World Values Survey Wave 7 in Kyrgyzstan: Sample Design.

The **quantitative survey** is aimed at collecting quantitative information about the values among people in Kyrgyzstan. The main purpose of the quantitative approach is to get the correct evaluation of the economic, politic and sociological situation in the area and to assess respondents' knowledge and current practices. The quantitative research will be applied to get precise and statistically reliable data for the World Value Survey Association. **Face-to-face interviews** will be conducted using **a structured questionnaire**. All interviews will be conducted using TAPI, i.e. tablet assisted personal interviews.

A Proportional Probability Sampling (PPS) methodology will be used, where the Primary Sample Units (PSU - settlements) for the interviews are randomly selected from the total list of observation units with a known non-zero probability. The PPS method is preferred over the Simple Random Sample (SRS) approach when the PSUs are not equal in size. Some PSUs could be very small (10 households), others could be rather large (1,000 households) and a few could be very large (over 1,000 households). In such circumstances a simple random sample would not make a distinction between the PSUs, and all PSUs would have the same probability of being selected. An ideal approach, considered in the PPS, is to assign selection probabilities proportional to the rural settlements' sizes. Larger units are expected to make greater contribution to the total population and will have a larger probability of being selected within one Stratum (oblast) and less probability per household being selected within these PSUs. Smaller PSUs will have smaller chances of being selected with a larger probability of the households being selected within such PSUs. A sample constructed in this manner will provide a more efficient estimate of the total population.

Central Asia Barometer has a **special toolkit for construction of both the SRS and PPS samples, which includes automatic calculation of the sample weights** for database weighting procedures after fieldwork. Three sets of weights will be calculated (Oblast level weight =1): Rayon (District) weight, Settlement weight, and Household (Farm) weight. Weighting is crucial for statistical extrapolation of the survey results to the total population (oblast), including for the purpose of comparing outputs with the baseline data, and assessing the project impact.

The number of respondents in each strata (oblast) was calculated to provide **95 percent confidence interval with under 5 percent margin of sample error**. This will provide estimates, where we can be 95 percent sure, that any indicator revealed within the end line of World Value Survey (Wave 7) differs within +/-5 percent from the situation in the general population of the project beneficiaries.

The formula for calculation of the sample size for each stratum (oblast) is as follows:

$$n = \frac{NZ^2P(1-P)}{(N-1)\varepsilon^2 + Z^2P(1-P)}$$

Where:

N – General population of the strata;
Z – Value of normal coordinates for the desired level of confidence (used Z=1.96);
e – Margin of error (confidence interval);
P – The variance in the answers (used P=0.5)

The total sample size according to the formula is **1,200/1500 households (HH) of general population 18+.** This sample size will make the countrywide analysis possible with the margin of error within +/-2.8 / +/- 2.5 percent, with the **95 percent** confidence interval. The sample size and composition is corresponded to the baseline survey significance criteria, whereby the outcomes of the survey will be aggregated for the entire oblasts and compared using **advanced statistics tools**. Thus, a total number of 1,200 HHs will be applied to nationwide coverage to get statistically significant1 parameters. CAB uses the **multistage stratified sample approach.**

A four-stage sampling approach was designed and implemented, with regional stratification in the first stage, rural settlements random selection in the second stage, farming households selection in the third, and respondents selection in the households at the fourth stage.

First Stage of Sampling: Strata

At the first stage the country was divided into macro-strata (strata). Stratification was based on the administrative divisions (oblasts). The number of strata is determined and corresponds to the project objectives and regional coverage. Based on the project objectives all oblasts with 2 major cities in Kyrgyzstan will be covered in this survey.

Second Stage of Sampling: PSU Rural Settlements

Since the survey is aimed at obtaining statistically reliable information for extrapolation at the oblast level, **10 HHs as one Rural PSU** were determined based on the project team's experience and costs limitations. One PSU was implied as one rural settlement. Dividing the sample size for each oblast by 10 HHs, the target number of PSUs in each oblast was calculated:

Table 1. Sample design for Kyrgyzstan

Region	Population 18+ Distribution	% of Population Distribution	Sample Distribution	% of Sample Distribution	Sample Distribution	% of Sample Distribution
Batken oblast	306 264	8%	90	8%	110	7%
Jalal-Abad oblast	701 346	18%	190	15%	230	15%
Issykul oblast	317 823	8%	90	8%	120	8%
Naryn oblast	188 112	5%	60	5%	70	5%
Osh oblast	766 343	20%	170	14%	210	14%
Talas oblast	157 785	4%	50	4%	70	5%
Chui oblast	609 707	16%	230	19%	280	19%
Bishkek city	697 271	18%	270	23%	350	23%
Osh city	179 428	5%	50	4%	60	4%
Total	**3 924 077**	**100%**	**1200**	**100%**	**1500**	**10%**

Probability Proportional to Size (PPS) method with the following logic was applied to select the PSUs in each stratum:

1. First stage: PPS sampling - larger (in terms of the number of households) PSUs had a larger selection probability;

2. Second stage: Applying the same number of people (10) to be interviewed in each PSU - households in larger settlements had a smaller probability of being sampled and vice versa;

3. Overall: The second stage compensates the first stage, so that **each person** in each PSU has an equal probability of being selected.

Randomly selected rural settlements will be included into the third step of sampling**.**

Third Stage of Sampling: Households

- Households will be chosen randomly in accordance to the Random Walk of interviewer. Every interviewer will be assigned with a specific settlement to survey. The interviewer will have to conduct survey in this settlement/area using ***Random Walk procedure with Defined Step***, described below. Interviewer will have to follow Random Walk procedure with predefined step all the time during the survey:

- In each settlement, supervisor will define ***starting points*** (Address, street, building number), from which interviewer will have to start her movement. One (or more depending on the size of the village) start point will be defined in different parts of village to survey various layers of population. In most cases start point is any administrative building.

Direction of movement is defined in the following way: Interviewer stands back to the main entrance of the building (start point), from which she will plot a route and start ***moving right***.

Selecting the first households: Interviewer should choose the first house located close to the start point and then try to contact its residents.

Selection of subsequent households:

Movement and step in case of private houses: Further, interviewer moves on the right side of the street with **Step *N+3* (**interviewer reaches every third house and tries to conduct interview).

*Movement and step in case of multi-story buildings (unlikely to encounter in villages):*In case of reaching multi-story buildings, interviewer moves on the right side of the street and visits houses located along this street. Inside the multi-story building, the step is ***N+5*** apartments (interviewer reaches every 5th apartment and tries to conduct interview) after successful previous interview. If the previous interview was not successful (interview was not conducted), interviewer uses step ***N+1*** (interviewer reaches next apartment and tries to conduct interview).

Direction of movement in case of crossroads and dead ends: Interviewer always keeps the right side of the street and approached houses/buildings located only on the right side of this street. Approaching crossroads, interviewer turns to the right. In case of dead end, interviewer goes to the opposite side of the street. This technique is shown on the picture below.

Selection of respondents inside the household: - In order to insure representative (random) sample, ***"Kish grid" technique*** will be used inside the household in case there are more than 1 person from target audience. According to this technique, interviewer will write down names and birth dates of all people living in the household older than 18 years, who meet the requirements.