

<i>Study Description:</i>	[Armenia]
<i>Study title:</i>	World Values Survey 2011, Wave 6
<i>Fieldwork dates:</i>	Between September 28 and October 9, 2011.
<i>Principal investigators:</i>	
<i>Sample type:</i>	<p><b><u>The stratified two stage cluster sample using PPS was employed.</u></b></p> <p>(i) A complete list of Armenian Households provided by the “Electricity Networks of Armenia” company was used as a sampling frame. It contains all households/electricity users in Armenia having paid for electricity for the period of December 2010 - February 2011.</p> <p>(ii) The stratification was carried out at two levels: (a) regional (Yerevan and 10 regions/marzes) and, (b) in each stratum the second level of stratification by urban/ rural criterion (sub-strata). In Yerevan (capital) the 7 districts were considered as sub-strata. Proportionate stratification (PPS) was applied at the two levels of stratification.</p> <p>(iii) The selection of primary sampling units (PSUs) – clusters (city blocks) was carried out in each stratum at first. The equal sized clusters of households were selected in each stratum using SRS.</p> <p>(iv) At the second stage the secondary sampling units (SSUs), i.e. households were selected in each already selected cluster, using the SRS method. In each selected PSU 20 SSUs were selected.</p> <p>(v) In each selected household (SSU) the respondent: the final sampling unit (FSU) was selected using the recent birthday method.</p>
<i>Fieldwork Institute:</i>	CRRC, Armenia
<i>Fieldwork methods:</i>	Face-to-face in-home interviews
<i>Sample size:</i>	1100
<i>Language:</i>	Armenian
<i>Response rate</i>	
<i>Weighted:</i>	Yes
<i>Weighting Procedure:</i>	During and after data collection, representativeness of the sample with respect to nationally based criteria has been checked. Deviations from the population’s distribution on these criteria were observed. These deviations have been corrected by a weighting variable.
<i>Known Systematic Properties:</i>	
<i>Deviations from WVS-questionnaire:</i>	The order of the questions strictly followed the master questionnaire. Thus, there were added 2 more questions – V125A, V215A
<i>Publications:</i>	Methodology Report



*Caucasus Research Resource Centers -Armenia  
A Program of the Eurasia Partnership Foundation*

**WORLD VALUES SURVEY, 2011  
ARMENIA  
METHODOLOGICAL REPORT**

# Table of contents

- 1. General remarks ..... 4
  - 1.1 Weighting methodology..... 4
  - 1.2 Quota sampling – brief description ..... 5
- 2. Armenia ..... 5

**1. General remarks**

## 1.1 Weighting methodology

During and after data collection, representativeness of the sample with respect to nationally based criteria has been checked. Deviations from the population's distribution on these criteria were observed.

These deviations have been corrected by a composite weighting variable.

The data weighting was aimed at the correction of following issues:

- (a) At first, in the sampling methodology it was supposed that the equal size clusterization (100 households in each) will be applied to the sample frame in each stratum (including sub-strata). In practice, the approximately ( $\pm 10$  households) equal size clusters were created in order to avoid including of more than one settlement/community in the same cluster. In the all general sample frame comprising of 7,017 clusters 224 not equal sized clusters were created and only 5 of them were randomly selected for the sample. In these clusters the selected households' representativeness is not equal to the others. Thus, the weighting was carried out to equalize them, using the following formula.

$$W_{1ij} = 100/n_{ij}$$

*where  $n$  – is the number of the households in the cluster in the sample*

*$i$  – number of strata,  $j$  – number of substrata*

- (b) The proportions of the selected households by strata (including sub-strata) in the sample slightly differ from the same proportions in the sample frame (as a result of taking the same quantities of households in each selected cluster). In order to come up with the original proportions of households at two levels of strata, the appropriate weights were applied, using the following formula:

$$W_{2ij} = q_{1ij}/q_{2ij}$$

*where  $q_1$  is the proportion of households in the sample frame (general population)*

*$q_2$  is the proportion of households in the sample,  $i$  – number of strata,  $j$  – number of substrata*

- (c) Although the selection of the respondents was carried out using the recent birthday method, the gender distribution of the respondents is significantly deviating compared to official statistics at sample level and at the two levels of stratification. Partially it can be explained by the refusals or absence of male population in the course of fieldwork visits. In order to come up with the gender distribution of respondents corresponding to the national average, the appropriate weights were applied at strata and sub-strata levels, using the following formula:

$$W_{6ij} = q_{4ij}/q_{3ij}$$

*where  $q_3$  is the gender proportion of population in the country (general population)*

*$q_4$  is the gender proportion of respondents in the sample,  $i$  – number of strata,  $j$  – number of substrata*

- (d) IN order to summarize the correction of these issues a composite weight was calculated for the WVS database using the following formula:

$$W_7 = W_1 * W_2 * W_6$$

- (e) It should be mentioned, that no weights were applied to the age distribution of the respondents, because the official data is not reliable and the survey may yield more realistic picture. The official data are the estimations of NSS based on 2001 census data and refer to the de jure population, while the surveys deal with the de facto population. There are the estimates of de facto population in Armenia (NSS) at country and regional levels (also based on the 2001 census data) but the age

distribution of it is not available.

- (f) After weighting of the data a variable for spreading the data (in case of the need) on the total 18-85 age group population was created (spread\_1). The population numbers for the population in the mentioned age group obtained from the official statistics (estimations for 2010 based on 2001 census) were considered as a basis. Then these data were adjusted based on the ENA database regional/strata proportions, taking into account that the ENA database is more updated and realistic.

## 1.2 Quota sampling – brief description

No quotas were applied.

## 2. Armenia

**Institute:** CRRC Armenia

**Survey methodology:** Face-to-face in-home interviews

**Fieldwork dates:** Fieldwork of the survey was conducted between September 28 and October 9, 2011.

### **Sampling methodology:**

A complete list of Armenian Households (HH) provided to CRRC by the “Electricity Networks of Armenia” (ENA) company used as a sampling frame. It contains all households/electricity users in Armenia having paid for electricity for the period of December 2010 - February 2011 (701,370 households in total), by their residence: regions (marzes) and communities of the country. The selection of sampling frame is determined mainly by the fact, that the alternative frame – list of HHs recorded during the last census in Armenia (2001) is out-dated and needs actualization (block listing). It assumes considerable time, efforts and additional expenses. Besides, the National Statistical Service (NSS) is not willing to share the HH lists with other organizations referring to confidentiality. Instead, the complete list of Electricity User Households is up to date and more reliable. It also allows selecting the respondents/members of the households to be interviewed, using the adequate well-known methods to obtain the age and gender structure of respondents which is close to the national composition<sup>1</sup>.

To design the sample of respondents to be surveyed within the WVS 2011 in Armenia **the stratified two stage cluster sample using PPS** methodology was employed:

**(a) Stratification:** The approach of stratification of households (and, correspondingly, their members: respondents) by the regions/marzes of the country was applied to design the sample. The stratification is being considered as preferable option, as it allows ensuring representation of all heterogeneity of objective social, economic, cultural and other characteristics of the sampling units located in different geographic areas/regions of the country. At the same time, it ensures quite internal homogeneity of the aforementioned characteristics within each stratum. Therefore, the households in the sample frame were divided into 11 strata by the regional criterion (Capital - Yerevan and 10 regions/marzes). At the same time, in each stratum we have the second level of stratification: urban and rural, in order to obtain

---

<sup>1</sup> The age-gender structure of the population is based on the census data and afterward demographic changes recorded by the NSS is available at [www.armstat.am](http://armstat.am/en/?nid=81&id=1263) (as of July 1<sup>st</sup> 2011 <http://armstat.am/en/?nid=81&id=1263>).

the urban-rural proportions of the households at the regional and country levels. Proportionate stratification (PPS) was applied to the sample, which means that (a) the total number of households (and correspondingly: respondents within the households) in each stratum in the sample is proportional to the general distribution of households (in the sample frame) by strata, and (b) the urban-rural proportion of the households in each stratum in the sample is proportional to the general distribution of the households by this criterion. The same principle of the PPS stratification was applied also within the capital: Yerevan. There are some 7 districts in Yerevan, which were determined as sub-strata within Yerevan and the total number of households in each district of Yerevan in the sample is proportional to the general distribution of the households by these sub-strata. Thus, in total there are 28 separate strata and sub-strata, of which the selection of primary sampling units (PSUs) was carried out at first.

**(b) Clusters (PSUs).** Two-stage cluster sampling method was applied to the survey sample design. At the first stage of sampling procedure, approximately equal sized (100 households±10) clusters (city blocks) of households, which were formed based on the sample frame were selected using SRS (simple random sampling) method in each stratum and sub-stratum.

**(c) Households (SSUs).** At the second stage of the sampling procedure the secondary sampling units, i.e. households (SSUs) were selected in each already selected cluster, using the SRS method. In each selected PSU 20 SSUs was decided to interview.

**(d) Respondents (FSUs).** In each selected household (SSU) the respondent/FSU (h/h member in the age group of 18-85) was selected using the recent birthday method.

At the first stage of sampling, the number of FSUs in the sample, i.e. the sample size was determined and then PSUs and SSUs were chosen.

The following mechanism for sample size calculation was applied. At first, the initial sample size was estimated using the following formula:

$$n(1) = t^2 P(100-P)/v^2$$

(where “v” is the degree of precision or the margin of error: v=5%, P=50, t=1.96, assuming that the confidence interval is 95%.)

Then, the adjustment of the initial sample size was performed, taking into account the finite population correction (*fpc*) term and using the number of households in the country in the ENA (universe population) by the following formula:

$$n(2) = Nn(1)/(N+n(1))$$

(where N is number of universe population, and n(1) is the sample size).

As a result of above-described mechanism, the effective sample size (n(2)) is estimated at 384 households/FSUs, in case of SRS design.

Taking into account that the two stage cluster sample design is supposed to be applied, the sample size is assumed to be corrected by the design effect factor (DEF). The estimated DEF for different surveys in the country varies from 1.5 to 3. Taking the DEF estimated at 2.8, which is close to the DEF obtained from some recent surveys, the sample size is estimated at:

$$n = n(2) \times DEF = 384 \times 2.8 = 1,075$$

Thus, at the first stage of sampling design, the number of SSUs in the sample was determined. In case of SRS the quantity of 384 sampling units will ensure the representativeness of the sample at the country level (assuming 5% degree of precision and 95% confidence interval). Thus, taking into account the DEF, it will be 384\*2.8=1,075. Taking into account that the same quantity of 20 respondents has to be interviewed in

each cluster, the final sample size will be a number, which is the closest to (n) and is divisible by 20: 1,100. Thus, the final sample size will be:

$$n = 1,100$$

Each stratum in the sample has to be represented according to its proportion in the total number of households in the sample frame. These proportions allow defining the quantity of SSUs in each stratum, summing up at 1,100 households in total.

Supposing 20 households in each PSU (the quite common standard for surveys in the country), in total 55 PSUs were selected for the sample at first, using the SRS. The numbers of the selected clusters/PSUs will be proportionate to their numbers in each stratum. Nevertheless, there are some small differences in the proportions of clusters in the sample frame and in the sample. At the same time, the proportions of the selected households by strata (including sub-strata) in the sample slightly differ from the same proportions in the sample frame (as a result of taking the same quantities of households in each selected cluster). Thus some weights were applied in the survey database in order to obtain their original weights in the sample frame.

The numbers of the selected clusters and households to be interviewed in each stratum as well as the detailed characteristics of the sample frame and the sample are presented in the tables in the Annexes to the sample methodology.

## Annexes to the sample methodology description

**Table 1. The distribution of the electricity user households in the sample frame/ENA 2011 database by strata (Marz and Rural/Urban area)**

Marz	ENA data						NSS official data*:	
	Number of households			Composition, % of total			distribution of de facto population by regions, % in total	The difference between ENA h/h distribution and NSS population distribution, percentage points
	Rural	Urban	Total	Rural	Urban	Total		
Aragatsotn	20,457	7,742	28,199	2.9	1.1	4.0	4.2	-0.2
Ararat	35,976	15,936	51,912	5.1	2.3	7.4	8.3	-0.9
Armavir	31,518	21,086	52,604	4.5	3.0	7.5	8.9	-1.4
Gegharkunik	27,755	16,783	44,538	4.0	2.4	6.4	7.3	-0.9
Kotayk	27,004	35,271	62,275	3.9	5.0	8.9	8.5	0.4
Lori	23,126	41,006	64,132	3.3	5.8	9.1	8.7	0.4
Shirak	20,358	37,366	57,724	2.9	5.3	8.2	8.3	-0.1
Syunik	9,840	22,768	32,608	1.4	3.2	4.6	4.8	-0.2
Tavush	17,983	11,905	29,888	2.6	1.7	4.3	1.6	2.7
Vayots Dzor	7,154	4,944	12,098	1.0	0.7	1.7	4.0	-2.3
Yerevan, including:	...	265,361	265,361	0.0	37.8	37.8	35.3	2.5
<i>Erebuni</i>	...	30,769	30,769	...	4.4	4.4	...	...
<i>Arabkir</i>	...	56,054	56,054	...	8.0	8.0	...	...
<i>Sari tagh</i>	...	8,107	8,107	...	1.2	1.2	...	...
<i>Kentron</i>	...	22,802	22,802	...	3.3	3.3	...	...
<i>Mashtots</i>	...	67,762	67,762	...	9.7	9.7	...	...
<i>Shengavit</i>	...	34,315	34,315	...	4.9	4.9	...	...
<i>Nor Nork</i>	...	45,552	45,552	...	6.5	6.5	...	...
Total	221,171	480,168	701,339	31.5	68.5	100	100.0	---

Table 2. The distribution of the clusters (PSUs) in the sample frame/ENA 2011 database by the strata

Marz	Number of clusters (of about 100 HH)			Composition, % of total		
	Rural	Urban	Total	Rural	Urban	Total
Aragatsotn	205	78	283	2.9	1.1	4.0
Ararat	360	159	519	5.1	2.3	7.4
Armavir	315	211	526	4.5	3.0	7.5
Gegharkunik	278	168	446	4.0	2.4	6.3
Kotayk	270	353	623	3.8	5.0	8.9
Lori	231	410	641	3.3	5.8	9.1
Shirak	204	374	578	2.9	5.3	8.2
Tavush	180	119	299	1.4	3.3	4.6
Syunik	98	228	326	2.6	1.7	4.3
Vayots Dzor	72	49	121	1.0	0.7	1.7
Yerevan, including districts:	--	2,654	2,654	--	37.8	37.8
<i>Erebuni</i>	--	308	308	--	4.4	4.4
<i>Arabkir</i>	--	561	561	--	8.0	8.0
<i>Sari tagh</i>	--	81	81	--	1.2	1.2
<i>Kentron</i>	--	228	228	--	3.3	3.3
<i>Mashtots</i>	--	678	678	--	9.7	9.7
<i>Shengavit</i>	--	343	343	--	4.9	4.9
<i>Nor Nork</i>	--	456	456	--	6.5	6.5
Total	2,213	4,804	7,017	31.5	68.5	100.0

Table 3. The distribution of the households/SSUs and clusters/PSUs in the sample by strata

Marz	Number of HHs			Composition, % of total			Number of clusters in the sample			Composition, % of total		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Aragatsotn	20	20	40	1.8	1.8	3.6	1	1	2	1.8	1.8	3.6
Ararat	60	20	80	5.5	1.8	7.3	3	1	4	5.5	1.8	7.3
Armavir	40	40	80	3.6	3.6	7.3	2	2	4	3.6	3.6	7.3
Gegharkunik	40	20	60	3.6	1.8	5.5	2	1	3	3.6	1.8	5.5
Kotayk	40	60	100	3.6	5.5	9.1	2	3	5	3.6	5.5	9.1
Lori	40	60	100	3.6	5.5	9.1	2	3	5	3.6	5.5	9.1
Shirak	40	60	100	3.6	5.5	9.1	2	3	5	3.6	5.5	9.1
Syunik	20	40	60	1.8	3.6	5.5	1	2	3	1.8	3.6	5.5
Tavush	20	20	40	1.8	1.8	3.6	1	1	2	1.8	1.8	3.6
Vayots Dzor	20	0	20	1.8	0	1.8	1	0	1	1.8	0	1.8
Yerevan, including districts:	--	420	420		38.2	38.2		21	21		38.2	38.2
<i>Erebuni</i>	--	40	40		3.6	3.6		2	2		3.6	3.6
<i>Arabkir</i>	--	80	80		7.3	7.3		4	4		7.3	7.3
<i>Sari tagh</i>	--	20	20		1.8	1.8		1	1		1.8	1.8
<i>Kentron</i>	--	40	40		3.6	3.6		2	2		3.6	3.6
<i>Mashtots</i>	--	100	100		9.1	9.1		5	5		9.1	9.1
<i>Shengavit</i>	--	60	60		5.5	5.5		3	3		5.5	5.5
<i>Nor Nork</i>	--	80	80		7.3	7.3		4	4		7.3	7.3
Total	340	760	1,100	30.9	69.1	100.0	17	38	55	30.9	69.1	100.0

Table 4. The distribution of the main characteristics of population

	Statistics, the sources are presented below	WVS Unweighted data	WVS Weighted data
<b>Gender<sup>1</sup></b>			
Female	51.5%	66.1%	51.5%
Male	48.5%	33.9%	48.5%
<b>Age Groups, %<sup>2</sup></b>			
18-24	18.2	12.6	13.7
25-29	11.0	9.3	9.2
30-34	9.1	9.0	9.1
35-39	8.3	8.3	8.6
40-44	9.9	7.5	7.3
45-49	11.2	8.6	8.1
50-54	8.5	11.7	11.4
55-59	6.0	8.3	7.8
60-64	3.1	6.5	6.8
65-69	5.5	3.5	3.8
70-74	4.1	6.6	6.1
75-79	3.3	3.7	3.7
80+	1.7	4.3	4.4 <sup>4</sup>
Total 18-80+	100.0	100.0	100.0 <sup>5</sup>
<b>Years/Schooling Groups, %<sup>6</sup></b>			
No formal education received	0.7	0.5	0.4
Incomplete elementary (up to the fourth grade)	0.6	1.4	1.3
Elementary	3.2	2.0	2.2
Incomplete secondary and handicraft courses	2.7*	5.7	5.8
Secondary vocational/technical courses	20.9	23.4	21.8
Incomplete secondary (preparatory type)	9.3**	7.0	7.4
Secondary (preparatory type)	44.6***	29.5	29.6
Incomplete higher education	2.1	4.9	5.2
Higher education	15.9	25.6	26.0
<b>Regions, %<sup>7</sup></b>			
Aragatsotn	4.0	3.6	4.0
Ararat	7.4	7.3	7.4
Armavir	7.5	7.3	7.5
Gegharkunik	6.4	5.5	6.4
Kotayk	8.9	9.1	8.9
Lori	9.1	9.1	9.1
Shirak	8.2	9.1	8.2
Syunik	4.6	5.5	4.6
Tavush	4.3	3.6	4.3
Vayots Dzor	1.7	1.8	1.7
Yerevan	37.8	38.2	37.8
<b>Professional Status<sup>8</sup></b>			
Employed,%	48.1	36.2	39.6
Unemployed,%	18.7	16.4	17.5

<sup>1</sup> Source: “The demographic handbook of RA”, National Statistical Service (NSS), 2010

<sup>2</sup> Source: “The demographic handbook of RA”, National Statistical Service, 2010. It should be mentioned, that these data are the estimations of NSS based on 2001 census data and refer to the de jure population, while the surveys deal with the de facto population. There are the estimates of de facto population in Armenia (NSS) at country and regional levels (also based on the 2001 census data) but the age distribution of it is not available. Taking into account this situation, we decided not to weight the data also by the age distribution of the respondents, because the official data is not reliable and the survey may yield more realistic picture.

<sup>4</sup> In WVS this group is 80-85 years olds

<sup>5</sup> For WUS it is 18-85 ears olds

<sup>6</sup> The data was obtained from the nationwide “Integrated living standard survey-2009”, carried out by NSS. The percents were calculated on the age group of 18-85. The educational levels here are different:

\* This figure is for the preliminary vocational education

\*\* This figure is for general secondary education (1-8 classes of 10 year school)

\*\*\*This figure is for secondary education (1-10 classes of 10 year school)

<sup>7</sup> Source: A complete list of Armenian Households (HH) provided to CRRC by the “Electricity Networks of Armenia” (ENA) company was used as a sampling frame. It contains all households/electricity users in Armenia having paid for electricity for the period of December 2010 - February 2011 (701,370 households in total), by their residence: regions (marzes) and communities of the country.

<sup>8</sup> Source: “Labour market in the Republic of Armenia, 2005-2009”. The data are for 2009, were published by NSS and have been calculated based on the LFS module included in the “Integrated living standard survey of households”. The percent is calculated for the population of 15-75 years of age.



