APPENDIX A. SAMPLE DESIGN

The sample for the Iraq Multiple Indicator Cluster Survey was designed to provide estimates on a large number of indicators on the situation of children and women at the national level; for *areas of residence* of Iraq represented by rural and urban (metropolitan and other urban) areas; for the 18 *governorates* of Iraq; and also for metropolitan, other urban, and rural areas for each governorate.

Thus, in total, the sample consists of *56 different sampling domains*, that includes 3 sampling domains in each of the 17 governorates outside the capital city Baghdad (namely, a "metropolitan area domain" representing the governorate city centre, an "other urban area domain" representing the urban area outside the governorate city centre, and a "rural area domain") and 5 sampling domains in Baghdad (namely, 3 metropolitan areas representing "Sadir City", "Resafa side", and "Kurkh side", an other urban area sampling domain representing the urban area outside the three Baghdad governorate city centres, and a sampling domain comprising the rural area of Baghdad).

A multi-stage, stratified cluster sampling approach was used for the selection of the survey sample.

Sample Size and Sample Allocation

The adequate sample size n_s for each of the 56 sampling domains, is 324 households. Thus, the target sample size for the Iraq MICS was calculated as 18144 households (= 56 n_s). The following formula was used to estimate n_s

$$n_s = \frac{Z_{1-\alpha/2}^2 \cdot P(1-P) \cdot \text{deff}}{E^2}$$

where

n_s	=	The required sample size for each sampling domains, expressed as the number of households
$Z_{1-a/2}$	=	z-value determined by the confidence level
	=	1.96 for 95% confidence limits
deff	=	design effect
	=	2
p	=	The estimate of the proportion
	=	0.5 (assumed maximum)
E	=	The total width of the expected confidence interval
	=	0.077

therefore,

$$n_s = \frac{(1.96)^2 \, 0.5(0.5)2}{(0.077)^2} = 324$$

Sample sizes and terms of error for all sampling domains, governorates, and total are shown in Table SD.1. Terms of error are being decreased to less than 7.7% for the governorate and national level, urban; rural; and total.

The allocation of the Iraq MICS3 survey is not self weighting due to the requirement of reporting on different levels of representation, as indicated above.

The Sample size of each of urban (other) and rural area is allocated among districts with respect to the population in each of urban and rural area. Table SD.2 shows the details of sample allocations. These calculations are based on a cluster size of 6 households. Sample has adjusted internally in order to get integer number of clusters i,e applicable to divide by 6.
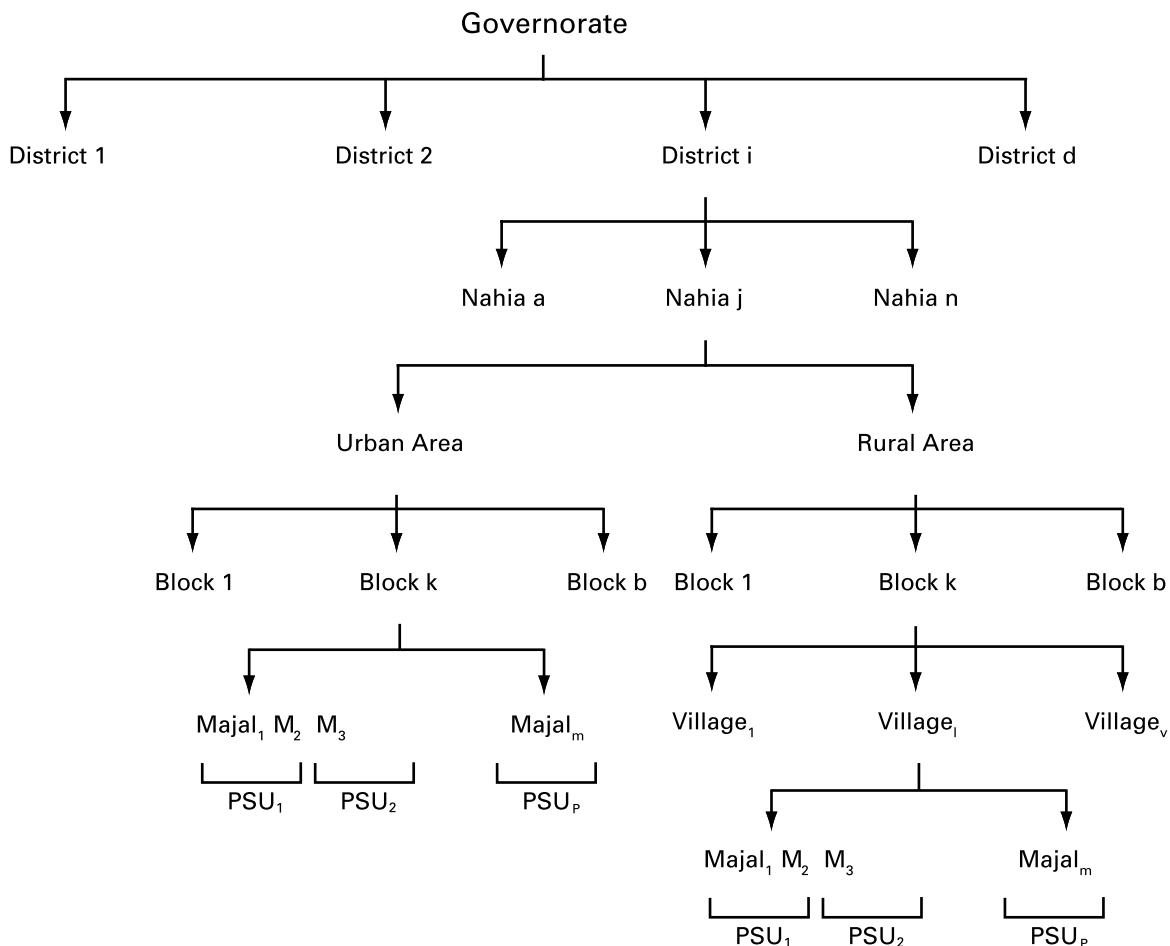
Sampling Frame

The sample frame for the MICS-3 survey is divided into two separate parts. The first is derived from the 1997 census of Iraq, and covers the 15 Southern governorates. The second is based on information provided by the statistical offices in the three governorates of Kurdistan region, with a very similar administrative organization of the first part.

The census list is a complete listing of individuals following the administrative organization of the census. It is organized as a file with the following variables:

The lowest area unit is the majal, which may be a full geographical street, but is more often a part of such a street. These units are usually quite small (less than 30 households) and can therefore not be used directly as sampling clusters in the first stage of the sample. It is often impossible to draw the second stage sample

Variable	Explanation
Muhafaza	Governorate, region
Qadha	District
Nahiya	Municipality
Area	Urban rural identifier (1=urban, 2 rural, 3 nomad)
Block	Block. Group of either villages or majalas, depending on whether it is in rural or urban areas, respectively.
Qarya	Village – Only used in rural areas, may contain one or more blocks
Majal	Lowest administrative level, for the census purposes
Street	Street number
Building	Building number within street
Famseq	Family sequence number within street

of households from these units, due to two facts . First, that they contain too few households, and second that the population growth and migration, it is likely that the 1997 census does not accurately represent the population distribution of Iraq. The relisting of majals to some extent corrects this, but parts of the population are most likely not covered by the census are likely to be missed by the survey. The majals therefore have to be merged. PSUs are constructed by merging majalas and sometimes blocks. This is done by computer, and may lead to some PSUs being split into non-contiguous locations. The following diagram shows the structure of the sample frame, and the manner of merging the majals.

Approximated PSU size is 70 – 100 HHs (two – four majals).

Sample selection procedures

a. Primary Sampling Units Selection
Taking in consideration sample allocations, table 2; and no. of sample clusters, table 3, the primary sampling units construction and selection are done by,

1. Listing the majals, for each location, according to the administrative arrangements, starting from majal no.1 of block no.1, and ending with the last majal of the last block in the location.

2. Constructing the PSUS for each location by merging 2-4 neighboring majals. The PSU size should not exceed 100 HHs. The expected PSU size lies between 70- 100 HHS.

3. Selecting a number of PSUS, equal to the required number of clusters in each location, by using the PPS procedures.

b. Segmenting of PSUs
In some cases it may be necessary to segment PSUs after the mapping and listing procedures. This can be due to several reasons, like:

1. The PSU is so large (in terms of households) that it is impractical to list it completely

2. The PSU is not necessarily very large, but the arrangement of the housing is so complex that it is deemed prudent to only list a comparatively small geographic area.

3. The merging of the households has led to a PSU being geographically very spread out, for instance that it contains two villages that are very far from each other.

The three cases will be treated as follows:

The first case of large PSUs, will be split according to the following table:

MICS-3 Splitting rules

# of households PSU	Split into this number of clusters
100-200	2
201-300	3
... and so on	

In order to segment, the boundaries of the required number of segments within the PSU should be determined. Then the size of segments (number of households) should be quick-counted and the selection of the segments should be done using PPS selection. The precise procedure is described in the mapping and listing manual.

The second case of very difficult PSUs, might arise in for instance old parts of towns. One should not reduce the expected number of households in the PSU to less than 70. The decision to split must be taken by the sampling team, not the local field staff.

The third case of villages that turns out to be geographically far apart, is not necessarily a problem, because the sample will be spread out all over the governorate. It is therefore quite possible that the field teams will visit close to all selected villages. However, if it is necessary to segment the PSU, the segments will be villages, and the selection of one village will be carried out by using PPS selection. Again, the decision to split must be taken by the sampling team, not the local field staff.

c. Mapping and listing of PSUs and segments
The selected PSUs weremapped (or maps updated) and re-listed. The purposes of the mapping and re-listing are two: first, to enable selection of households, and second, to enable interviewers to locate the selected households.

The mapping and listing is described in detailed in the mapping and listing manual. In some cases, as noted above, it was necessary to segment the PSU. All households within a selected PSU, or segment of PSU, were listed.

In conjunction with the mapping, exact geographical coordinates (longitude and latitude) of the PSU were determined using a GPS-receiver. The measurement was taken approximately in the middle of the PSU. The procedure is described in the IMIRA GPS-manual (Iraq Living Conditions Survey, 2004).

d. Selection of households
Linear systematic sampling is used to select six households from the list of re-listed households. The sample is considered as a sample of households, not dwellings. The selected households is considered as a " cluster " (table 3).

e. Substitution
No substitution of selected PSUs or households is to take place.

f. Additional households in dwelling units
The list of households is intended to be a complete list of households in a PSU. Therefore, if two households are found in one dwelling unit, only the one the interviewer has been instructed to interview should be interviewed. The other household should in principle be listed separately on the household list, and therefore has an independent chance of being included in the sample.

Table SD.1: MICS3 – 2006 sample sizes and terms of error for sampling domains, governorates and total

| Governorate | Indicators | Urban | | | Rural | Total |
		Metropolitan	Others	Urban (Total)	Rural (Total)	
Dohuk	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Nineveh	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Suleimaniya	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Kirkuk	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Erbil	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Diala	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Al-Anbar	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Baghdad (Sadir City)	n1	324				
	E1	0.077				
(Resafa side)	n2	324				
	E2	0.077				
(Kurkh side)	n3	324				
	E3	0.077				
Baghdad	n	972	324	1296	324	1620
	E	0.044	0.077	0.038	0.077	0.034
Babil	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Kerbela	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Wasit	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Salahuddin	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Al-Najaf	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Al- Qadisiya	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Al-Muthanna	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Thi-Qar	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Missan	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Basrah	n	324	324	648	324	972
	E	0.077	0.077	0.054	0.077	0.044
Total	**n**	**6480**	**5832**	**12312**	**5832**	**18144**
	E	**0.017**	**0.018**	**0.012**	**0.018**	**0.01**

n: Sample size

E: absolute error (with C.L. 95%)

Table SD.2: MICS3 - 2006 Sample Allocations

Governorate	District	Urban Population No.	Urban %	Urban Sample Size (nu)	Urban Adjusted Sample Size*	Rural Population No.	Rural %	Rural Sample Size (nr)	Rural Adjusted Sample Size*	Total Sample Size (n)	Total Adjusted Sample Size* (N)
Dohuk	Dhok QC**	114322	100	324	324	8977				324	324
	Dhok QC	2993	3	9	12	5871	9	29	30	38	42
	Al-Amadiya QC	12926	12	40	42	14887	23	74	72	114	114
	Zakho QC	69777	67	217	210	14140	22	70	72	286	282
	Sumail QC	18692	18	58	60	30719	47	152	150	210	210
	Total	**218710**	**100**	**324**	**324**	**65617**	**100**	**324**	**324**	**972**	**972**
Nineveh	Al-Mosul QC	917988	100	324	324					324	324
	Al-Mosul QC	51150	15	48	48	220144	28	92	90	139	138
	Al-Hamdaniya QC	36718	11	34	36	66170	9	28	30	62	66
	Tilkaif QC	51509	15	48	48	85178	11	35	36	84	84
	Sinjar QC	24605	7	23	24	143621	18	60	60	83	84
	Telafar QC	150635	43	141	138	125973	16	52	48	193	186
	Al-Shikhan QC	11972	3	11	12	23421	3	10	12	21	24
	Al-Hather QC	7920	2	7	6 ***	31335	4	13	12	20	18
	Al-Baaj QC	12222	4	11	12	82291	11	34	36	46	48
	Total	**1264719**	**100**	**324**	**312**	**778133**	**100**	**324**	**324**	**972**	**972**
Suleimaniya	Suleimaniya QC	364096	100	324	324					324	324
	Suleimaniya QC	15367	5	16	18	41668	16	52	54	67	72
	Suddamait Halabcha QC	18934	6	20	18	54668	21	68	66	87	84
	Pishder QC	49986	16	52	54	27070	10	34	36	85	90
	Rania QC	12534	4	13	12	18873	7	23	24	36	36
	Dokan QC	24707	8	26	24	36000	14	45	42	70	66
	Der Bendi Khan QC	50300	16	52	54	20252	8	25	24	77	78
	Chamchamal QC	66128	21	68	66	22985	9	28	30	97	96
	Kalar QC	75145	24	78	78	40154	15	50	48	127	126
	Total	**677197**	**100**	**324**	**324**	**261670**	**100**	**324**	**324**	**972**	**972**
Kirkuk	Kirkuk QC	455378	100	324	324					324	324
	Kirkuk QC	25787	34	111	114	37054	17	54	54	165	168
	Al-Hawiga QC	39941	53	171	168	134306	60	196	192	367	360
	Daquq QC	9820	13	42	42	50885	23	74	78	116	120
	Total	**530926**	**100**	**324**	**324**	**222245**	**100**	**324**	**324**	**972**	**972**

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Table SD.2: MICS3 - 2006 Sample Allocations

Governorate	District	Urban Population No.	Urban %	Urban Sample Size (nu)	Urban Adjusted Sample Size*	Rural Population No.	Rural %	Rural Sample Size (nr)	Rural Adjusted Sample Size*	Total Sample Size (n)	Total Adjusted Sample Size* (N)
Erbil	**Erbil QC**	**445937**	**100**	**324**	**324**					**324**	**324**
	Erbil QC	19340	17	57	54	93409	54	175	174	231	228
	Makhmour QC	17371	16	51	54	24675	14	46	48	97	102
	Al-Siddiq QC	32659	30	96	96	30985	18	58	54	154	150
	Shaqlawa QC	41327	37	121	120	23989	14	45	48	166	168
	Total	**556634**	**100**	**324**	**324**	**173058**	**100**	**324**	**324**	**972**	**972**
Diala	**Baquba QC**	**173966**	**100**	**324**	**324**					**324**	**324**
	Baquba QC	54578	18	58	54	229075	35	113	108	171	162
	Al-Muqdadiya QC	67589	22	72	72	112937	17	56	54	128	126
	Al-Khalis QC	58460	19	62	66	172517	26	85	84	147	150
	Khanaqin QC	70769	23	75	72	60108	9	30	30	105	102
	Bladrooz QC	45251	15	48	48	53292	8	26	30	74	78
	Kifri QC	8290	3	9	12	28391	4	14	18	23	30
	Total	**478903**	**100**	**324**	**324**	**656320**	**100**	**324**	**324**	**972**	**972**
Al-Anbar	**Al-Anbar QC**	**161918**	**100**	**324**	**324**		#				**324**
	Al-Anbar QC	29486	8	25	24	180748	37	121	120	146	144
	Heet QC	46334	12	40	42	42518	9	28	30	68	72
	Al-Falluja QC	167192	44	144	144	196673	41	132	132	275	276
	Ana QC	18350	5	16	18	9778	2	7	***12	22	***66
	Haditha QC	43934	12	38	36	10870	2	7		45	42
	Al-Rutba QC	14289	4	12	12	6559	1	4	***30	17	***90
	Al-Kaim QC	57784	15	50	48	37303	8	25		75	72
	Total	**539287**	**100**	**324**	**324**	**484449**	**100**	**324**	**324**	**972**	**972**
Baghdad	**Al-Risafa QC**	**2021186**	**100**	**324**	**324**	32030	4	12	12	336	336
	Al-Karkh QC	**2185152**	**100**	**324**	**324**	152476	18	59	60	383	384
	Al-Sadeer QC	**1255434**	**100**	**324**	**324**	0	0	0		324	324
	Al-Mahmudiya QC	111314	26	84	84	350036	42	136	138	220	222
	Abu-Ghraib QC	181490	42	138	138	125744	15	49	48	187	186
	Al-Madain QC	136101	32	102	102	175469	21	68	66	170	168
	Total	**5890677**	**100**	**324**	**324**	**835755**	**100**	**324**	**324**	**0**	**1620**
Babil	**Al-Hilla QC**	**259499**	**100**	**324**	**324**					**324**	**324**
	Al-Hilla QC	22233	7	24	24	208547	34	110	108	133	132

Table SD.2: MICS3 - 2006 Sample Allocations

Governorate	District	Urban				Rural				Total	
		Population No.	%	Sample Size (nu)	Adjusted Sample Size*	Population No.	%	Sample Size (nr)	Adjusted Sample Size*	Sample Size (n)	Adjusted Sample Size* (N)
	Al-Mahawil QC	41661	14	44	48	140408	23	74	78	118	126
	Al-Hashimiya QC	111477	36	118	114	156922	25	83	78	200	192
	Al-Musayab QC	130786	43	138	138	110218	18	58	60	196	198
	Total	565656	100	324	324	616095	100	324	324	972	972
Kerbela	Kerbela QC	323317	100	324	324						
	Kerbela QC	14346	21	67	72	89006	44	143	138	210	210
	Ein Al-Tamur QC	5816	8	27	30	10346	5	17	24	44	54
	Al-Hindiya QC	48891	71	229	222	102513	51	165	162	394	384
	Total	392370	100	324	324	201865	100	324	324	972	972
Wasit	Al-Kut QC	198983	100	324	324						
	Al-Kut QC	14374	7	21	24	74164	20	65	60	87	84
	Al-Namaniya QC	41230	19	61	60	64106	17	57	60	118	120
	Al-Hai QC	56873	26	85	84	63339	17	56	60	141	144
	Badra QC	6718	3	10	12	9743	3	9	12	19	24
	Al-Suwaira QC	98500	45	147	144	155584	42	137	132	284	276
	Total	416678	100	324	324	366936	100	324	324	972	972
Salahuddin	Tikrit QC	66391	100	324	324	57798	12	38	36	362	360
	Tooz Garmato QC	72123	21	69	60	43819	9	29	30	97 #	90
	Samarra QC	95807	28	91	90	52534	11	34	36	125	126
	Balad QC	48188	14	46	48	112988	23	74	72	119	120
	Beygee QC	55443	16	53	54	58783	12	38	36	91	90
	Al-Daur QC	11806	3	11	12	27148	5	18	18	29	30
	Al-Shirqat QC	26237	8	25	30	75594	15	49	48	74	78
	Al-Faris QC	31079	9	30	30	68694	14	45	48	74	78
	Total	407074	100	324	324	497358	100	324	324	972	972
Al-Najaf	Al-Najaf QC	381486	100	324	324						
	Al-Najaf QC	6479	4	13	18	25110	11	35	36	48	54
	Al-Kufa QC	107732	67	218	210	96636	41	134	132	352	342
	Al-Manathera QC	46221	29	93	96	111378	48	155	156	248	252
	Total	541918	100	324	324	233124	100	324	324	972	972
Al-Qadisiya	Al-Diwaniya QC	231267	100	324	324						
	Al-Diwaniya QC	19493	12	38	42	86666	25	79	78	117	120

Table SD.2: MICS3 - 2006 Sample Allocations

Governorate	District	Urban Population No.	Urban %	Urban Sample Size (nu)	Urban Adjusted Sample Size*	Rural Population No.	Rural %	Rural Sample Size (nr)	Rural Adjusted Sample Size*	Total Sample Size (n)	Total Adjusted Sample Size* (N)
	Afaq QC	36459	22	71	72	70901	20	65	66	136	138
	Al-Shamiya QC	53736	32	105	102	119880	34	110	108	214	210
	Al-Hamza QC	56813	34	111	108	76116	22	70	72	180	180
	Total	**397768**	**100**	**324**	**324**	**353563**	**100**	**324**	**324**	**972**	**972**
Al-Muthanna	Al-Samawa QC	123475	100	324	324	59265	45	146	144	470	468
	Al-Rumatha QC	48539	67	217	216	25103	19	62	66	279	282
	Al-Salman QC	2455	3	11	12	7218	6	18	18	29	30
	Al-Khidhir QC	21400	30	96	96	39577	30	98	96	194	192
	Total	**195869**	**100**	**324**	**324**	**131163**	**100**	**324**	**324**	**972**	**972**
Thi-Qar	Al-Nasiriya QC	305940	100	324	324						
	Al-Nasiriya QC	29550	7	24	24	103377	21	69	66	93	90
	Al-Rifai QC	105274	27	86	84	139247	29	93	90	180	174
	Suq Al-Shoyokh QC	93964	24	77	78	92781	19	62	66	139	144
	Al-Chibayish QC	33108	8	27	30	14279	3	10	12	37	42
	Al-Shatra QC	132458	34	109	108	134818	28	90	90	199	198
	Total	**700294**	**100**	**324**	**324**	**484502**	**100**	**324**	**324**	**972**	**972**
Missan	Al-Amara QC	272286	100	324	324						
	Al-Amara QC	11847	8	26	24	57570	27	86	84	112	108
	Al-Gharby QC	11553	8	25	24	23183	11	35	36	60	60
	Al-Maymuna QC	21921	15	48	48	48512	22	73	72	120	120
	Kalaat Saleh QC	33616	23	73	72	32512	15	49	48	122	120
	Al-Majar Al-Kabeer QC	60626	41	132	132	25326	12	38	42	170	174
	Al-Kahlaa>	9304	6	20	24	28870	13	43	42	64	66
	Total	**421153**	**100**	**324**	**324**	**215973**	**100**	**324**	**324**	**972**	**972**
Basrah	Al-Basrah QC	658760	100	324	324	#				324	324
	Al-Basrah QC	60513	10	34	36	64206	20	66	66	100	102
	Abu Al-Khaseeb QC	124675	21	69	66	9426	3	10	6	79	72
	Al-Fao QC	13655	2	8	12	1835	1	2	***12	9	***90
	Al-Zubair QC	176035	30	98	96	81888	26	84	84	182	180

Table SD.2: MICS3 - 2006 Sample Allocations

Governorate	District	Urban Population No.	%	Sample Size (nu)	Adjusted Sample Size*	Rural Population No.	%	Sample Size (nr)	Adjusted Sample Size*	Total Sample Size (n)	Total Adjusted Sample Size* (N)
	Saddamiyyat Al-Qurna QC	74300	13	41	42	79232	25	82	78	123	120
	Shat Al-Arab QC	64481	11	36	36	19944	6	21	24	56	60
	Al-Midaina QC	69394	12	39	36	58101	18	60	60	98	96
	Total	**1241813**	**100**	**324**	**324**	**314632**	**100**	**324**	**324**	**972**	**972**

* Adjusted sample has been internally made in order to get integer number of clusters i,e applicable to divide by 6.

** Shaded area of first line refers to the metropolitan sample size.

*** For the requirement of estimating sampling errors, we need at least twelve households (two clusters) to each mini-stratum. For this reason, Al-Hather QC of urban area (6 HHs) is merged with Al- Baaj QC , and so on.

Table SD.3: MICS3 - Sample Size and allocation (households and clusters)

Governorate	District	Metropolition households	Clusters	Urban households	Clusters	Rural households	Clusters	Total households	Clusters
Dohuk	Dhok QC**	324	54	12	2	30	5	366	61
	Al-Amadiya QC			42	7	72	12	114	19
	Zakho QC			210	35	72	12	282	47
	Sumail QC			60	10	150	25	210	35
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Nineveh	Al-Mosul QC	324	54	48	8	90	15	462	77
	Al-Hamdaniya QC			36	6	30	5	66	11
	Tilkaif QC			48	8	36	6	84	14
	Sinjar QC			24	4	60	10	84	14
	Telafar QC			138	23	48	8	186	31
	Al-Shikhan QC			12	2	12	2	24	4
	Al-Hather QC			6	1	12	2	18 [12]	3 [2]
	Al-Baaj QC			12+6=18	2+1=3	36	6	48 [54]	8 [9]
	Total	**324**	**54**	**312**	**52**	**100**	**39**	**972**	**162**
Suleimaniya	Suleimaniya QC	324	54	18	3	54	9	396	66
	Suddamait Halabcha QC			18	3	66	66	84	69
	Pishder QC			54	9	36	36	90	45
	Rania QC			12	2	24	24	36	26
	Dokan QC			24	4	42	42	66	46
	Der Bendi Khan QC			54	9	24	24	78	33

Table SD.3: MICS3 - Sample Size and allocation (households and clusters)

Governorate	District	Metropolition households	Metropolition Clusters	Urban households	Urban Clusters	Rural households	Rural Clusters	Total households	Total Clusters
	Chamchamal QC			66	11	30	30	96	41
	Kalar QC			78	13	48	48	126	61
	Total	**324**	**54**	**324**	**54**	**324**	**279**	**972**	**387**
Kirkuk	Kirkuk QC	324	54	114	19	54	9	492	82
	Al-Hawiga QC			168	28	192	32	360	60
	Daquq QC			42	7	78	13	120	20
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Erbil	Erbil QC	324	54	54	9	174	29	552	92
	Makhmour QC			54	9	48	8	102	17
	Al-Siddiq QC			96	16	54	9	150	25
	Shaqlawa QC			120	20	48	8	168	28
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Diala	Baquba QC	324	54	54	9	108	18	486	81
	Al-Muqdadiya QC			72	12	54	9	126	21
	Al-Khalis QC			66	11	84	14	150	25
	Khanaqin QC			72	12	30	5	102	17
	Bladrooz QC			48	8	30	5	78	13
	Kifri QC			12	2	18	3	30	5
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Al-Anbar	Al-Anbar QC	324	54	24	4	120	20	468	78
	Heet QC			42	7	30	5	72	12
	Al-Falluja QC			144	24	132	22	276	46
	Ana QC			18	3	6	1	24 [18]	4 [3]
	Haditha QC			36	6	6+6=12	1+1=2	42 [48]	7 [8]
	Al-Rutba QC			12	2	6	1	18 [12]	3 [2]
	Al-Kaim QC			48	8	6+24=30	1+4=5	72 [78]	12 [13]
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Baghdad	Al-Risafa QC	324	54			12	2	336	56
	Al-Karkh QC	324	54			60	10	384	64
	Al-Sadeer QC	324	54			0	0	324	54
	Al-Mahmudiya QC			84	14	138	23	222	37
	Abu-Ghraib QC			138	23	48	8	186	31

Table SD.3: MICS3 - Sample Size and allocation (households and clusters)

Governorate	District	Metropolition households	Clusters	Urban households	Clusters	Rural households	Clusters	Total households	Clusters
	Al-Madain QC			102	17	66	11	168	28
	Total	**972**	**162**	**324**	**54**	**324**	**54**	**1620**	**270**
Babil	Al-Hilla QC	324	54	24	4	108	18	456	76
	Al-Mahawil QC			48	8	78	13	126	21
	Al-Hashimiya QC			114	19	78	13	192	32
	Al-Musayab QC			138	23	60	10	198	33
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Kerbela	Kerbela QC	324	54	72	12	138	23	534	89
	Ein Al-Tamur QC			30	5	24	4	54	9
	Al-Hindiya QC			222	37	162	27	384	64
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Wasit	Al-Kut QC	324	54	24	4	60	10	408	68
	Al-Namaniya QC			60	10	60	10	120	20
	Al-Hai QC			84	14	60	10	144	24
	Badra QC			12	2	12	2	24	4
	Al-Suwaira QC			144	24	132	22	276	46
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Salahuddin	Tikrit QC	324	54			36	6	360	60
	Tooz Garmato QC			60	10	30	5	90	15
	Samarra QC			90	15	36	6	126	21
	Balad QC			48	8	72	12	120	20
	Beygee QC			54	9	36	6	90	15
	Al-Daur QC			12	2	18	3	30	5
	Al-Shirqat QC			30	5	48	8	78	13
	Al-Faris QC			30	5	48	8	78	13
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Al-Najaf	Al-Najaf QC	324	54	18	3	36	6	378	63
	Al-Kufa QC			210	35	132	22	342	57
	Al-Manathera QC			96	16	156	26	252	42
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Al- Qadisiya	Al-Diwaniya QC	324	54	42	7	78	13	444	74
	Afaq QC			72	12	66	11	138	23
	Al-Shamiya QC			102	17	108	18	210	35

Table SD.3: MICS3 - Sample Size and allocation (households and clusters)

Governorate	District	Metropolition households	Clusters	Urban households	Clusters	Rural households	Clusters	Total households	Clusters
	Al-Hamza QC			108	18	72	12	180	30
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Al-Muthanna	Al-Samawa QC	324	54			144	24	468	78
	Al-Rumatha QC			216	36	66	11	282	47
	Al-Salman QC			12	2	18	3	30	5
	Al-Khidhir QC			96	16	96	16	192	32
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Thi-Qar	Al-Nasiriya QC	324	54	24	4	66	11	414	69
	Al-Rifai QC			84	14	90	15	174	29
	Suq Al-Shoyokh QC			78	13	66	11	144	24
	Al-Chibayish QC			30	5	12	2	42	7
	Al-Shatra QC			108	18	90	15	198	33
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Missan	Al-Amara QC	324	54	24	4	84	14	432	72
	Al-Gharby QC			24	4	36	6	60	10
	Al-Maymuna QC			48	8	72	12	120	20
	Kalaat Saleh QC			72	12	48	8	120	20
	Al-Majar Al-Kabeer QC			132	22	42	7	174	29
	Al-Kahlaa>			24	4	42	7	66	11
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**
Basrah	Al-Basrah QC	324	54	36	6	66	11	426	71
	Abu Al-Khaseeb QC			66	11	6	1	72 [66]	12 [11]
	Al-Fao QC			12	2	6+6=12	1+1=2	18 [24]	3 [4]
	Al-Zubair QC			96	16	84	14	180	30
	Saddamiyyat Al-Qurna QC			42	7	78	13	120	20
	Shat Al-Arab QC			36	6	24	4	60	10
	Al-Midaina QC			36	6	60	10	96	16
	Total	**324**	**54**	**324**	**54**	**324**	**54**	**972**	**162**

Calculation of Sample Weights

The Iraq Multiple Indicator Cluster Survey sample is not self-weighted. Essentially, by allocating equal numbers of households to each of the sampling domains, different sampling fractions were used in each sampling domain since the size of the sampling domains varied. For this reason, sample weights were calculated and these were used in the subsequent analyses of the survey data.

The major component of the weight is the reciprocal of the sampling fraction employed in selecting the number of sample households in that particular sampling domain:

$$W_h = 1 / f_h$$

The term fh, the sampling fraction at the h-th stratum, is the product of probabilities of selection at every stage in each sampling domain:

$$f_h = P_{1h} * P_{2h} * P_{3h}$$

where P_{ih} is the probability of selection of the sampling unit in the i-th stage for the h-th sampling domain.

Since the estimated numbers of households per enumeration area prior to the first stage selection (selection of primary sampling units) and the updated number of households per enumeration area were different, individual sampling fractions for households in each enumeration area (cluster) were calculated. The sampling fractions for households in each enumeration area (cluster) therefore included the probability of selection of the enumeration area in that particular sampling domain and the probability of selection of a household in the sample enumeration area (cluster).

A second component which has to be taken into account in the calculation of sample weights is the level of non-response for the household and individual interviews. The adjustment for household non-response is equal to the inverse value of:

RR = Number of interviewed households / Number of occupied households listed

After the completion of fieldwork, response rates were calculated for each sampling domain. These were used to adjust the sample weights calculated for each cluster. Response rates in the Iraq Multiple Indicator Cluster Survey are shown in Table HH.1 in this report.

Similarly, the adjustment for non-response at the individual level (women and under-five children) is equal to the inverse value of:

RR = Completed women's (or under-five's) questionnaires / Eligible women (or under-fives)

Numbers of eligible women and under-five children were obtained from the household listing in the Household Questionnaire in households where interviews were completed.

The unadjusted weights for the households were calculated by multiplying the above factors for each enumeration area. These weights were then standardized (or normalized), one purpose of which is to make the sum of the interviewed sample units equal the total sample size at the national level. Normalization is performed by multiplying the aforementioned unadjusted weights by the ratio of the number of completed households to the total unadjusted weighted number of households. A similar standardization procedure was followed in obtaining standardized weights for the women's and under-five's questionnaires. Adjusted (normalized) weights varied between 0.110 and 3.721 in the 56 sampling domains.

Sample weights (Table SD.4) were appended to all data sets and analyses were performed by weighting each household, woman or under-five with these sample weights.

Table SD.4: Weighing factors by metropolitan, other urban and rural areas

	Metropolitan				Other urban				Rural			
	Domain	HH	WM	CH	Domain	HH	WM	CH	Domain	HH	WM	CH
Dohuk	1	0.4601	0.4727	0.4721	18	0.8309	0.8483	0.8621	35	0.4652	0.4692	0.4756
Nineveh	2	2.4268	2.5307	2.5445	19	0.7356	0.7575	0.7544	36	2.0260	2.1008	2.0943
Suleimaniya	3	1.2744	1.3730	1.3029	20	1.7313	1.8636	1.8038	37	0.8393	0.9893	0.9019
Kirkuk	4	1.0801	1.0920	1.1043	21	0.1106	0.1116	0.1131	38	0.5237	0.5322	0.5354
Erbil	5	1.2890	1.3674	1.3523	22	0.8152	0.8489	0.8462	39	0.5052	0.5197	0.5182
Diala	6	0.5665	0.5726	0.5792	23	0.6206	0.6275	0.6344	40	1.6764	1.6910	1.7139
Al-Anbar	7	0.5226	0.5300	0.5343	24	0.9169	0.9355	0.9374	41	1.3369	1.3563	1.3759
Babil	8	0.7110	0.7212	0.7269	25	0.7165	0.7295	0.7325	42	1.6073	1.6270	1.6432
Kerbela	9	0.9221	0.9412	0.9458	26	0.1480	0.1514	0.1533	43	0.5762	0.5882	0.5891
Wasit	10	0.5234	0.5299	0.5388	27	0.4988	0.5031	0.5099	44	0.9340	0.9442	0.9549
Salahuddin	11	0.1683	0.1703	0.1726	28	0.8636	0.8775	0.9016	45	1.2625	1.2800	1.3082
Al-Najaf	12	0.9804	0.9957	1.0024	29	0.3879	0.3913	0.3966	46	0.6198	0.6317	0.6337
Al- Qadisiya	13	0.5986	0.6049	0.6120	30	0.3520	0.3566	0.3598	47	0.8755	0.8865	0.8951
Al-Muthanna	14	0.3028	0.3060	0.3096	31	0.1780	0.1802	0.1820	48	0.6075	0.6168	0.6211
Thi-Qar	15	0.8258	0.8372	0.8443	32	0.9064	0.9367	0.9301	49	1.2517	1.2809	1.2868
Missan	16	0.6668	0.6780	0.6920	33	0.3214	0.3249	0.3286	50	0.5348	0.5407	0.5467
Basrah	17	1.6576	1.7010	1.7372	34	1.2197	1.2761	1.2847	51	0.7833	0.8005	0.8031
Baghdad	52[1]	2.4650	2.5212	2.5201	55	3.6029	3.6552	3.7218	56	1.7407	1.7757	1.7950
Baghdad	53[2]	2.4811	2.5431	2.5458								
Baghdad	54[3]	3.0996	3.1566	3.2507								

[1] Sadir City, [2] Resafa side, [3] Kurkh side