United Nations Statistics Division: Demographic Yearbook
Questionnaire on Population Estimates
Part 2: Metadata

Reporting country: Lao PDR
Reporting year: 2022

1. Author organization

Author organization function: Lao Statistics Bureau

2. Timeliness

Date when the provided population estimates were produced: June 2018

Reference dates of the sources of the latest data used to derive these estimates: 1 March 2015

3. Periodicity

Calendar of the production of population estimates:

- ☐ produced annually
- ☒ after each census
- ☐ at the midpoint of intercensal period
- ☐ other, please specify:

4. Status of data

4.1 Type of estimation: intercensal, postcensal, other; please specify: Postcensal

4.2 Data revision status: provisional, provisional revised, final, final revised, other; please specify: Final revised

5. Coverage

5.1 Please specify the time period covered by time series of the reported population estimates: 2015 to 2045

5.2 Please specify the territorial coverage of the time series of the reported population estimates: Hold country

5.2.1 In case any areas of the country were not enumerated during the latest population census, are they considered in reported population estimates? Please describe as necessary:

5.3 Type of population count employed for the reported population estimates:

☐ present population (de-facto)

☒ usually resident population

☐ registered population

☐ other; please specify:

5.4 Included or excluded population groups; please fill out the below tabulation:

In order to clarify the exact composition of the population for which estimates were given in this questionnaire, please indicate below the disposition of each group listed.

Population group	Included	Excluded	Not applicable
(a) Nomads and persons living in areas to which access is difficult	☒	☐	☐
(b) Civilian residents temporarily absent from the country	☒	☐	☐
(c) Civilian foreigners who do not cross a border daily and are in the country temporarily	☐	☒	☐
(d) Refugees, asylum seekers and internally displaced persons	☐	☐	☒
(e) Military, naval and diplomatic personnel and their families located outside the country	☒	☐	☐
(f) Foreign military, naval and diplomatic personnel and their families located in the country	☒	☐	☐
(g) Civilian foreigners who cross a border daily to work in the country	☐	☒	☐
(h) Civilian residents who cross a border daily to work in another country	☒	☐	☐
(i) Merchant seafarers and fishers resident in the country but at sea at the time of the latest census	☐	☐	☒
(j) Homeless or roofless persons, and persons with no concept of usual residence	☒	☐	☐
(k) Persons living in buildings with restricted	☐	☐	☒

access			
(l) Stateless persons	☐	☐	☒
(m) Other; please specify	☐	☐	☐

6. Primary data source (base data)

6.1 Type of base data:

☐ (1) Continuous population register

☒ (2) Complete census taken 1/3/2015 (date)

☒ i) population actually enumerated

☐ ii) population adjusted to take account of _____ % underenumeration

☐ (3) Sample survey taken _____ (date)

☐ (4) Partial census taken or partial registration _____ (date)

Please describe method:

☐ (5) Non-censal count of _____ (date)

Please describe method:

☐ (6) Conjectural estimate derived by means other than counting

Please describe method:

6.2 Territorial coverage of base data, please specify:

6.3 Type of population count employed in base data:

☐ present population (de facto)

☒ usually resident population

☐ registered population

☐ other, please specify:

7. Method of producing the reported population estimates

7.1 Total population

Estimates of total population of a country may be constructed using several methods. Please indicate by a check mark the method used in constructing the reported population estimates.

7.1.1 Method of time adjustment

☐ (1) Population estimates are sourced annually from a population register

☐ (2) Applying statistics of births and deaths (natural increase), and migration

☐ (i) Registered vital statistics

☐ (ii) Vital statistics adjusted for incompleteness

☐ (3) Applying statistics of births and deaths (natural increase), but no account taken of migration

☐ (i) Registered vital statistics

☐ (ii) Vital statistics adjusted for incompleteness

☒ (4) Applying an assumed rate of increase, based on:

☐ (i) Assumption with respect to mortality, fertility, migration

☒ (ii) Assumption with respect to mortality, fertility, but no account taken of migration

☐ (iii) Other assumed rate

Please provide the rate used, and describe how it was obtained:

☐ (5) No time adjustment (base figure held constant)

☐ (6) Other; please explain:

7.2 Population by age and sex

Estimates of population by age and sex are assumed to be constructed on the same base data as are the total population estimates. However, certain additional factors may affect age distributions estimated from census enumerations or from sample surveys. Please indicate below the adjustment(s) made in the basic age distribution used to construct the reported population estimates by age and sex.

7.2.1 Adjustments in base data

☐ (1) No adjustments – the calculations are based on population actually enumerated at various ages or estimated from survey results.

☐ (2) Enumerated population or population estimated from survey results adjusted to take account of under enumeration at various ages. Please describe as necessary the methods of adjustment.

☒ (3) Base age distribution is "smoothed", i.e., adjusted to remove effects of digit preference in age reporting. Please describe as necessary the methods of smoothing.

The first type of adjustment on the base population deals with the under-enumeration of children 0-4 and 5-9. It should be noted that these children represent the survivors of the births during the 10-year period prior to the 2015 census. The process of adjusting these two age groups therefore involves the estimation of the number of births during each year in that period and determine the survivors of each birth cohort up to the age that it should be at the time of the census. For example, the survivors among births that occurred in 2010 should comprise the population whose completed age is 4 at the time of the 2015 census.[1]

The following are the steps to estimate the population age 0 to 9:

1. For each year prior to the census, determine the number of child-bearing women; that is, women aged 15 to 49. This is done by reverse-surviving the women successively on a 1-year basis using the following formula:

   $$F(x-1,t-1) = F(x,t) / SR(x-1,x)$$

   where $F(x,t)$ refers to the number of women aged x, t years prior to the census and $SR(x-1,x)$ refers to the survival ratio, or the proportion of women aged x-1 who survive to age x. The survival ratios are assumed to remain constant during the 10-year period prior to the census. They correspond to the L_{x-1}/L_x values of the model life tables (Model West of the Preston-Coale family of model life tables) corresponding to female life expectancy at birth that was estimated and reported in the final 2015 census report (Please see section 2.3 on mortality estimation).
2. For each year prior to the census, group the number of women estimated in (1) above into 5-year age groups and apply the age-specific fertility rates to estimate the total number of births for that year. The age-specific fertility rates used in this step, likewise, are the estimates reported in the Final 2015 Census Report. (Please see section 2.2)

   $$\text{Births (t)} = \sum_{k=1}^{7} F(k,t) * ASFR(k)$$

[1] Reference period was March 1 2015.

where k represents age-group of women and t, the number of years prior to the census.

3. Determine the number of male and female births as follows:

   Male births = .51 x Births

   Female births = .49 x Births

4. Forward-survive each birth cohort until year 2015 to determine the number of males/females aged 0 to 9 in 2015 by applying survival ratios from birth to that age.

For example, the births born in 2005 who are still alive by 2015 will be aged 9 by that time. The estimated number of births in 2005 is therefore multiplied by the survival ratio from birth to age 9 to get an estimate of the number of persons aged 9 in 2015.

5. The total number persons age 0-4 and 5-9 estimated in this process then become the revised estimates for the national base population.

Adjustment in the rest of the age groups done by simply smoothing the enumerated population through the use of 5-group moving averages, as in the following example:

$$P'(20-24) = \frac{P(10-14) + P(15-19) + P(20-24) + P(25-29) + P(30-34)}{5}$$

where P' represents the adjusted population for the age-group and P, the enumerated population.

As a final adjustment to produce the base population for the national projection, the adjusted total population is forward from 1 March 2015 to 1 July 2015, or mid-year of 2015. This is done so that all projected values refer to mid-year which is intuitively convenient to refer to population counts. The exponential growth formula is applied, separately for males and females, to get their respective mid-year population, as illustrated below:

$$P'' = P' e^{rn}$$

where P'' refers to the estimated mid-year population of the country

P' is the sum of the adjusted population by age-group

r is the observed average growth rate of the population between 2005 and 2015 and is equal to 1.45 percent or 0.0145.

n = 4 (months)/12 or .33 years

7.2.2 Method of time adjustment

Please indicate below the method used in constructing the age-sex distribution of the reported population estimates by age and sex.

☐ (1) Population estimates by age and sex are sourced annually from a population register

☐ (2) Applying actual or assumed natural increase and migration

☐ (3) Applying actual or assumed natural increase alone

☐ (4) Distributing the total estimate according to percentage of population in each age-sex group at time of census of sample survey

☒ (5) Use of the cohort-components method to produce population estimates by age and sex

☐ (6) Innovative methods that use registers and administrative data. Please describe as necessary:

☐ (7) By other means, please describe:

7.2.3 Disposition of unknown age

Please indicate below whether, in the preparation of the population estimates by age and sex:

☐ (1) An age has been assigned to persons for whom age did not appear in the census or sample survey.

☐ (2) Frequency in unknown age category has been distributed proportionately among known ages.

☒ (3) The frequency of unknown age appearing in the census or survey was zero.

☐ (4) Other treatment for unknown age category.

7.3 Urban and rural population, and the population of cities

Please indicate below the method used in making intercensal or postcensal estimates of urban, rural, and of city population.

	Urban/rural population	City population
(1) Continuous population registers	☐	☐
(2) Surveys, other than a census	☐	☐
(3) Extrapolation of percentage	☐	☐
(4) Observed rate of growth, assumed to continue	☐	☐
(5) By other means; please describe:	☐	☐

8. Bibliography of Demographic Statistics

Please list publications that contain results of your latest population census or survey, and current statistics on population estimates:

1. Result of Population and Housing Census 2015
2. Lao Population Projection 2015-2045
3. Lao Population Projection 2015-2030 by single age