

2.4.4 Household Size

Household size; the number of persons per family, is a basic requirement for analysing future water demand projection. Household size is calculated from the past record of population statistics and numbers of households. Table 24-4 shows data for the population, number of households and calculated household size by district from 1995 and 2000. Household size is becoming smaller when a comparison is made between the statistics from 1995, and 2000.

Table 24-4 Household Size in 1995 and 2000

District Name		1995			2000		
		Population	Hhlds	Hhlds Size	Population	Hhlds	Hhlds Size
		person	nos.	person	person	nos.	person
01	Chanthabuli	58,855	10,203	5.77	61,253	11,555	5.30
02	Sikhottabong	74,251	12,612	5.89	77,255	14,381	5.37
03	Saysettha	75,255	12,562	5.99	79,205	14,377	5.51
04	Sisattanak	58,178	9,850	5.91	57,822	10,538	5.49
05	Naxaithong	44,104	7,600	5.80	49,604	8,934	5.55
06	Xaythany	97,829	16,512	5.92	113,699	20,666	5.50
07	Hadxaifong	64,962	11,933	5.44	70,351	13,673	5.15
08	Sangthong	16,728	2,928	5.71	20,728	3,931	5.27
09	Mayparkngum	33,945	5,933	5.72	38,862	7,020	5.54
Total/Average		524,107	90,133	5.81	568,779	105,075	5.41

Source : Data provided by National Statistical Centre in April, 2003

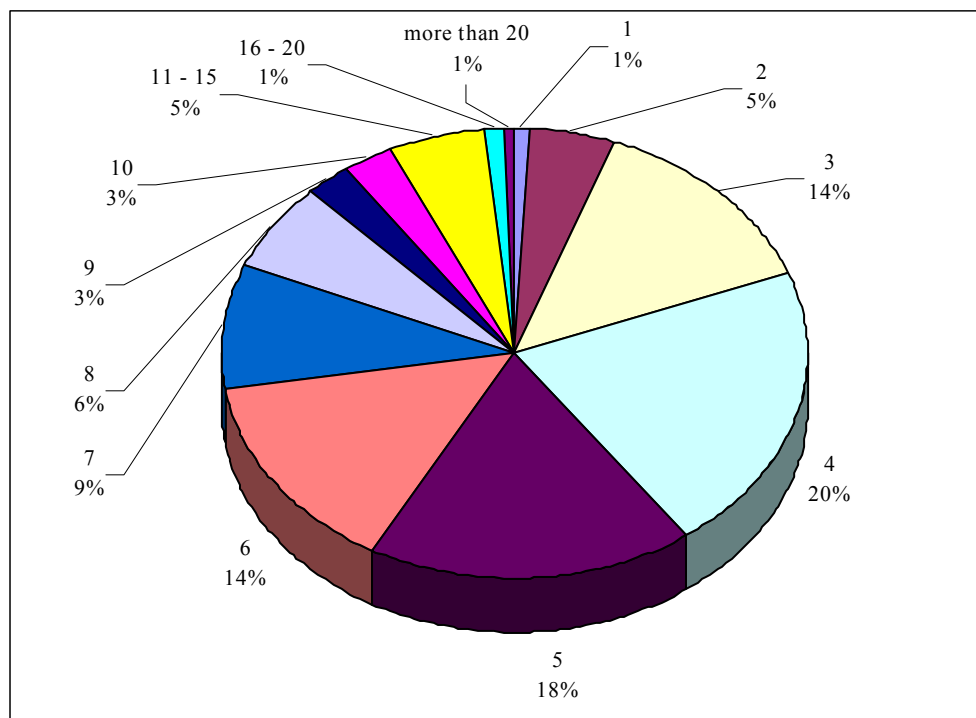
The JICA Study Team collected household size data with assistance from NPVC meter readers. When a NPVC meter reader visited a house to read the water meter, he asked for the number of people who used water from that connection. The results of household sizes from this survey are shown on Table 24-4 and Figure 24-5. The average household size is 5.786 people per house, as can be seen in the table below.

Table 24-5 Household Size of NPVC Consumer

Number of Connections Surveyed	Total Number of Person Consuming water from the Connection	Household Size, Number of Person per Connection
Nos.	Nos.	Nos.
4,603	26,634	5.786

Source: Results of survey by NPVC meter reader in March 2003

Figure 24-5 Number of People per Connection



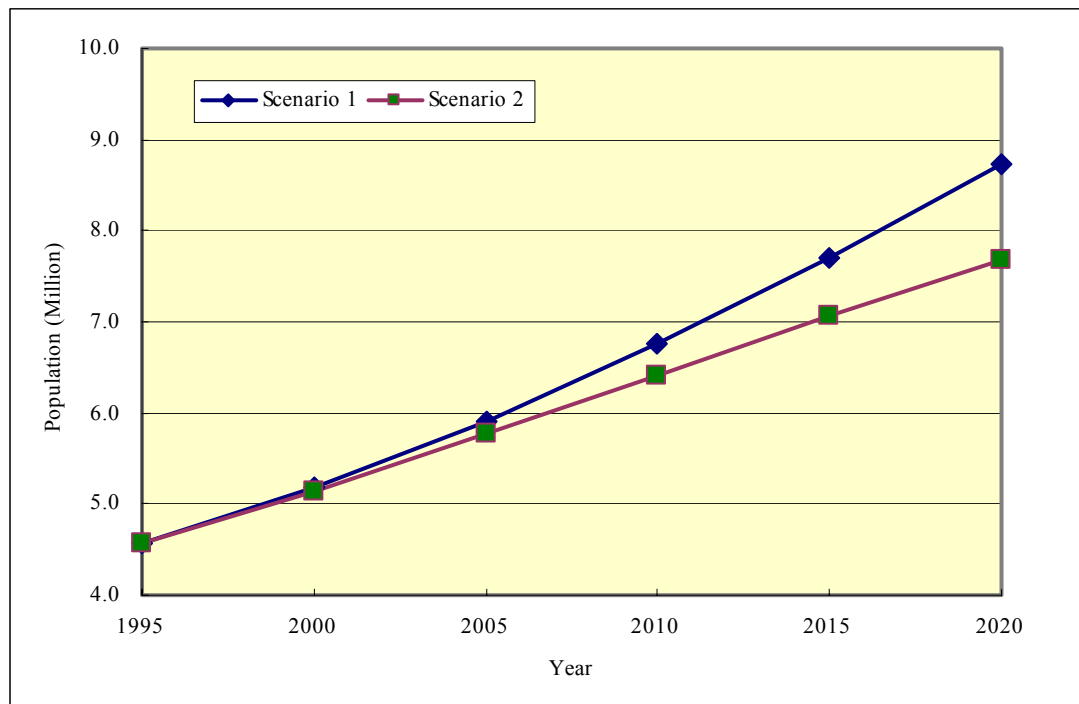
Source: Results of survey by NPVC meter readers in March 2003

The JICA Study Team conducted a questionnaire survey in April 2003. The average size of households in the surveyed area is 6.41 persons. However, the average household size of households with a piped water supply is 6.81 and the ones not supplied with piped water is only 5.97 people.

2.4.5 Future Population Projections

(1) Population Projection of Lao PDR

The NSC has made a long-term population projection for the period 1995 to 2020. This projection has been made in five yearly intervals, with two scenarios (1) a standard projection, (2) a low projection for the whole nation based on “Results from the Population Census 1995”, as described in Table 24-6. The NSC presents these population projections in Table 24-6. Basic data for projections such as fertility rate and mortality rate were based on 1995 census information. Table 24-6 shows the population projections for the respective scenarios. The projections are illustrated in the figure below.



The 1995 population census was conducted after no census had been held for 10 years. According to the results, the total population counted was 4.57 million and an average growth rate for the country was calculated at 2.47% per annum between the two censuses. The population projection, for 2020 under the scenarios above, were estimated as follows: 8.74 million under the standard scenario, 7.69 million under the low scenario. According to the NSC calculations, the population in 2000 was 5.21 million. In the projection in Table 24-6, the population in 2000 was estimated at 5.19 in scenario 1 and 5.15 million in scenario 2. As far as it is seen in these projections, the population under the standard scenario (scenario 1) seems to be the most accurate scenario.

Table 24-6 Population Projection in Lao PDR: 2000 – 2020

		(Unit: 1000)				
Item	1995 Census	2000	2005	2010	2015	2020
I. Scenario 1						
Male	2,261	2,575	2,942	3,367	3,845	4,375
Female	2,314	2,618	2,973	3,386	3,849	4,363
Total	4,575	5,193	5,916	6,752	7,694	8,738
II. Scenario 2						
Male	2,261	2,548	2,858	3,186	3,515	3,826
Female	2,314	2,598	2,905	3,229	3,554	3,861
Total	4,575	5,146	5,763	6,415	7,069	7,687

Source: Results from the Population Census 1995, April 1997, NSC, State Planning Committee

Note:

Scenario 1 assumes that the mortality and fertility levels of the 1995 census will prevail until 2020. Scenario 2 assumes that the mortality and fertility are improved as follows.

Item	Scenario 1	Scenario 2				
		1995- 2000	2000- 2005	2005- 2010	2010- 2015	2015- 2020
Gross Reproduction Rate (GRI)	2.6	2.4	2.2	2.0	1.7	1.5
Net Reproduction Rate (NRR)	2.0	1.9	1.8	1.6	1.5	1.5
Total Fertility Rate (TFR)	5.5	5.0	4.5	4.0	3.5	3.0
Life Expectancy (LE)						
Male	50	51	54	56	59	61
Female	52	55	57	60	62	65
Infant Mortality Rate (IMR)						
Boys	-	101	76	79	57	49
Girls	-	85	76	66	57	49
Both Sexes	104	94	83	73	63	54

(2) Population Projection of Vientiane Capital City

Existing information concerning future population projection was obtained from several reports or institutions. Table 24-7 and Figure 24-6 show the population forecast up to 2000. Data from Vientiane Capital City and the ADB project show a much higher increase in population compared with the population increase ratio from 1995 to 2000 which is about 2.5 % per annum as discussed in the previous section. It should be noted that the data shown in this section is the existing available projection data for future population growth.

Table 24-7 Future Population Projection

	Year	2000	2005	2010	2015	2020
NPVC M/P	Population	597,806	676,362	765,242	865,801	979,574
	Increase Ratio	%/annum	-	2.50%	2.50%	2.50%
V. C. City	Population	597,000	707,885*	839,366*	995,267*	1,180,125
	Increase Ratio	%/annum	-	3.47%	3.47%	3.47%
ADB Proj.	Population	640,815	753,762	882,333	1,027,841	-
	Increase Ratio	%/annum	-	3.30%	3.20%	3.10%

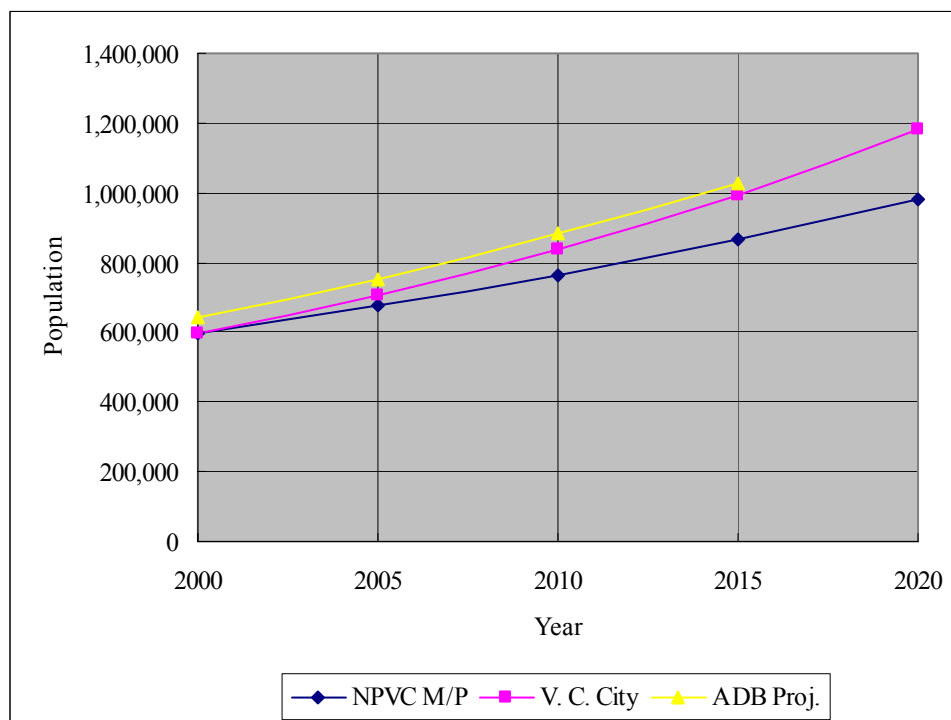
NPVC M/P: Master Plan, Vientiane Water Supply Development Project, November 1999, NPVC

V. C. City : data provided by Department of Planning and Cooperation, Vientiane Capital City in March 2003

ADB Proj. : Rehabilitation and Upgrading of Vientiane Water Supply Project, ADB, 1994

(Note) * : calculated by the Study Team since only year 2000 and 2020 data were provided

Figure 24-6 Future Population Projection



2.5 Development Plans

2.5.1 National Development Plans

The Lao government has laid down a long-term national development plan. It includes a socio-economic development plan, which has a long term planning period of 20 years from 2001 to 2020, and a shorter term planning period of 10 years from 2001 to 2010. In addition, the medium-term development plan 2001-2005 was published to accelerate economic development at a higher pace than before.

1) Basic Strategy for National Socio-economic Development 2001-2020

The plan proposes the national long-term development vision for the next 20 years. It insists on the following development policy: (a) sustainable development, maintaining a balance between economy, socio-culture and environment; (b) well-balanced socio-economic development, consisting of a regional balance between urban and rural areas, effective distribution of natural and human resources, and equitable distribution of wealth; and (c) activation of administration, and attainment of national defence and safety based on national development.

It declares the following national goals by the target year 2020

- (a) National population: 8.30 million with an annual population growth rate of 2.2%
- (b) GDP per capita: US\$ 1,200 to US\$1,500 with an annual growth rate of 7% on average, based on the total investment by 25% ~ 30% of the GDP from both public and private sectors
- (c) Literacy rate: 90% of the population more than 15 years old are to become literate
- (d) Life expectancy: 70 years
- (e) Development of basic infrastructures
- (f) Increase of GVA shares of industry and services sectors
- (g) Improvement of living conditions both physical and mental based on job creation

2) Socio-economic Development Strategy 2001-2010

For the first ten years of the long-term development plan above, the government declares the following development goals. Its development strategies for the planning period suggest increasing agricultural production, alleviating poverty problems and establishing key industries.

- (a) National population: 6.70 million with annual growth rate of 2.4%
- (b) GDP per capita: US\$ 700 to US\$750 with an annual growth rate of not less than 7%
- (c) Literacy rate: 84% of the population more than 15 years old will be literate

- (d) Life expectancy: 67 years
- (e) Reduction of viral diseases like malaria and diarrhoea

3) Five-Year National Development Plan 2001-2005

In this plan, the government proposes that the following development goals should be attained during the planning period.

- (a) National population: 5.90 million
- (b) GDP per capita: US\$ 450 to US\$500
- (c) Annual growth rate of GDP: not less than 7.0% per annum on average, composed of average growth rate of 4% ~ 5% for the agriculture sector, 10% ~ 11% for the industrial sector and 8% ~ 9% for the services sector
- (d) Structure of the national economy in the target year: 47% of the agricultural sector's GVA to GDP, 26% of the industrial sector and 27% of the services sector
- (e) Price and foreign exchange: less than 10% annual inflation rate on average and stabilisation of foreign exchange rates
- (f) Reconstruction of public finance: to reduce the annual budget deficit by 5% of GDP
- (g) Improvement of external trade balance: 6% of GDP as deficit of merchandise trade balance
- (h) Public investment: 12% ~ 14% of GDP, with an internal accumulation share of about 12% of GDP
- (i) Poverty alleviation: to increase efforts to reach half of the people currently classed as poor

In order to attain the goals above, plans for different sectors are proposed in the plan. One of the most important development targets of the MCTPC is to complete paved roads connecting the central part of Vientiane to the respective provinces, and access roads connecting the respective villages even in the rainy season. In addition, improvement of water supply systems in Vientiane Capital City and in major districts, and in some small districts in the provinces, is one of the most important development goals.

2.5.2 Vientiane Urban Development Master Plan

The Vientiane Urban Development Master Plan (VUDMP) was formulated in 1991 with UNDP/UNCHS support and revised in 2000. The revised VUDMP by the Urban Research Institute, MCTPC, was approved in 2002 by the Prime Minister and implementation of improvement to roads and drainage systems has started already and is financed by the ADB. The implementing agency for the projects is the Vientiane Urban Development and Administration Authority, (VUDAA) from the

Vientiane Capital City Government.

This VUDMP covers the central part of the Vientiane Capital City and the areas covered by the VUDMP are called the “Capital Municipality Zones”. The Capital Municipality Zones are comprised of 7 districts as follows;

- Chanthabouli District
- Sisattanak District
- Part of Sikhottabong District
- Part of Saysettha District
- Part of Naxaithong District
- Part of Xaythany District
- Part of Hadxaifong District

The remaining two remote districts, Sangthong and Pak-ngum Districts are not included in the VUDMP.

Although the VUDMP covers only the central part of the capital city, “Special Development Zones”, “Satellite Towns Zones” and “Long-Term Expansion Urban Zones” which are outside of the planning zone are also discussed in the VUDMP Report. These zones are defined in the VUDMP as follows:

- (a) Capital municipality zone: central urban areas of Vientiane
- (b) Special development zone: mainly residential areas, including public space such as public gardens, agricultural areas, industrial areas, transport facilities, cultural facilities, defence facilities, etc.
- (c) Satellite district zone: potential areas for future development, designated as second development priority, within a distance of 20km ~ 60km from the central zone and having a population of not more than 10,000 people. They are mainly agricultural areas at present, but include potential areas for industrial development.
- (d) Long-term development zone: undeveloped areas at present, located in hilly lands without any risk of flooding, but unsuitable for agricultural production. Some of these areas have potential to be developed as tourist attractions.

The VUDMP defines a policy of urban development and land use patterns for future development to achieve well coordinated development. Although the development policy and land use are defined, specific target years or funding sources for implementation are not described in the report.

(1) Land Use Plan

Land use and development zones are defined in the VUDMP as shown on Figure 25-1. The Capital Municipality Zones are categorized into 17 kinds of land use zones and areas where development will take place in the future. Areas which should be reserved as green space or paddy fields are clearly distinguished in the plan.