

SURVEY DESIGN FOR THE 2005-2006 UZBEKISTAN MULTIPLE INDICATOR CLUSTER BASED SURVEY

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I. SAMPLE DESIGN

The purpose of this document is to provide recommendations for the sample design of the 2005 MICS survey, and the corresponding selection procedures to be done prior to the survey implementation.

1. OBJECTIVES OF THE SAMPLE DESIGN

- (1) The 2005 MICS survey is designed to allow reliable estimates for a defined set of mid decade assessment indicators to profile the situation of women and children in Uzbekistan to monitor the process toward the goals of the Millennium Declaration, the World Fit for Children declaration and other summit goals, based on a representative probability sample.
- (2) The major domains to be distinguished in the tabulation of important characteristics for the eligible women and children up to five population are provided below as two main options for further consideration:

OPTION 1	OPTION 2
<ul style="list-style-type: none">• Uzbekistan as a whole• Total urban and total rural areas• The (6) main geo-economical areas of the country<ol style="list-style-type: none">1. Western: (Republic of Karakalpakstan & Khorezm)2. Central: (Bukhara, Navoi, Samarkhand)3. Southern: (Kashkadarya, Surkhandarya)4. East-Central: (Jizzakh, Syrdarya, Taskentskaya obl.)5. Eastern: (Andizhan, Namangan, Fergana)6. Tashkent city	<ul style="list-style-type: none">• Uzbekistan as a whole• Total urban and total rural areas• The 14 main administrative regions of the country<ol style="list-style-type: none">1. Republic of Karakalpakstan2. Bukhara3. Andizhan,4. Jjizzakh,5. Kashkadarya,6. Navoi7. Namangan,8. Samarkhand9. Surkhandarya10. Syrdarya11. Taskentskaya oblast12. Fergana13. Khorezm14. Tashkent city

- (3) The primary objective of the 2005 MICS is to provide estimates with acceptable precision for important population characteristics and maternal and child health indicators as vaccination coverage, diarrhea prevalence, nutritional status, infant mortality for children under five etc..

For instance, with any prevalence estimate for any population group (women or child under five) being equals to 15% or more, with a denominator based on 1200 cases or more, the relative error (absolute error divided by prevalence value) for the prevalence estimate is less than 10%.

- (4) The population to be covered by the MICS2005 is defined as all women age 15-49 and children under five years of age in Uzbekistan.

2. SAMPLE SIZE

Sample size is a function of several parameters – precision requirements for the particular indicators that are thought to be the key ones, the need for sub-national indicator data that are reasonably reliable and the survey budget.

For sample size calculation there was used the formula recommended for MICS2005, that emphasizes *relative margin of error** instead of % of absolute error¹. The MICS Manual urges countries to find a sample size that will enable them to measure their most important indicators with a margin of error equal to 12-percent of the indicator coverage rate (95 percent level of confidence).

According to the MICS Manual the formula to calculate the sample size is given by:

$$n = [4 (r) (1 - r) (f) (1.1)] / [(.12r)^2(p)(n_h)]$$

where

- n - is the required sample size, expressed as number of households, for the KEY indicator
- 4 - is factor to achieve 95 percent level of confidence,
- r - is anticipated prevalence (coverage) rate for key indicator,
- 1.1 - is factor to raise sample size by 10 percent for potential nonresponse,
- f - is shortened symbol for design effect (=1.5),
- 0.12r - is margin of error to be tolerated at region-base domain, defined as 12 percent of r (12 percent thus represents the relative sampling error of r),
- p - is proportion of total population that five birth cohorts comprise and
- n_h - is the average household size².

Generally, the key indicator that is used to determine the sample size is an immunization rate, r, pertaining to children under five years of age, the latter of which is presumed to comprise about 15 percent of the total population.

Taking into consideration that previous reported and survey based estimates of the vaccination coverage indicators are relatively high in Uzbekistan (over 90%), consideration was given to use other important country specific indicators that would have a relatively low prevalence, and would yield a sufficient sample size for most of indicators. Using diarrhea and acute respiratory infections prevalence in children under five was considered, however their relative low prevalence (<10% according to MICS2000) results in producing very large sample size, that would be exaggerated for most of other indicators. It is proposed therefore to use estimated prevalence of the moderate to severe stunting of 20% for children < 5 year of age, based on UHES2002 estimates.

The proportion of children under five in Uzbekistan is 9.5% nationally, and this also is taken into account in the calculations below.

The average household size in Uzbekistan according to UHES2002 is estimated 5.3³.

1 www.childinfo.org/mics3/workshop/presentations/sampling

2 Uzbekistan Health Examination Survey, 2002

In the situation when only national-wide representative estimates would have been sufficient, using the above mentioned formula would result in a sample size of 3641 households for MICS 2005 in Uzbekistan.

Responding to the need to produce reliable sub-national region based estimates additionally to national estimates and urban/rural domains, the following rationales should be considered: Maintaining precision requirement for the sub-national domains would require increasing the domain-based estimate by a factor of D, where D is the number of domains of the sample. Under scenario 1 that would result in a $3641 \times 6 = 21846$ households sample and under scenario two – in a $3641 \times 14 = 50974$ households sample. In both cases the sample size is rather large, its implementation requires significant resources and might be considered impractical.

One option to reduce the sample size is increasing the national-level sample size by the factor $D^{.65}$ where D is the number of domains⁴. The reliability of each domain's estimate is somewhat less than the national estimate under this approach. Applying that approach to ours case would result in a sample size of 11669 households under the first scenario and of 20244 household under the second scenario. Although the sample size was reduced significantly, it still requires important efforts to be implemented.

The recommended option is to accept a higher relative error for region-based estimates in order to achieve a reasonable compromise between the need for such estimates and budgetary constraints.

According to the MICS3 manual reporting domains might have their margins of error relaxed considerably – even as high as 25 to 30 percent of r.

Below are provided sample size estimates for two scenarios: the first is based on 6 domains (involving grouping country administrative regions by common criteria into 6 geo-economical areas) and the second is based on 14 domains (allowing separate estimates for each of the 14 main administrative regions of the country).

Calculation of the overall sample size is based on estimates for one domain, increased by the factor 6 under scenario 1 and by the factor 14 under scenario 2.

Item	Scenario 1:	Scenario 2:
No. of domains	6	14
Margin of error to be tolerated at region-base domain	0.17	0.22
Domain-based sample size (no. of households)	1649	986
Total sample size (no. of households)	1649 X 6 domains = 9896 households	986 X 14 domains = 13804 households

Under the scenario 1 it is expected that for any prevalence indicator of 20% and more, the relative error (95 percent confidence level) for the national estimates is less than 8% and for urban/rural estimates – less than 10%. For domain based estimates a higher relative error (17%) will be accepted in order to achieve a reasonable compromise between the need for such estimates and budgetary constraints. It is worth mentioning that for any domain estimate with a prevalence of 40% and higher, a relative error of 12% or less will be achieved.

Under the scenario 2 it is expected that for any prevalence indicator of 20% and more, the relative

3 Uzbekistan Health Examination Survey, 2002

4 “A Critical Review of MICS Sampling Methodology,” , Report by Verma to UNICEF, April 1995

error (95 percent confidence level) for the national estimates is less than 7% and for urban/rural estimates – less than 9%. For domain based estimates a higher relative error (22%) will be accepted in order to achieve a reasonable compromise between the need for such estimates and budgetary constraints. It is worth mentioning that for any domain estimate with a prevalence of 50% and higher, a relative error of 12% or less will be achieved.

3. SAMPLE FRAME

The last census was conducted in Uzbekistan by the State Statistical Committee in 1989. Consequently its data do not represent a reliable source for the sampling frame, taking into consideration important socio-economical and demographical changes that happened in the country during the last 16 years.

In 2002 Uzbekistan conducted a 4380 household nationally representative population Health Examinations Survey (UHES) with the support of ORC Macro. The frame for the selection of the primary sampling units was the 1999 Administrative Listing of Population, published by the State Department of Statistics, which provided population data for all major cities, small cities, towns, and villages in Uzbekistan. The frame was divided into urban and rural sectors. 219 sample segments were allocated by four regions to urban and rural areas within each region proportional to the size of those areas. Taking into consideration the reduced no. of PSU in the UHES sample (219 sample segments), different design of reporting domains, the time passed since the frame was established (1999), as well as availability of alternative sources, it would not be recommended to use both the frame and the sample for MICS 2006 purposes.

In 2002 the State Committee of Statistics has conducted a countrywide population review, which provided population data for all major cities, small cities, towns, villages and population segments called “mahalea” or “enumeration areas” (EA) in Uzbekistan. The main advantage of this data is availability of the “mahalea” level of dis-aggregation that will make the sampling process simpler.

The list of EAs has population data for each EA, and the EA’s lists are grouped by administrative unit. The average size of the rural EA was 1358 persons and the average size of the urban EA was 3471 persons. There were established 14799 EAs in Uzbekistan. While no major population movements are reported since 2002, still, the above mentioned data will require updating the listing of the population in selected primary sampling units. Unfortunately, there are no sketch maps available for the enumeration areas at the State Committee of Statistics.

4. STRATIFICATION

All further discussion will be focused on implementing the sampling scenario no.1, based on 6 geoeconomical areas and 11,500 households.

In the population review frame, EAs are grouped by location in the major 14 administrative areas. Each EA is classified as urban or rural. Therefore such stratification by administrative regions and urban and rural areas is also reflected in the MICS sample. The following is the list of strata used for the sample selection:

Sampling strata (Scenario 1)

- | | |
|--|-------|
| 1. Western: (Republic of Karakalpakstan & Khorezm) | Urban |
| 2. Western: (Republic of Karakalpakstan & Khorezm) | Rural |
| 3. Central: (Bukhara, Navoi, Samarkhand) | Urban |
| 4. Central: (Bukhara, Navoi, Samarkhand) | Rural |
| 5. Southern: (Kashkadarya, Surkhandarya) | Urban |
| 6. Southern: (Kashkadarya, Surkhandarya) | Rural |
| 7. East-Central: (Jjizzakh, Syrdarya, Taskentskaya oblast) | Urban |
| 8. East-Central: (Jjizzakh, Syrdarya, Taskentskaya oblast) | Rural |
| 9. Eastern: (Andizhan, Namangan, Fergana) | Urban |
| 10. Eastern: (Andizhan, Namangan, Fergana) | Rural |

5. CLUSTER SIZE

The size of the primary sampling unit (cluster) was defined as 28 households. Calculations are based on estimated interview time for one household to be equal to 60 minutes. Considering the 8 hours working day, one interviewer is supposed to complete interview in 5 households. One team of four interviewers is expected to complete interview in one cluster during 1.5 working days, allowing also sufficient time for movement (from cluster to cluster and inside the cluster) and conducting early morning and late evening call back visits when appropriate (including call back visits during a subsequent day). Taking into consideration that immunization cards are kept traditionally in the health facilities in Uzbekistan (as well as in many other countries of the region), appropriate time was considered also for conducting such visits.

6. SAMPLE ALLOCATION

The sample for the MICS2005 is designed to be nationally representative, stratified and selected into three stages. Each of the six geo-economical areas of the country was stratified into two groups: 1) Urban areas and 2) Rural areas. As Tashkent city does not include any rural area, the stratification scheme resulted in 11 strata. The total sample for the MICS 2005 survey is to select 10,500 selected households, and based on the level of non-response found in the UHES2002 approximately 13,600 women age 15-49 and 6200 children under five will be interviewed.

Table 1. Expected ratios of completed interviews of Women and Children under five in selected households by Urban/Rural areas

Domain	Population review 2002		UHES2002					
	Estimated # of HH	Distribution of HH	Selected No. of HHs*	Sample HH distribution	Completed eligible women	Completed eligible Kids	Compl. Women / selected HH	Compl. Kids / selected HH
Uzbekistan : Urban	2,267,749	0.42	2021	0.461	2200	903	1.09	0.45
Uzbekistan : Rural	3,194,145	0.58	2364	0.539	3263	1661	1.38	0.70
Total	5,461,894	1	4385	1	5463	2564	1.25	0.12

In the following table the assumption was made that the expected ratios of completed interviews of Women and Children under five in selected households in each of the six urban strata and each of the five rural strata will follow the total Urban/Rural patterns. Based on UHES2005 urban/rural response rates and proportional distribution of rural/urban population in each of the six geo-economical areas, there were estimated response rates for each of the above mentioned areas.

Table 2. Expected number of selected households to reach the target of completed interviews by administrative regions

Domain	Population review 2002					Estimates based on UHES2002	
	Estimated # of HH			Distribution of HH		Completed Women / selected HH	Completed Kids <5 / selected HH
	Total	Urban	Rural	Urban	Rural	W/HH	CH/HH
Western	567,810	237,500	330,310	0.42	0.58	1.44	0.61
Central	964,987	329,935	635,052	0.34	0.66	1.30	0.56
Southern	781,248	208,783	572,466	0.27	0.73	1.30	0.56
East-Central	790,145	326,283	463,862	0.41	0.59	1.22	0.49
Eastern	1,358,129	496,957	861,172	0.37	0.63	1.26	0.78
Tashkent city	468,326	468,326	-	1.00	-	1.25	0.58
Uzbekistan	4,930,645	2,067,783	2,862,862	0.42	0.58		

The following table shows the distribution of about 10,500 households for selection in each domain.

The number of PSUs was calculated by major domain and includes proportional and disproportional sample allocation.

Table 3. Proportional and disproportional sample allocation

Domain	Proportional allocation (HHs)	Sqrt (HHs)	Distribution Sqrt ()	Sqrt allocation (HHs)	Adjusted sample (HHs)	Expected Completed Women	Expected Completed Kids
Western	1209	754	0.14	1,476.6	1,480	2132	905
Central	2055	982	0.18	1,924.9	1,920	2491	1079
Southern	1664	884	0.16	1,732.0	1,730	2245	972
East-Central	1683	889	0.17	1,741.8	1,740	2116	848
Eastern	2892	1165	0.22	2,283.6	2,280	2874	1774
Tashkent city	997	684	0.13	1,341.0	1,340	1669	784
Uzbekistan	10500	5358	1.00	10500	10490	13528	6363

While the samples for the Western, Central and Southern domains would be sufficiently large for providing reliable estimates, it is not the case for Est-Central and Taskent city areas. The sample of the Eastern region is excessively large for the established precision objective of this survey, leading to unnecessary waste of time and resources. For this reason it was necessary to reduce the sampling rate for the above mentioned domain relatively to other domains and increase the sampling rate for Est-Central and Taskent city areas.

A suggested final adjusted sample is provided to have at least 1000 eligible children up to 5 completed in each domain that will yield not less than 165 children in one birth cohort.

The selected households are distributed in 375 clusters in Uzbekistan.

The following table shows the distribution of selected households for the MICS2005, and the number of EUs by each of the eleven domains in Uzbekistan

Table 4. Final recommended sample size

Domain	Household sample for selection	Expected Completed Women	Expected Completed Kids	No. of PSU for selection
Total				
Western	1,680	2,115	1,002	60
Central	1,624	2,079	998	58
Southern	1,596	2,080	1,014	57
East-Central	1,708	2,153	1,021	61
Eastern	1,680	2,140	1,023	60
Tashkent city	2,212	2,408	988	79
Uzbekistan	10,500	12,975	6,046	375
Urban				
Western	700	762	313	25
Central	560	610	250	20
Southern	420	457	188	15
East-Central	700	762	313	25
Eastern	616	671	275	22
Tashkent city	2,212	2,408	988	79
Uzbekistan	5,208	5,670	2,327	186
Rural				
Western	980	1,353	689	35
Central	1,064	1,469	748	38
Southern	1,176	1,623	826	42
East-Central	1,008	1,391	708	36
Eastern	1,064	1,469	748	38
Tashkent city	-	-	-	-
Uzbekistan	5,292	7,305	3,719	189

Neither the 375 EUs distribution between domains areas nor the households sample distribution is proportional to the last population inventory distribution. That is due to the disproportional number of EAs and therefore the household sample for the MICS2005 is not a self-weighted household sample.

7. SAMPLE SELECTION

A three-stage sampling with implicit stratification will be implemented in Uzbekistan following the “Standard segment design-Option 2” described in the MICS3 manual.

The primary sampling unit (PSU) – or cluster - for the MICS2005 is defined on basis of EA from the 2002 population review frame, as having one (or more) EA per PSU.

In the first stage, 375 PSU will be selected in each stratum with equal probabilities.

The numbers of clusters in each domain area was calculated dividing its total allocated number of households by the sample take of 28 (number of households for selection per EA).

In rural places the selection of PSU will be carried out independently for each of the five rural strata, and in urban places independently for each of the six urban strata. In each stratum implicit geographical stratification will be introduced by ordering rayons/cities from North to South in a serpentine manner. Within each rayon, EA will be ordered sequentially by SSG/mahalea.

Due to some enumeration areas are so large that it is not economically feasible to carry out a new listing of all households, it is more efficient to use segments. Each enumeration area is assigned a measure of size equal to the desired number of “standard segments” it contains. In the MICS3

manual it is recommended that the number of standard segments be defined (and computed) by dividing the census population of the enumeration area by 500 and rounding to the nearest whole number.

The next step is to select sample enumeration areas in each domain using probability proportional to this measure of size (the number of segments).

The selection is done using the following formula:

$$P_{1i} = (b s_i / \sum s_i)$$

where

b: number of EAs in the MICS2005 in a given domain area,

s_i : measure of size (the number of segments) of i-th EA

$\sum s_i$: measure of size for the corresponding domain area

At the second stage of sampling, segmentation will be performed in selected sample enumeration areas using available maps or sketch maps produced in the field. When the number of segments in the sample enumeration area is equal to one, no segmentation is necessary, because the segment and the enumeration area are one and the same. The segmentation is necessary only if the number of segments is greater than one. The sampled enumeration area will be subdivided in parts equal to the number of segments, with each part containing roughly the same number of households.

After segmentation, one segment is selected at random in each sample enumeration area. The probability of selection at this stage is represented by the following formula:

$$P_{2i} = 1/s_i$$

where

s_i : number of segments of i-th EA,

In each selected EA, a household listing operation will be carried out during the next 60 days. The updated list of households obtained will be used as the frame for the third stage of sampling. Households will be selected to achieve a fixed sample take per cluster. However, since the MICS2005 sample is unbalanced among domain areas, it will require a final weighing adjustment procedure to provide estimates at the national domain of study.

In a given domain for the i-th cluster, if (c) is the fixed number of households selected out of the total households (L_i) -found in the 2005 listing process- then the household probability in the selected i-th cluster can be expressed as

$$P_{3i} = (c / L_i)$$

The final households overall probability in the i-th cluster could be calculated as

$$f_i = P_{1i} * P_{2i} * P_{3i}$$

and the sampling design weight for the i-th cluster is given as

$$1/f_i = 1 / (P_{1i} * P_{2i} * P_{3i})$$

II. UPDATING LISTS OF HOUSEHOLDS

Before the start of the fieldwork, the selected PSUs will be updated (i.e. mapping and household enumeration) so that complete household lists are available for the final selection of households in the sample. The updating will be carried out by 14 enumeration teams for a period of 28 working days. Each team is composed of two trained enumerators. Three supervisors should be assigned to oversee the listing/mapping activities. The implementing agency (IA) will organize a 4-day training session for enumeration fieldwork within the 7 days prior to the commencement of the fieldwork. Enumeration activities will include taking geo-reference points with GPS units. The Household Listing Manual of the DHS program will be adapted and utilized during this training.

The IA will provide supplies, office space and transportation arrangements for the enumeration fieldwork. At least 16 vehicles (including for supervisors) will be needed for five weeks while the teams update selected PSU maps and carry out the listing of households.

III. PREPARATION OF THE QUESTIONNAIRES

Three questionnaires will be used during the MICS2005: 1) a household questionnaire; 2) an individual questionnaire for women age 15-49 years; and 3) an individual questionnaire for children up to five years. These three instruments will be based on the questionnaires developed within the framework of the MICS2005 program, and will be adapted to the specific conditions of Uzbekistan in consultation with the steering committee.

MICS questionnaires used in Uzbekistan:

Household modules	Women's modules	Under-5 modules
<ul style="list-style-type: none"> • Household Information Panel • Education • Water and Sanitation • <i>Additional Household Characteristics</i> • Child Labor • <i>Disability</i> • <i>Maternal Mortality</i> • Salt Iodization 	<ul style="list-style-type: none"> • Women's Information Panel • Child Mortality • Maternal and Newborn Health • Marriage/Union • Contraception + Unmet Need • <i>Attitudes Toward Domestic Violence</i> • <i>Sexual Behavior</i> • HIV/AIDS • 	<ul style="list-style-type: none"> • Under-5 Child Information Panel • Birth Registration and Early Learning • <i>Child Development</i> • Vitamin A • Breastfeeding • Care of Illness + Source and Cost of Supply of ORS and Antibiotics • Immunization • Anthropometry

* **MICS Core modules** / MICS Additional modules / *MICS Optional modules*

After the final questionnaires have been agreed upon, they will be translated into Russian and Uzbek . There should be taken into consideration the high proportion of **Karakalpak** population (???) in the country that may require additional translation of questionnaires. These translated questionnaires will be used during training and practice in the field. Translation of documents must be completed before the pretest. In addition to the questionnaires, other technical documents will be needed and produced prior to training: the manual/guidelines/worksheets for interviewers, team leaders/supervisors/editors.

Anthropometric measurements:

All children under age 5 years will be weighed and measured in order to determine their nutritional

status (wasting, insufficient weight and stunting).

Salt test:

In all the households surveyed, salt used for cooking will be tested to determine its iodine content. Results of the test will determine the proportion of women and children living in households using sufficiently iodized salt.

IV. PRE-TEST

The IA will make the necessary arrangements for organizing a pretest of the MICS2005 as soon as the questionnaires have been finalized and translated. The objective of the pretest is to detect problems in the questionnaires and their translations, as well as to evaluate the time necessary for conducting the interviews. UNICEF will provide external consultancy support to the process. It also will pay attention that selected candidates have good learning capacity in order to allow local capacity building. Participants of the pretest are intended to act afterwards as team leaders/editors and national coordinators.

There will be recruited 26 candidates for the pretest. Questionnaires will be pretested in both Uzbek and Russian language. Training for the pretest will last about one week and will include theoretical and classroom practice followed by 2-3 days field work, during which around 300 women and about 150 children under five will be interviewed: interviews will be conducted in Uzbek and in Russian so that eventual problems in translation can be identified. During training, health experts will present basic information on the various areas covered by the survey.

Results from the pretest will be used to modify the survey instruments and field procedures, if necessary.

V. TRAINING OF DATA COLLECTION STAFF

Twelve teams of field staff will be recruited by the IA for the main survey. Each team will be composed of a fieldwork supervisor (male), a field editor (female) and four female interviewers. All interviewers will receive training to take height and weight measurements. All candidates for the field staff positions will be selected on the basis of their maturity, their skill in communicating with respondents, their level of education, their knowledge of Uzbek and Russian (Karakalpak where appropriate) languages and availability to work away from home for an extended period. Those participants demonstrating the strongest qualifications will be selected for fieldwork.

The candidates will participate in two weeks of training dealing with all aspects of the survey. A greater number of candidates than needed will be trained so that the best of these may be chosen and so that reserve staff is available in case of need. The training will take place in a venue of sufficient size to accommodate the candidates. The local trainers will be chosen from the candidates participated in pretest. National field work coordinators should play a key role in assisting the training process. UNICEF will provide consultancy support in order to facilitate it if necessary. Presentations on specific topics will be made by personnel from the Ministry of Health and other appropriate institutions.

The training program will include: a detailed description of the content of the questionnaires; a presentation of interview techniques and explanations on the way to fill out the questionnaires, practice interviews in the classroom, and practice interviews in the field. Each interviewer will carry out at least ten interviews throughout the training period.

Finally, two days will be reserved for team leaders to train them in the manner of observing interviews

in the field, editing completed questionnaires and controlling the quality of the height and weight measurement.

After having completed the training session, every field staff member must have an in depth knowledge of their role in the collection of the data in order to achieve maximum effectiveness in the fieldwork.

VI. DATA COLLECTION WORK

Data collection will last about eight weeks. Each team will complete interviews in four to five clusters per week. The IA will make the necessary central office space available to survey personnel as well as vehicles and communication equipment for field activities. About twelve (12) vehicles (sufficiently large to hold 6 people) will be necessary for the collection teams, at least two (2) vehicles for technical supervision from the IA.

There must be close communication between the central office of the IA and field personnel during collection work. Details concerning supervision and communication will be discussed during training and will be included in the interviewer's and supervisor's manuals.

Quality control will be ensured through supervision and follow-up of teams during fieldwork. Team leaders will be responsible for the quality of work of their team: they will hold regular meetings with their team in order to reinforce their training and correct any errors committed during collection. In addition, team leaders must re-interview about 5% of households in order to control data quality. These re-interviews, limited to certain sections of the questionnaire, will be undertaken before leaving the cluster.

In order to strengthen quality control, the IA will designate two (2) coordinators who will be present in the field throughout the period of the survey. They will have to visit the field staff regularly, and will be responsible for quality control of interviews (assist in interviews and verification of questionnaires), as well as for follow up of the anthropometric measurements.

Finally, the IA will produce a set of quality control tables at least once every two weeks throughout data collection in order to verify the quality of the data. In the event that after examining these tables, it appears that a team and/or an interviewer is doing work of particularly mediocre quality, then this team and/or this individual will be dismissed and replaced in the shortest possible time. Consultant will provide guidance in the programming and design of these quality control tables.

VII. DATA PROCESSING

After editing and correction in the field, the questionnaires from all regions will be sent to the IA on a weekly base. Two data entry coordinators (programmers) will supervise the data processing activities overall and will be in charge of the management and archiving of the questionnaires. Once having arrived at the central office, the questionnaires will be registered and verified against the sample by 2 office editors. Entry and verification (double entry) of all questionnaires will be carried out by ten (10) data entry personnel.

All data processing activities will take place in Tashkent, where the IA will provide computers for the period of data processing. Data entry coordinators and office editors will attend a portion of the training for male/female interviewers in order to familiarize themselves with the questionnaires and to understand their internal logic.

Data entry, editing and tabulation will be achieved by using CSPro, software developed by the MEASURE DHS project and the Bureau of the Census of the United States. UNICEF HQ will provide entry,

editing, and tabulation programs using CSPro and will provide assistance to the IA for installing the programs and the entire data processing system for the MICS. The IA will provide a room sufficiently large to contain 10 data entry stations and furnished with shelves to allow for storage of the questionnaires. This workspace must be secure and electricity must be assured on a regular basis.

Data entry will be done using a program that monitors the range of data and the logic of skips in the questionnaire, as well as internal coherence. Editing of data will include the verification of data ranges and thorough monitoring of the internal consistency of the data. All errors detected during the editing process will be corrected. Once the verification and cleaning of data has been completed, imputed dates will be added to the data file, weighting factors will be calculated and added to the data file and all necessary tables for both the preliminary and final reports will be produced and verified. These tables will be based on the standard tabulation plan of the MICS program, adapted to the specific needs of Uzbekistan data users and other stakeholders.

VII. TIME-LINE OF THE SURVEY ACTIVITIES

The recommended time-line for the survey activities is provided in the appendix A.

VIII. SURVEY BUDGET

The provisional survey budget is attached in the appendix B