequently for UNICEF staff were methodological, including additional skills for design of samples and questionnaires, and new skills for data

analysis and interpretation. This latter finding is further supported by the country office responses to the question of how important MICS data have been in improving the understanding of data-related issues in UNICEF. Three quarters of the countries responded that MICS was "very important" in increasing the understanding of these issues. In contrast, although all offices responded that MICS was important for improving the understanding of data related issues in government, less than half believed that MICS was "very important" for this improvement.

Technical assistance from headquarters and the regional offices was provided to 18 and 16 of the countries, respectively, that responded to the questionnaire survey. Thirteen countries agreed that the technical assistance from headquarters was appropriate in content and quality, while 4 agreed that it was appropriate in content, but insufficient in quantity. Only 1 country reported that the quality of the assistance was low. Similarly, 12 countries agreed that the technical assistance from regional offices was appropriate, 3 agreed that it was appropriate but insufficient in quantity, and only 1 reported that quality was low.

Although the questionnaire survey indicated that capacity for conducting surveys was increased, there was limited evidence that capacity building was achieved as a result of MICS in the countries visited. MICS was, however, often a learning experience for those involved. In some countries it was mentioned that the interviewers benefit from learning about health and living conditions. Since they are often current or future health workers and educators, this can have a beneficial impact on the country. However, this does not necessarily reflect a significant increase in capacity to plan and conduct a survey.

Some of the countries are already able to conduct fieldwork without outside assistance so capacity was not built. In Burkina Faso, there was already extensive experience conducting surveys, and the increment due to MICS does not seem large. However, they all have weaknesses in the area of data analysis and/or report writing. For instance, Iran already had quite extensive experience in conducting surveys, but there is still limited capacity within the Ministry of Health and Medical Education for data analysis.

In China, the State Statistical Bureau reported that their prior experience in conducting the 1992 child survey was helpful in preparing for the MICS, and that the MICS questionnaire was comparatively easy. At best it can be said that understanding of data issues has been increased among government officials through the comparison of other data sets with MICS results.

In Lesotho, it is not clear that a large-scale survey like the MICS can be conducted in the future without technical support. Without the involvement of the international consultant, planned data analysis still has not been completed.

In Turkmenistan, the idea of a random sample survey was new and interesting for the statistical office, and it was reported that they were now able to conduct sample surveys independently for UNDP and the World Bank as a result of the MICS. In the past data collection was via routine administrative reports, and the MICS helped the government to think about using data for

planning rather than simply collecting it routinely. However, because government counterparts were not involved in data analysis or report writing, it is not likely that capacity was increased in these areas.

In India, there is considerable variation among the states because of the variety of implementing agencies used. In the State of Gujarat, the Population Research Council had previously been involved in the National Family and Health Survey, so the MICS contributed little to capacity building for the Council. Many of the medical colleges who implemented surveys had prior experience with EPI surveys, and the MICS was implemented in much the same way. It was, however, reported that they now had a broader perspective as a result of the MICS.

F. FUTURE MONITORING NEEDS

Most of the MICS countries said that MICS should be conducted again in the future, and half already have plans to do so. This section discusses the financial resources needed; the timing for conducting future MICS; suggested revisions of the modules; indicators that should be added to the MICS; additional use of MICS; a comparison of MICS with other methods of data collection; and the adaptation of MICS to monitor other indicators.

1. Financial resources needed

As mentioned in Section III.B.5 above, the average cost of conducting a MICS is \$80,000, plus government and UNICEF staff time. This should be considered as the minimum cost as the future surveys will be higher because they may include more indicators, and/or indicators which are more difficult to measure. More than 80% of the countries indicated that MICS could not be conducted in the future without external financial assistance.

2. Interval between surveys

There is little difference between the number of countries that prefer a time interval of two years or five years for using the modules on water and sanitation, salt iodization, education, diarrhoea, breastfeeding and anthropometry. However, larger numbers of countries would like to use the ARI and vitamin A modules at two-year intervals rather than at five-year intervals. In contrast, more countries indicated that the mortality module should be used every five years rather than at two-year intervals.

3. Revision of modules

Fifteen countries provided their views on the modules that they believe needed to be revised. Most of them are to make the survey more useful for programmes. For example, a suggestion is for the immunization module to include a question on the reasons for failure to immunize.

4. Additional indicators

The questionnaire survey also asked country offices to list any other indicators that should be added to the MICS. Twenty countries provided suggestions. A quarter of these countries said that malaria should be included, while the majority of countries suggested indicators to be used for monitoring the implementation of the CRC, e.g., child labour and disability, and street children. Other indicators included the percentage of children aged 3-5 years attending pre-school; HIV/AIDS knowledge among women and adolescents; access to public health care and information; family planning; ORT usage; and the proportion of assisted deliveries.

5. Additional use of MICS

Suggestions for other potential uses of MICS were given by 26 countries responding to the questionnaire survey. About half of the countries indicated that MICS could be used in the monitoring and evaluation of the WSC and CRC goals. Fund raising, advocacy for policy reform, and programme planning were other suggested uses of MICS given by several countries.

6. Comparison with MICS to other methods of data collection for monitoring WSC goals or CRC

Based on the criteria of time and cost to produce estimates on MDG indicators at the national level that monitor the progress of countries toward achieving MDGs, MICS has a comparative advantage over other surveys and sentinel community surveillance systems. MICS generally requires less time, and according to the cost analysis discussed above, is more cost-efficient than most other methods.

However, the use of MICS for the purpose of evaluating the impact of programme interventions on the MDGs has no comparative advantage over other methods. This issue is raised because results from many of the countries surveyed, and from the key informant interviews, indicated that MICS would be used to provide baseline and follow-up information from which programme impacts could be inferred. The question that the MICS answers is, "what is the level of the estimate of the MDG indicator?" and if two MICS are done, "what is the change in the estimate of the MDG indicator?" The evaluation question, "what programme or programmes are responsible for these levels or changes in levels?" cannot be answered by the MICS, because the survey does not collect data on the factors (independent variables) that could account for these levels and their changes. This would include exposure to or participation in a programme(s) and factors affecting this participation.

Further, the sample design would have to be more flexible to allow for stratification of areas selected into those that received different levels of programme inputs. This would allow comparisons to be made between the different programme areas on their levels or changes in levels of a particular indicator, from which programme impacts could be inferred. This of course would not be necessary if a country had only a single programme aimed at affecting a MDG.

However, obviously many countries have child health programmes that are implemented through NGOs and other private-sector organizations in addition to government programmes, and an evaluation would attempt to disentangle their effects.

7. Adaptation of MICS to monitor other indicators

The MICS, like any survey, can be adapted from its MDG focus to monitor other indicators. In some countries this has already occurred. However, before the MICS can be adapted to collect information on CRC indicators, these indicators must be specified. Thus far, the concerns of the CRC with street children, child labour, and child disability would pose formidable data collection problems for MICS or any other approach. Floating populations such as street children are often difficult to locate and follow on a regular basis; identifying child labour that is not household based (often forced labour) requires locating and monitoring places of employment whose owners are often reluctant to cooperate; and attempts to identify children with disabilities in households often meets with underreporting because parents do not want "outsiders" to know that their children are disabled. This latter point was illustrated in the MICS conducted in Yunan Province of China where a question was included on children's disabilities and respondents were reluctant to answer.

IV. SUMMARY AND RECOMMENDATIONS

This last section summarizes the lessons learned regarding the six key issues addressed by this evaluation, and presents recommendations for each issue based on these lessons.

A. *MANAGEMENT OF THE MICS*

The initiative to conduct a MICS was introduced from headquarters by a series of communications and Executive Directives in 1994 and 1995. The MICS evolved over this time period with the development of a standardized questionnaire, detailed manual, and standardized software for the data processing.

MICS was introduced to government counterparts of about half the countries through participation in regional workshops on MICS. These workshops have been highly rated by UNICEF staff. Although the evaluation does not allow a definite conclusion, there is some suggestion that participation in these workshops seemed to be associated with a better MICS.

Government ownership of MICS was achieved in two (Iran and Burkina Faso) of the six countries visited through the establishment of intersectoral committees that were responsible for making decisions regarding the MICS. In the other four countries, government ownership was less evident, and the MICS was viewed primarily as a UNICEF activity.

The MICS manual developed at headquarters was rated highly by both MICS and non-MICS countries. Suggestions for improvement of the manual given by these countries focused on the section of the manual on sampling.

In preparation for the MICS, most countries conducted training on interviewing, sampling, data processing and analysis, and questionnaire design. Training was also provided on report writing and dissemination of findings, but to a lesser extent than the other areas. Although the questionnaire survey does not allow an assessment of the different trainings conducted, the findings from the six countries visited indicate that the amount of time devoted to training of supervisors and, in particular, interviewers seemed too short.

Information exchange on the management, organization and implementation of MICS between and within levels of UNICEF was generally minimal. The exception was, however, in Africa where there was considerably more involvement by the regional offices.

Recommendations regarding the management of MICS include the following:

1. As discussed in the MICS manual, to increase government ownership, all government sectors having an interest in the MICS results should be involved in the process of planning the MICS, and in the dissemination and use of the data. This should include health, education, statistical offices, and representatives of provinces, states or districts, and whenever appropriate national institutions/coordinating bodies on children's rights.
2. The MICS manual should be revised to include more information on sample design and alternatives when reliable sampling frames are not available.
3. The period for training interviewers and supervisors together should allow sufficient time for training on the selection of the sample, extensive role playing for practice interviews, and the observation and assessment of interviewers in the field by the supervisors.

B. IMPLEMENTATION OF THE MICS

The proportion of countries reporting that "major revisions" were made in the MICS modules was low. There was, however, considerable variation between the proportion of countries that chose not to use particular modules. The three modules that were used the least are mortality, anthropometry and vitamin A. The reasons given were that data were already available on the first two, and the third was not considered relevant for country health programmes in the countries that dropped it. Mortality was an optional module, and the recommendation was not to measure anthropometry if there had been a survey in the previous three years.

MICS was implemented as a collaborative effort by different institutions/agencies in some countries, and in others they were conducted by individual institutions. Survey coordination was the overall responsibility of UNICEF, NSO and MOH, while sample selection was the primary responsibility of UNICEF and NSO. The responsibility for fieldwork rested mainly with MOH and NSO. Local consultants played a greater role in all three activities than international consultants, but reliance on consultants in general was minimal.

The level of involvement of government staff in training, data collection, entry and analysis as might be expected was greater than the involvement of UNICEF staff in these activities. Both government and UNICEF staff had an equally high involvement in writing the final MICS reports. As for survey coordination, there was little involvement of international consultants in all of the survey activities, however, local consultants were involved substantially with data analysis and report writing.

Few problems were reported with the planning of the MICS. However, there were problems with sampling because sampling frames were either unavailable or, if available, were inaccurate. An assessment of the sampling used in MICS indicated that generally countries used the most recent population census as their sampling frame. The majority of MICS countries used the "traditional survey approach" of selecting a systematic sample of households at the final stage of selection. However, a significant minority did not, even though some could easily have done so.

The primary problem reported in the fieldwork was inadequate transportation to sample points, while the major problem with processing and analysing data was with the EPI-Info. All countries needed to adapt the purpose-written programme to follow the changes they made in the questionnaire, and moreover the programme apparently contained several errors.

Lack of staff expertise and insufficient time for writing were problems associated with the preparation of the final MICS report. A third of the countries required six months or more to complete their reports from the time their preliminary data were available. This problem must be addressed if MICS is to have the advantage of a shorter turn-around time over other surveys in the future.

Almost all countries said that financial and technical resources for past MICS were adequate. The range of costs for conducting a MICS varied from a low of \$15,000 for Turkmenistan to a high of \$570,000 for China. If the cost of UNICEF staff time and travel is excluded then the average cost of a MICS is just under \$112,000.

The MICS at an average variable cost of \$80,000 (excluding not only all the UNICEF staff and travel costs mentioned above, but also the government staff costs which may all be interpreted as fixed costs) seems to have fulfilled the requirement of keeping costs reasonably low while still producing accurate results relatively fast. This makes it seem a cost-efficient exercise.

Recommendations regarding the implementation of the MICS are as follows:

1. As the MICS manual suggested, if the indicator could be reported from existing sources, MICS need not be used to collect it.
2. In addition to global goals, the selection of the modules or other questions to be included in the MICS should also be based upon the relevance of the goal that will be measured by the module/questions for the country.
3. Additional training and technical assistance through regional workshops should be provided in the areas of data analysis and report writing. If the EPI-Info programme is to be used, training should include methods to revise the special programme or create a new one when changes are made to the questionnaire.
4. The section of the MICS manual on sampling should place greater emphasis on the use of probability methods. The use of non-probability methods, such as 'random walk', or purposive sampling as sometimes used in sentinel community surveillance methods, should be discouraged. The only exception might be in the case of certain emergency country situations, where it may not be possible to use probability methods. Further recommendations on sampling that should be included in the MICS manual are: use only two stages of sample selection; avoid large and small alternate area units; use PPS sampling methods correctly; adjust for changing measures of size; weight where necessary; avoid biases; and calculate sampling errors only when valid.

C. *OUTPUTS OF THE MICS*

The level of satisfaction with the quality of data obtained for each of the MDG was high among all of the MICS countries. However, the level of satisfaction among non-MICS countries with the data they collected for their MDGs was much lower.

In most countries, no concern had been expressed to the UNICEF country offices about the validity of the MICS data. However, a minority of offices did report that concerns had been expressed to them, and these same concerns were also identified by the evaluators in some of the countries visited. These included:

- the absence of translations of questionnaires into local languages;
- the limited skills (or, at least, training) of supervisors and interviewers; and
- inconsistencies between MICS results and the results from other surveys and/or reporting systems (though, of course, the other systems could have been at fault, too).

Recommendation: The MICS questionnaire should be backtranslated and the backtranslation should be compared to the original questionnaire to check for inconsistencies, and not just used as a reference. A pilot test should precede the training of interviewers and finalization of the questionnaire.

D. USE OF MICS RESULTS

Only about half of the MICS countries used their data to report on MDGs. The data were often not available in time for MDG reporting, and in some cases government officials did not accept the results. However, the MICS data were used by almost all countries for other purposes. These included advocacy for bringing attention to children's health issues, particularly low levels of immunization and high levels of malnutrition; planning and development for country and lower level (province, district, etc.) health programme interventions; evaluation of programmes by using MICS data as a baseline against which follow-up MICS or other surveys would be compared to assess changes in health indicators; and supplementing or confirming data from routine reporting systems.

The majority of UNICEF country offices believed that the MICS data were "very important" for guiding policy and programmes within UNICEF and governments, and for planning and conducting further research.

The additional training and technical assistance in data analysis and report writing (recommended under MICS implementation above) should contribute to a more timely completion of the MICS reports and their availability for monitoring the EDGs.

Recommendation: Dissemination workshops should be held upon completion of each MICS with concerned government officials and relevant agencies. The purpose of the workshops would be to present the MICS results and assess their reliability and utility compared to other data sources for reporting on the EDGs. This could contribute to more informed decisions on the part of government officials regarding the data that would be used for the EDGs.

E. CAPACITY BUILDING

The country offices believed overwhelmingly that MICS improved the capacity for conducting survey research among government and UNICEF staff. Improvements among government staff included the organization, management and coordination of surveys. Among UNICEF staff, the improvements included additional skills to design samples and questionnaires, and new skills for data analysis and interpretation. Further, the majority of the countries believed that understanding of data-related issues in UNICEF had been increased.

Although capacity for data collection exists in many countries, a substantial number of countries are still unable to complete their data analysis and final reports on time. Furthermore, the problems of capacity will have to be addressed more directly in the future among other countries planning to do a MICS. The primary reason given by countries for not conducting a MICS was that there was "insufficient technical expertise" to conduct the survey.

Technical assistance was provided from headquarters and the regional offices to slightly over half of the MICS countries. The majority of the countries indicated that the technical assistance was appropriate in content and quality. While there were no complaints about the quality of technical assistance from headquarters with respect to MICS, there were reports that the initial political support for MICS had disappeared. Many countries and regional offices reported a general lack of direction regarding monitoring the WSC and CRC. The shift in management and policy in UNICEF has left many staff members confused about the future of MICS.

Recommendation: Countries which did not do a MICS from lack of expertise should be targeted for appropriate training inputs and technical assistance to provide and build the capacity required to conduct their MICS. This will require the development of a formal management plan for assistance in specific areas of need, and the establishment of a set of criteria upon which countries can be judged as eligible for the assistance.

F. FUTURE MONITORING NEEDS

The majority of the countries surveyed indicated that MICS should be conducted in the future. They felt the best interval between surveys was one year for the immunization modules, and two years for the ARI and vitamin A modules. They were evenly divided between choosing two and five years as the optimum interval for all other modules.

Half of the countries provided suggestions for revising the modules. Many of these included the addition of other questions to the modules. For example, the inclusion of questions on waste disposal for water and sanitation; home management and case management for ARI and diarrhoea, respectively; and reasons for failure to immunize and possible causes of malnutrition.

Suggestions were also made regarding the indicators that should be added to the MICS, and the potential uses of the MICS. The former included malaria and indicators for monitoring the implementation of the CRC (child labour, disability, and street children). The latter included monitoring and evaluation of the WSC goals and CRC, fund raising, advocacy for policy reform, and programme planning.

MICS has a comparative advantage over other methods of data collection for monitoring WSC or CRC goals. First, MICS utilizes probability samples to obtain nationally representative estimates of indicators for MDGs. Other methods such as rapid appraisal and sentinel surveillance may use purposive sampling designs that cannot yield nationally representative estimates. Second,

MICS generally requires less time, and is more cost-efficient than other national surveys, e.g., the Demographic and Health Surveys.

However, the use of MICS to evaluate the impact of programme interventions on the MDG/EDG has no comparative advantage. Reasons for this assertion include the lack of data collected by MICS on programme factors and other independent variables that could be related to different levels of an indicator; and a sample design that does not necessarily include stratification of population areas on the different programme interventions that are implemented in the areas.

Almost all countries said that financial and technical resources for past MICS had been adequate. However, they also said that future MICS could not be conducted without external financial assistance, while they believed the surveys could be conducted without external technical assistance.

The MICS, like any other survey, can be adapted from its MDG focus to monitor other indicators. This has already occurred in some countries. However, before the MICS can be adapted to collect information on CRC indicators, these indicators must be specified. The measurement of the concerns of the CRC, including the areas of street children, child labour and child disability, will pose formidable data collection problems for MICS as for other approaches.

Recommendations regarding future monitoring needs are as follows:

1. The MICS should be used in the future, suitably modified to monitor WSC and other CRC indicators as they develop. The MICS should not be used for evaluation of programme impact unless appropriate data on programme interventions and other factors that could affect the change in indicators is available to link with the MICS data.
2. The time interval between MICS should be a minimum of two years, because the majority of indicators will not change dramatically within one year, and should be at most five years. The exception to this would be if an intervention programme were implemented that targeted an indicator such as immunization that can change measurably within a short time period. In the absence of such an intervention or increased inputs for ongoing programmes, a minimum of two years for each MICS would seem appropriate and five years adequate.
3. External financial assistance should be made available as needed.
4. Future uses of MICS will be determined by the need for data at different levels. That is, with decentralization of government occurring in many countries and planning taking place at the peripheral levels, the MICS will be used less for national level estimates of indicators of well-being of children and women. Indicators will be collected for monitoring and planning at provincial, state, and district levels. Often the institutional capacity at these levels to conduct MICS will not be as good as the central level. This will require more staff time including technical assistance through regional and national workshops by UNICEF to ensure that the

MICS are conducted to the highest standard. Therefore, it is important that the resources of UNICEF, which have been underused particularly in Asia, be called upon to fill the impending need for assistance to the new MICS that will be conducted in the future.

ACRONYMS

ARI	-	Acute respiratory infections
CARK	-	Central Asian Republics and Kazakhstan (UNICEF)
CDC	-	Centers for Disease Control and Prevention
CEE/CIS	-	Central and Eastern Europe/Common Wealth of Independent States
CES	-	Coverage evaluation survey
CRC	-	Convention on the Rights of the Child
EAPRO	-	East Asia and Pacific Regional Office (UNICEF)n
ECA	-	(United Nations) Economic Commission for Africa
EDG	-	End-decade goal
EPI	-	Expanded programme on immunization
ESARO	-	East and Southern Africa Regional Office (UNICEF)
MDG	-	Mid-decade goal
MENA	-	Middle East and North Africa Regional Office (UNICEF)
MICS	-	Multiple Indicator Cluster Survey
MOE	-	Ministry of education
MOH	-	Ministry of health
NFHS	-	National Family and Health Survey
NGO	-	Non-governmental organization
NPA	-	National Plan of Action
NSO	-	National statistical office
ORT	-	Oral rehydration therapy
PHC	-	Primary health care
PPS	-	Probability proportionate to size
ROSA	-	Regional Office for South Asia (UNICEF)
TACRO	-	The Americas and Caribbean Regional Office (UNICEF)
TBA	-	Traditional birth attendant
UNDP	-	United Nations Development Programme
UNESCO	-	United Nations Educational, Scientific and Cultural Organization
UNFPA	-	United Nations Population Fund
UNICEF	-	United Nations Children's Fund
WCARO	-	West and Central Africa Regional Office (UNICEF)
WHO	-	World Health Organization
WSC	-	World Summit for Children