Annex II

IDPs and returnees sampling frame and post-stratification for Iraq's high frequency mobile phone survey 2020.

1. IDP sample

As seen in table 1, almost all the IDPs in Iraq are currently located in the three governorates of Kurdistan region and five governorates of Northern region. Therefore, we limit the coverage of the mobile phone survey for IDP sample to those two regions and create 4 strata: Duhok (stratum 1), Erbil and Sulaimaniya (stratum 2), Nineveh (stratum 3) and rest of northern region i.e., Kirkuk, Diyala, Anber and Salah Al-deen (stratum 4).

Table A presents the proposed sampling frame for IDPs. For each stratum, a total of 200 IDPs/IDP households are proposed to be interviewed with in- and out-of-camp sample size proportion to respective population within the stratum.

Table A: Proposed IDP sample (800 total)							Additional required sample		
	Strata	Camp	Out-of-camp	Total		mVAM	Camp	Out-of-camp	Total
Kurdistan									
Duhok	1	96	104	200		18	96	86	182
Sulaimaniya	2	8	66	74		3	8	63	71
Erbil	2	9	117	126		5	9	112	121
Total		*113*	*287*	*400*		*26*	*113*	*261*	*374*
North									
Nineveh	3	71	129	200		6	71	123	194
Kirkuk	4	8	69	77		5	8	64	72
Diyala	4	5	36	42		9	5	27	33
Anbar	4	7	21	28		9	7	12	19
Salah al-deen	4	1	52	53		4	1	48	49
Total		*92*	*308*	*400*		*33*	*92*	*275*	*367*
Total		**205**	**595**	**800**		**59**	**205**	**536**	**741**

Table 2 presents the sample size requirement for a point estimate (proportion) at 0.05 margin of error (alpha level) for 95% and 90% confidence intervals. Similarly, tables 3 and 4 present sample size requirements for a one-sample proportion test against a reference value and to detect changes between rounds (over-time) respectively. The largest sample size is required when the initial prevalence proportion or value is 0.5 and decreases when moving away towards 1 or towards 0.

As seen in table 2, the proposed sample size of 200 per stratum will allow to estimate a prevalence rate of about 0.25 or below and about 0.75 and above within a stratum. Similarly, a change of 0.1 (10%) or greater can be detected even when comparing with the most conservative reference value of 0.5 (table 3). At regional level, KRI and North, and national (overall) round-to-round changes of about 10% or greater

can be detected using the proposed sample size with initial prevalence 0.5 (table 4). For reference, while the MPI poverty prevalence among IDPs vary between 3 to 10 percent (table 5), unemployment vary between 10 to 31 percent among IDPs in 2017-18 (table 6) in these governorates. Additionally, the overall sample will allow to estimate the indicators and monitor changes by in- and out-of-camp IDP status.

2. Returnee Sample:

The proposed sampling frame for returnee households is presented in table B. As seen in table 1, the forced displaced households that have returned recently are concentrated in the five governorates of Northern region mostly in Nineveh and Anber. We grouped the 5 governorates in to 3 strata – Nineveh (stratum 1), Anber (stratum 2) and rest (stratum 3). Again, a total of 200 Returning IDPs are proposed to be interviewed within a stratum. The proposed sample size of 600 interviews allows to track the change of 10% or over over-time.[1]

Table B: Proposed returnee sample (600 total)		
North	*Strata*	*Sample*
Nineveh	1	200
Kirkuk	3	54
Diyala	3	36
Anbar	2	200
Salah al-deen	3	110
Total		*600*
Total		**600**

3. Post-stratification

IOM's DTM matrix collects information on people forcibly displaced after December 2013 i.e., those displaced due to the ISIS conflict. While the DTM considers those who are still displaced within Iraq as IDPs, returnees (returning IDPs) are those who have returned to their location of origin, irrespective of whether they have returned to their former residence or to another shelter type.[2]

Information from the DTM is used to create post-stratified survey weights. Table 1 reports number of in-camp IDP, out-of-camp IDP, and returnee households for each governorate. Number of individuals for each sub-population is then calculated as per the DTM methodology by multiplying the number of households by six, average household size in Iraq, for out-of-camp IDP and returnee population and by 5 for in-camp IDPs.2 According to the *2019 humanitarian needs overview*, out of the 6.7 million people need

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[1] The SWIFT survey did not sample Returning IDPs and we do not have reference prevalence rates for relevant outcomes.

[2] IOM, 2021 : http://iraqdtm.iom.int/MasterList#Methodology

of humanitarian assistance (almost all of which are IDPs and returnees), 51 percent are adults 18 years or older.[3] Therefore, number of adults is calculated as 51 percent of the total number of individuals for each subgroup. The survey weights are calculated as follow:

$$wgt_{ipg} = \frac{N_{pg}}{S_{pg}}; p \in [idp\ camp, idp\ out\ of\ camp, returnee] \quad (1)$$

where, wgt_{ipg} is a full (raw) calibrated weight for a household, individual or adult i in sub-group p and governorate g. While Np_g is the population of subgroup p in a governorate g, S_{pg} is the number of completed phone interviews in a month from governorate g for subgroup p.

The full (raw) weights are then standardized (or normalized) to make the weighted sum of the interviewed sample units equal to the total sample size. Normalization is done by multiplying the full sample weights by a constant factor equal to the unweighted number of total completed interviews (sample size) divided by the weighted total number of completed interviews i.e., total households, individuals, or adults for each sub-group.

Annex III:

Table 1: Number of IDP and returnee households by governorate					
	IDP			Returnee	Returnee + IDP
	Camp	Out of -camp	Total		
Kurdistan					
Duhok	25,458	27,719	53,177	128	53,305
Sulaimaniya	2,509	20,801	23,310		23,310
Erbil	2,874	36,542	39,416	8,834	48,250
Total	30,841	85,062	115,903	8,962	124,865
North					
Nineveh	19,273	34,740	54,013	301,195	355,208
Kirkuk	1,748	14,923	16,671	56,851	73,522
Diyala	1,110	7,838	8,948	38,374	47,322
Anbar	1,486	4,541	6,027	250,578	256,605
Salah al-deen	181	11,269	11,450	115,357	126,807
Total	23,798	73,311	97,109	762,355	859,464
Center					
Baghdad	312	5,527	5,839	15,038	20,877
Babylon		2,834	2,834		2,834
Kerbela	103	2,490	2,593		2,593
Wasit		1,014	1,014		1,014
Najaf		2,091	2,091		2,091
Total	415	13,956	14,371	15,038	29,409

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[3] https://reliefweb.int/sites/reliefweb.int/files/resources/irq_2019_hno.pdf

South					
Qadisiya		648	648		648
Muthanna		166	166		166
Thi-Qar		566	566		566
Maysan		371	371		371
Basrah		1,088	1,088		1,088
Total		2,839	2,839		2,839
Total	**55,054**	**175,168**	**230,222**	**786,355**	**1,016,577**
Source: IOM DTM 116 (June 2020)					

Table 2. Sample size for point-estimate (proportion) with 0.05 margin of error (ME or alpha)

p	1-p	sample size (95% CI)	sample size (90% CI)
0.5	0.5	384	271
0.45	0.55	380	268
0.4	0.6	369	260
0.35	0.65	350	246
0.3	0.7	323	227
0.25	0.75	288	203
0.2	0.8	246	173
0.17	0.83	217	153
0.1	0.9	138	97
0.9	0.1	138	97
0.03	0.97	45	31

Table 3. Sample size for a one-sample proportion test against a reference proportion (alpha = 0.05, Power = 80%, two-sided Wald test with normal-approximation correction for continuity)

	Minimum detectable effect	
Reference (p)	*0.05*	*0.1*
0.50	797	199
0.40	797	207
0.30	735	199
0.20	609	175
0.17	559	165
0.15	523	158
0.10	421	136

0.09	398	131
0.03	251	99

Table 4: Sample size per round to detect changes over time (two-sample proportion test, alpha = 0.05, Power = 80%, two-sided chi-squared test with normal-approximation correction for continuity)		
	Minimum detectable effect	
Initial prevalence (p)	*0.05*	*0.1*
0.50	1,604	408
0.40	1,574	408
0.30	1,417	376
0.20	1,134	313
0.17	1025	288
0.15	945	270
0.10	726	219
0.09	678	208
0.03	365	134

Table 5: SWIFT 2017/18: Proportion of IDPs that are MPI poor					
		Mean	Std. Err	[95% Conf. Interval]	
Duhok		0.101	0.008	0.086	0.116
Erbil and Sulaimaniya		0.038	0.005	0.029	0.047
Naneveh		0.101	0.009	0.085	0.118
Anber, Salah al-deen, Kirkuk and Diyala		0.054	0.006	0.043	0.065
Kri		0.069	0.004	0.060	0.077
North		0.081	0.005	0.071	0.091

Table 6: SWIFT 2017/18: Unemployment rate among IDPs					
		Mean	Std. Err	[95% Conf. Interval]	
Duhok		0.315	0.024	0.268	0.362
Erbil and Sulaimaniya		0.101	0.015	0.073	0.130
Naneveh		0.158	0.023	0.112	0.204
Anber, Salah al-deen, Kirkuk and Diyala		0.161	0.019	0.124	0.198

		0.207	0.014	0.179	0.235
KRI		0.207	0.014	0.179	0.235
North		0.160	0.015	0.131	0.188