2004 Yemen Census: Age, Gender Population Dynamics at the Village level

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USAID/Yemen is assisting The Republic of Yemen, Ministry of Public Health & Population (MoPHP) with advancing their Health Information System (HIS). As part of this effort, the Yemen Partners for Health Reform (YPHR) project has been tasked with assisting USAID in better understanding the population demographics and health. This document contributes to the understanding of the population distribution by gender and age categories by creating a 2004 population point data coverage based on 2004 governorate level data, population projections in 2003, and previous 1994 Census village data obtained from Yemen Central Statistics Organization (CSO). In addition to the 2004 data being more current than the original 1994 data, the 2004 population data have categories for gender and five age groups in five specific governorates: Al Jawf, Amran, Marib, Sa'adah, and Shabwah. These data will be replaced when more comprehensive 2004 Census results are available from CSO for these areas and the remainder of Yemen governorates.

Inputs

The following files were used as inputs:

1994 Villages
Source: VillagesGDB.mdb from the Yemen Health GIS Toolkit, version 1.0
Coverage: national
Includes: village locations with male, female, and total population counts

2004 Census district population tables
Source: CSO 2004 census data release
Coverage: national
Includes: district-level male, female, and total population counts

2004 Census age group population tables
Source: CSO 2004 census data released to YPHR
Coverage: USAID governorates
Includes: district-level age group (by gender) population counts

2003 national age group rates
Source: CSO population projections, Table 4
Coverage: national
Includes: percentage of population by age group (by gender)

Methodology

The estimated 2004 population data with gender and age group classification uses village locations and district- and national-level gender and age statistics. The 1994 Villages GIS data coverage provides locations for approximately 120,000 villages. This file contains gender statistics (i.e., total male and total female) from the 1994 Census for all villages in Yemen.

In order to create village-level 2004 population estimates, the 1994 population count of each village is converted to a percentage of the district's total population for that year. Then, the percentage of the village population multiplied by the district's 2004 total population count equals the new estimated 2004 population for each of the villages.

For five governorates (Al Jawf, Amran, Marib, Sa'adah, and Shabwah), CSO provided to YPHR district-level statistical data from the 2004 Census listed by gender for five age groups: 0-4 years, 5-15 years, 16-44 years, 45–59 years, and greater than 60 years of age. For these governorates, the estimated village population by age group by gender was calculated from the percentage of the district's population in each age group by gender multiplied by the village's total estimated population. For the remaining governorates, the 2003 national population projection by gender by single-year age was aggregated into the same five age groups and then converted into a percentage to determine a national rate for each age group. These national rates were then applied to the village-level population counts to create estimates of these population groups. Exhibit 1 summarizes the statistics by age group and gender.

Exhibit 1

Average and standard deviation statistics by gender for 5 selected governorates summarized from district level data by five age groups and the national percent age aggregated to five age groups

Age Group	Average percent in 5 selected governorates	Standard deviation in 5 selected governorates	2003 National percent age of total population from CSO	Absolute difference between average in selection and national percent
Male: 0 – 4 years	14.49	3.941	19.42	4.930
Male: 5 – 15 years	33.29	3.504	30.43	2.86
Male: 16 – 44 years	41.58	5.202	39.04	2.54
Male: 45 – 59 years	6.299	1.030	7.082	0.783
Male: >60 years	4.336	1.319	4.027	0.309
Female: 0 – 4 years	15.46	3.660	18.68	3.22
Female: 5 – 15 years	32.04	2.710	29.40	2.64
Female: 16 – 44 years	41.64	4.201	39.68	1.96
Female: 45 – 59 years	6.913	1.299	7.900	0.987
Female: >60 years	3.951	1.627	4.345	0.394

Clarifications

1. The 1994 Villages GIS file has 120,784 villages. The output file has 112,974 villages. This is because the 1994 Villages file has not been cleaned and there are village locations that fall outside the Yemen boundary and cannot be linked to a district. Therefore, 6.5% of villages in the original file were deleted. Since this deletion was done before proportionally applying the

2004 district population to villages, it will lead to a slight overestimation of village population in the remaining villages.

2. Differences due to rounding: The sum of populations in each age group will vary slightly from the total population in each village due to rounding.

Output

The 2004 Village GIS data coverage, Villages2004GDB.mdb, contains the locations of 112,974 villages and the estimated total population and gender and age group breakdowns for each village. The 'AgeGroupRates' data table in Villages2004GDB.mdb summarizes the percentage of each district's population in each age group by gender that was used to calculate the population counts for the 2004 Villages GIS data coverage. In the majority of districts, the percentages used are the estimated 2003 national rates; however, the 5 USAID governorates used district-specific rates (as described in the methodology above). As more district-specific rates become available for the other governorates, the rates will be updated in this table and applied to the population counts in the 2004 Village GIS data coverage.

YPHR will continue to update, modify, and correct the 2004 population data layer as more information becomes available from CSO. A correction factor to include growth in population to current 2007 estimates and beyond will also be explored further.