



Appendix 2

Results of the Social Survey

APPENDIX 2: RESULTS OF THE SOCIAL SURVEY

2.1 Outline of the Social Survey

A social survey was conducted as part of the Study. The objectives of the social survey are as follows.

- 1) To collect the basic socioeconomic data at household and District levels in Vientiane Capital.
- 2) To collect people's opinions on the future urban development.
- 3) To grasp people's needs for the future urban development.

The social survey consists of two types of interviews; a household survey and a key informant survey, which are as summarized below.

2.1.1 Household Survey

A household survey was conducted to collect basic data about the ordinary households in Vientiane capital. The outline of the household survey is as shown in Table 2.1.1.

Table 2.1.1: Outline of the Household Survey

| | Item | Description |
|---|---------------------|---|
| 1 | Sample Number | 3,000 |
| 2 | Area | Whole Vientiane Capital (All the 9 District) |
| 3 | Target | Ordinary households to be chosen at random |
| 4 | Method | <ul style="list-style-type: none"> ➤ Subcontracted to a local consulting company ➤ Interview by trained interviewees using a semi-structured questionnaire |
| 5 | Period | From the mid March to the end of May (For about 2.5 months) |
| 6 | Items to be checked | <ul style="list-style-type: none"> a) Family structure and personal data (For each family member: Sex, Age, Educational background, Job status, Annual revenue, Daily trip, etc) b) Building data (Structure/Material, Floor numbers/Area, Number of years since construction, etc)/ Land lot data (Area, Land use, etc) c) Infrastructure/ Parking space/ Parks & Greenery (Current situation, Wishes for the future) d) Waste (Current situation, Wishes for the future) e) Future vision for 2030 (District level/ Whole capital level) |

Source: JST

The sample size of the household survey by district and village category is as shown in Table 2.1.2. The sample size of 3,000 was distributed among the nine (9) districts, basically in proportion to the demographic size of each district.

Table 2.1.2: Sample Numbers of the Household Survey by District and Village Category

| District Name Village Type 1, 2, 3 | Population (2005) | | Sample Number | | | | |
|---------------------------------------|-------------------|------------|---------------|------------|-------|-----|---|
| | Actual Number | Percentage | Total | Percentage | 1 | 2 | 3 |
| Vientiane Capital (Total) | 691,721 | 100% | 3,000 | 100% | 2,430 | 565 | 5 |
| 1 Chanthabuly | 68,858 | 10% | 300 | 10% | 300 | 0 | 0 |
| 2 Sikhottabong | 99,908 | 14% | 450 | 15% | 380 | 70 | 0 |
| 3 Xaysetha | 97,514 | 14% | 400 | 13% | 400 | 0 | 0 |
| 4 Sisattanak | 68,686 | 10% | 300 | 10% | 300 | 0 | 0 |
| 5 Naxaithong | 58,368 | 8% | 250 | 8% | 240 | 10 | 0 |
| 6 Xaythany | 150,793 | 22% | 650 | 22% | 500 | 150 | 0 |
| 7 Hadxaifong | 78,338 | 11% | 350 | 12% | 270 | 80 | 0 |
| 8 Sangthong | 24,215 | 4% | 100 | 3% | 10 | 85 | 5 |
| 9 Mayparkngum | 45,041 | 7% | 200 | 7% | 30 | 170 | 0 |

Source: JST (* Demographic data is based on the “National census in 2005, Lao PDR”.)

Note: Village Type 1=Urban Village, 2=Rural Village with Paved Road Access, 3=Rural Village without Paved Road Access

The household survey does not cover all the villages in Vientiane Capital, but most of main characteristic villages in terms of geographical location, sociopolitical aspects, urbanization and/or existing infrastructure were selected. Accordingly, the household survey was conducted in 149 villages out of 499, which is the total village number in Vientiane Capital. The whole village numbers (2005) and the household survey target village numbers by district are as shown in Table 2.1.3.

Table 2.1.3: Whole Village Numbers (2005) and HHS Target Village Numbers by District

| District Name Village Type 1, 2, 3 | Village Number (2005) | | | | HHS Target Village Number | | | |
|---------------------------------------|-----------------------|-----|---|-------|---------------------------|----|---|-------|
| | 1 | 2 | 3 | Total | 1 | 2 | 3 | Total |
| Vientiane Capital (Total) | 339 | 158 | 2 | 499 | 108 | 40 | 1 | 149 |
| 1 Chanthabuly | 37 | 0 | 0 | 37 | 11 | 0 | 0 | 11 |
| 2 Sikhottabong | 48 | 12 | 0 | 60 | 15 | 4 | 0 | 19 |
| 3 Xaysetha | 52 | 0 | 0 | 52 | 16 | 0 | 0 | 16 |
| 4 Sisattanak | 40 | 0 | 0 | 40 | 14 | 0 | 0 | 14 |
| 5 Naxaithong | 51 | 5 | 0 | 56 | 12 | 1 | 0 | 13 |
| 6 Xaythany | 66 | 38 | 0 | 104 | 25 | 13 | 0 | 38 |
| 7 Hadxaifong | 40 | 20 | 0 | 60 | 11 | 6 | 0 | 17 |
| 8 Sangthong | 1 | 34 | 2 | 37 | 1 | 6 | 1 | 8 |
| 9 Mayparkngum | 4 | 49 | 0 | 53 | 3 | 10 | 0 | 13 |

Source: JST (* Village numbers are based on the “National census in 2005, Lao PDR”.)

Note: HHS = Household Survey

Village Type 1=Urban Village, 2=Rural Village with Paved Road Access, 3=Rural Village without Paved Road Access

The list of the surveyed villages and the questionnaire for the household survey are as shown in Attachments 1 and 2, respectively.

2.1.2 Key Informant Survey

A key informant survey was conducted in parallel with the household survey to collect basic views of the opinion leaders mainly working for the public benefit and living in Vientiane capital. The outline of the key informant survey is as shown in Table 2.1.4.

Table 2.1.4: Outline of the Key Informant Survey

| | Item | Description |
|---|---------------------|---|
| 1 | Sample Number | 107 |
| 2 | Area | Whole Vientiane Capital (All the 9 District) |
| 3 | Target (Planned) | 1. District Level (Governor/ OPWT/ OAF/ WREO/ LMO/ OIC/ etc) 2. Heal of Village Group 3. Vientiane Capital Level (Vientiane Capital/ DPWT/ VUDAA/ Women's Union/ DAF/ DIC/ DOIC/ etc) 4. National Level (DHUP/ PTI/ NLMA/ WREA) |
| 4 | Method | ➤ Subcontracted to a local consulting company ➤ Interview by trained interviewees using a semi-structured questionnaire |
| 5 | Period | From the mid April to the end of May (For about 1.5 months) |
| 6 | Items to be checked | a) Identification of the interviewee b) Infrastructure (Current situation, Wishes for the future) c) Problems on the current urban planning system d) Future vision for 2030 (District level/ Whole capital level) e) District profile (* Only for the interviewees working for district offices) |

Source: JST

The questionnaire for the key informant survey is as shown in Attachment 3.

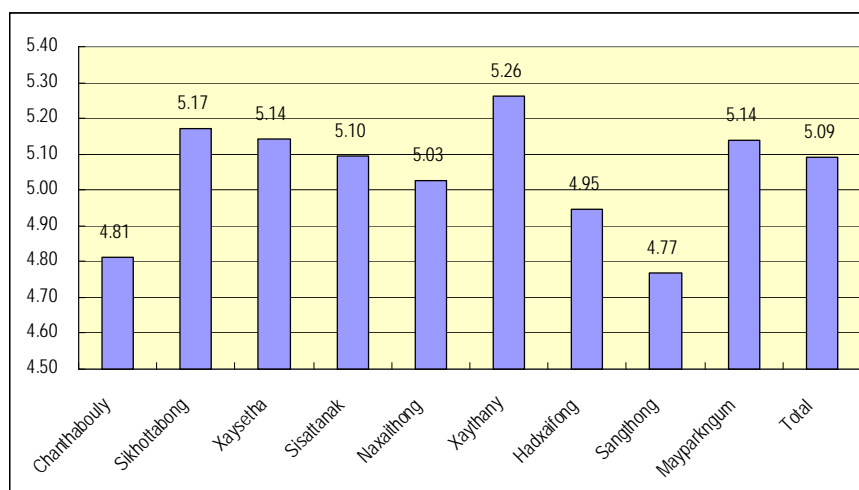
2.2 Summary Result of the Social Survey

2.2.1 Household Survey

The main result of the household survey is briefly summarized below. The detailed analyses for all the questioned items are as discussed separately in Appendix-1.

(1) Family Structure

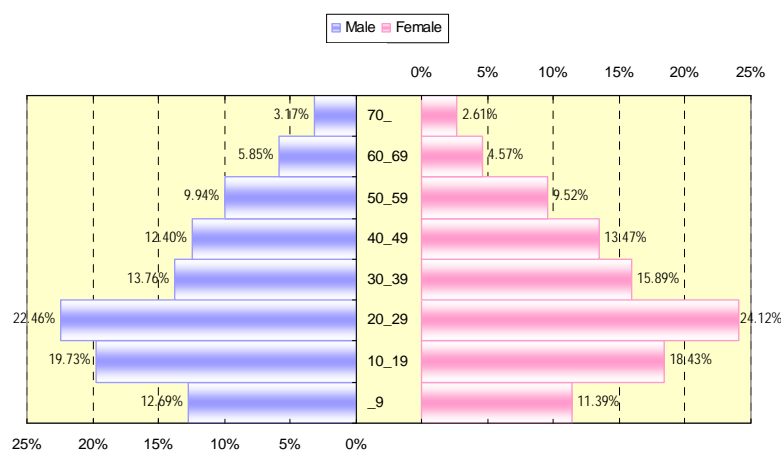
The average family size by district is shown in Figure 2.2.1. There are 5.09 persons per household on an average in Vientiane Capital. On the district level, Xaythany has the largest average family size of 5.26 persons/ family, and Sangthong has the smallest size of 4.77 persons/ family.



Source: JST (Household Survey)

Figure 2.2.1: Average Family Size by District

Figure 2.2.2 shows the population pyramid in Vientiane Capital based on the household survey. The largest age group is 20-29 years for both men and women.



Note: The data source is 15,271 people living in the interviewed 3,000 households.

Source: JST (Household Survey)

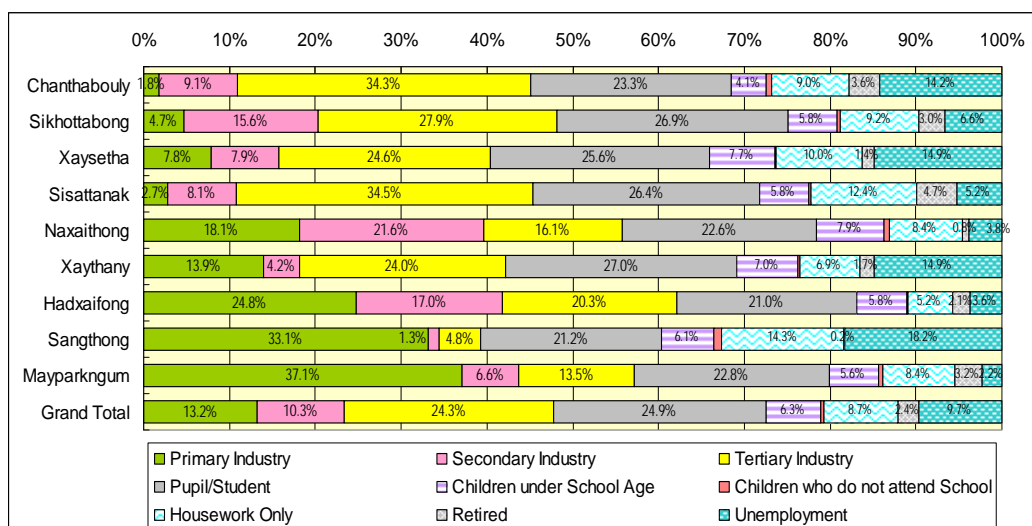
Figure 2.2.2: Population Pyramid of the Interviewed Households in Vientiane Capital (2010)

(2) Occupation

Figure 2.2.3 shows the occupation of the interviewed family members.

On an average in Vientiane Capital, 13.2 %, 10.3 %, and 24.3 % of the interviewed household members are engaged in the primary, secondary, and tertiary industries, respectively. “Pupil/ Student” accounts for 24.9%. The unemployment rate, the ratio of the people who look for a job but does not work actually to the total interviewed household members, is 9.7%.

At district level, 37.1 % of the interviewed household members in Mayparkngum and 33.1 % in Sangthong are engaged in the primary industry, which account for only 1.8 % and 2.7 % in Chanthabouly and Sisattanak, respectively.

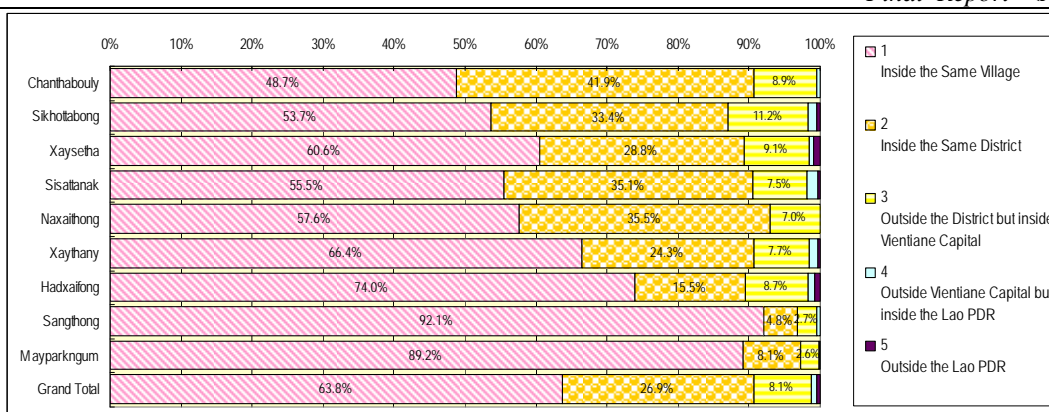


Source: JST (Household Survey)

Figure 2.2.3: Occupation of the Interviewed Family Members by District

(3) Daily Movement

Figure 2.2.4 shows the location of workplace/school of the interviewed household members. On an average in Vientiane Capital, 63.8 % of those who go to work or go to school/university on a daily basis commute within the village where they live. Then, 26.9 % and 8.1 % commute within the district and within Vientiane Capital, respectively. Only 1.3 % commute outside Vientiane Capital. In the central districts such as Chanthabouly, Sisattanak, etc., people cross the village borders more often than in the fringe districts such as Sangthong and Mayparkngum. Sangthong and Mayparkngum are much more self-contained than the other seven (7) districts in terms of commuters’ daily movements, as there are less than 3.0 % go beyond their district on the daily basis, while from 7.0 % to 11.2 % of the people in the other seven (7) districts cross the district border to another district.

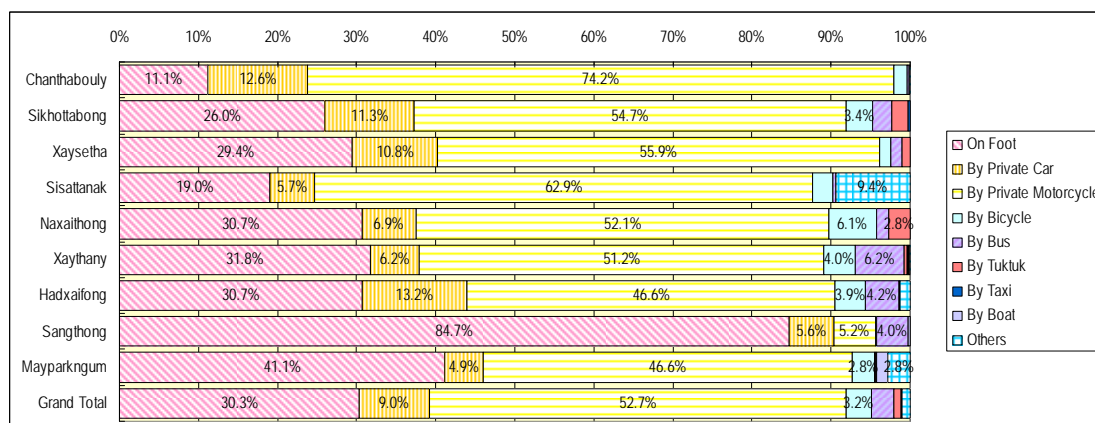


Note: 12,231 people go to work or go to school/ University on a daily basis.

Source: JST (Household Survey)

Figure 2.2.4: Location of Workplace/ School of the Interviewed Household Members

Figure 2.2.5 shows the means of transport for their daily commute of the interviewed household members. On an average in Vientiane Capital, 52.7 % of the people use a private motorcycle. This tendency is especially high in the central districts such as Chanthabouly (74.2 %), Sisattanak (62.9 %), Xaysetha (55.9 %), etc. On the contrary, 84.7 % of the interviewed household members in Sangthong walk to their workplace or school, not using any vehicles.



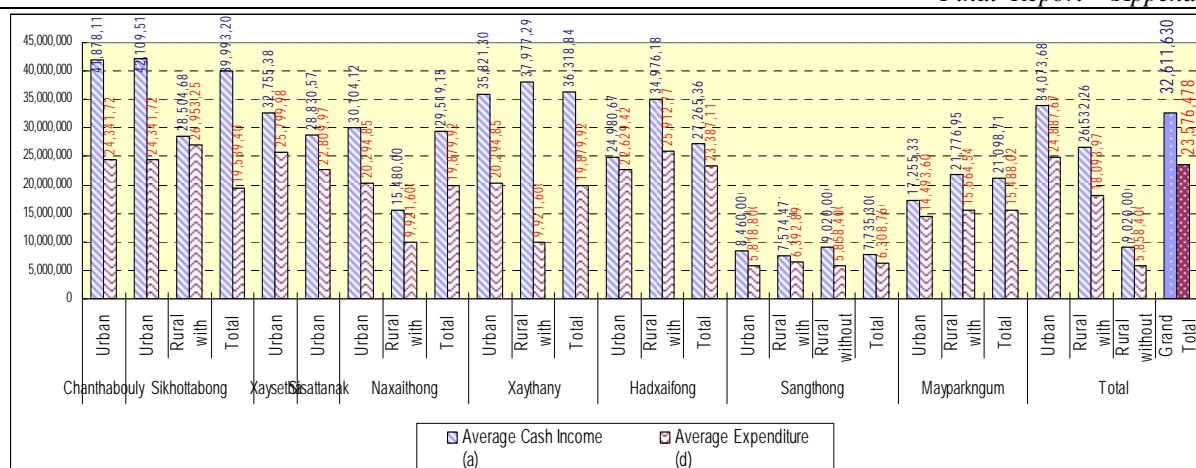
Source: JST (Household Survey)

Figure 2.2.5: Means of Transport for Daily Commute by District

(4) Income and Expenditure

Figure 2.2.6 shows the annual cash income and expenditure by district and village type (urban/ rural). On an average, a household earns LAK 32,611,630, and spends LAK 23,576,478, annually. The ratio of the saving to cash Income is 27.7%.

Generally, urban villages are better off than rural villages. The average income in the urban villages (LAK 34,073,687) is 1.28 times of the average income in the rural villages with road (LAK 26,532,264). Chanthabouly District (LAK 41,878,113), which is composed of urban villages only, earns 5.41 times than Sangthong District (LAK 7,735,300), which is located a long way from the core urban area and mainly composed of rural villages.

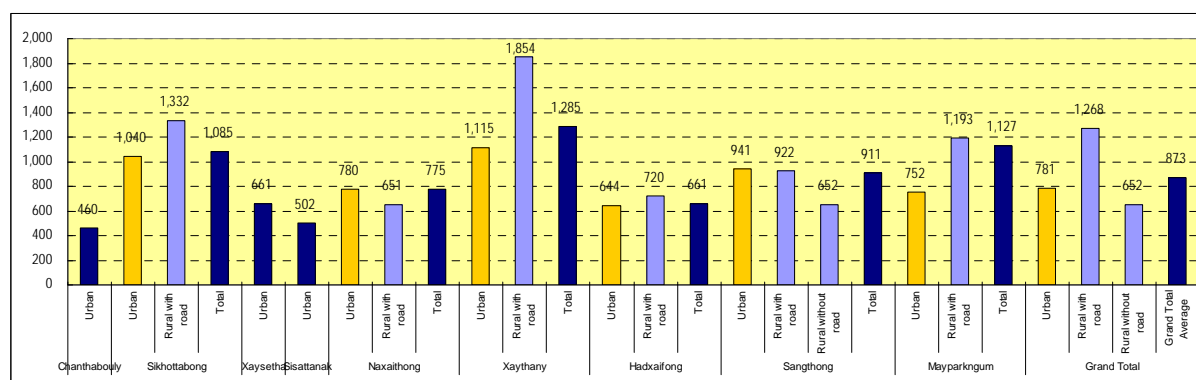


Source: JST (Household Survey)

Figure 2.2.6: Annual Cash Income and Expenditure by District and Village Type

(5) Housing

Figure 2.2.7 shows land areas of the interviewed households. The average land size in Vientiane Capital is 873 m². Generally, the rural lots (1,268 m²) are larger than the urban lots (781 m²). In the central districts such as Chanthabouly (460 m²) and Sisattanak (502 m²), the land lot is not as large as in other districts.

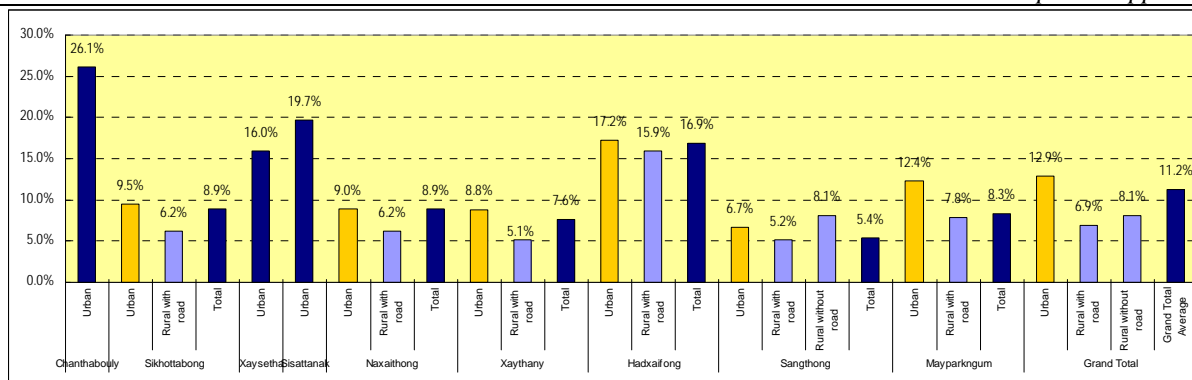


Source: JST (Household Survey)

Figure 2.2.7: Land Area by District

Out of the interviewed 3,000 households, 1,621 households (54.0 %) live in a one-floor building, and 1,358 households (45.3 %) live in a two-floor building. There are only 21 families (0.7 %) who live in a three- or four-floor buildings. There are no five (5) or more storied buildings for the interviewed households.

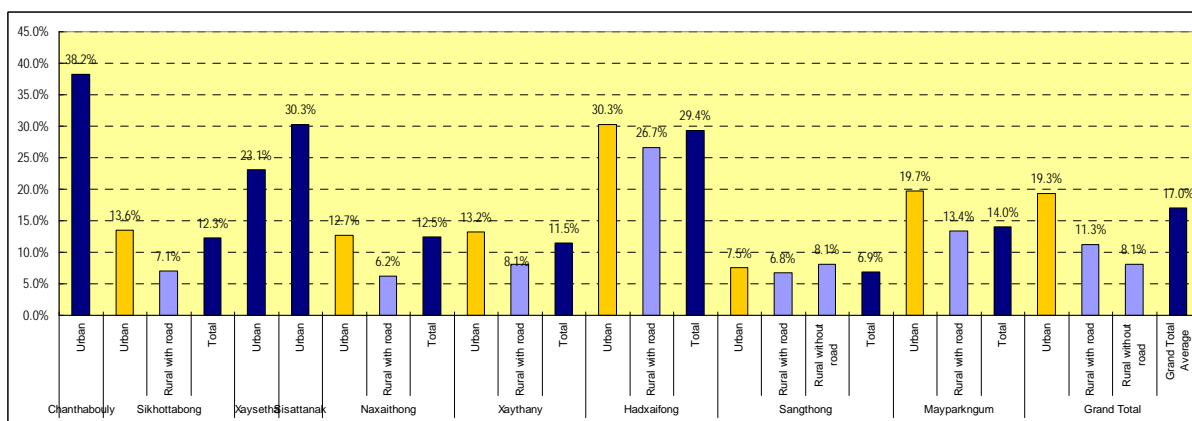
Figure 2.2.8 shows the building-to-land ratio of the interviewed households. The average building-to-land ratio in Vientiane Capital is 11.2 %. Generally, the ratio is much lower in the rural villages (6.9 %) than in the urban villages (12.9 %). In the central districts such as Chanthabouly (26.1 %) and Sisattanak (19.7 %), the ratio is much higher than in other districts.



Source: JST (Household Survey)

Figure 2.2.8: Building-to-Land Ratio by District

Figure 2.2.9 shows the floor area ratio (ratio of total floor area to land area) of the interviewed households. The average floor area ratio in Vientiane Capital is 17.0 %. Generally, the ratio is much lower in the rural villages (11.3 %) than in the urban villages (19.3 %). In the central districts such as Chanthabouly (38.2 %) and Sisattanak (30.3 %), the ratio is by far larger than in the fringe districts.

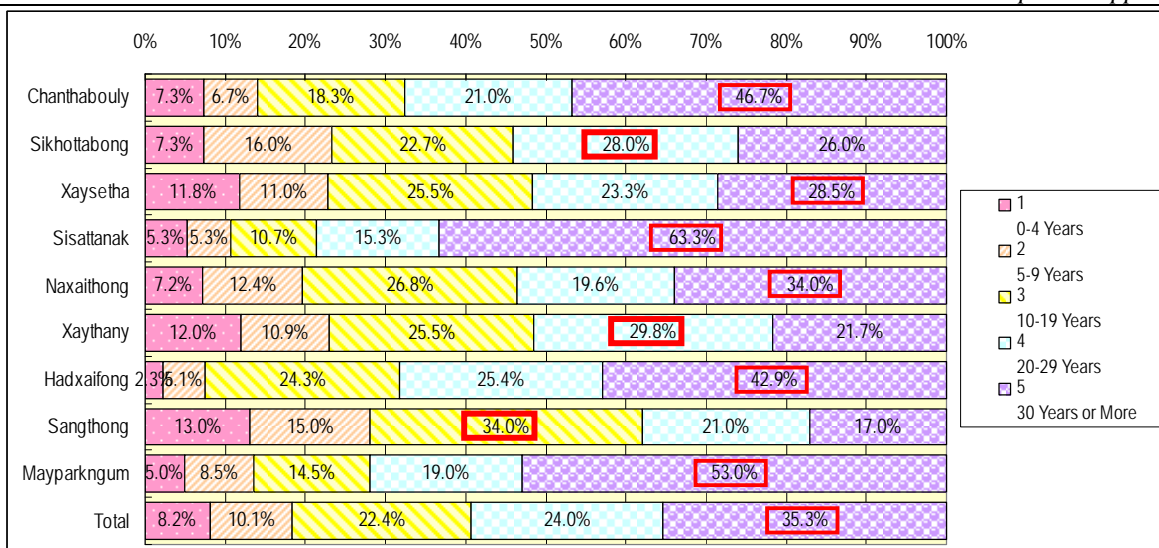


Source: JST (Household Survey)

Figure 2.2.9: Floor Area Ratio by District

(6) Living Period of Time at the Actual Dwelling Places

Figure 2.2.10 shows the total living period of time at the current dwelling places by district. The majority of the households have been living in the actual place for 30 years or more, especially in the urban center such as Sisathanak (63.3%) and Chanthabouly (46.7%). In Mayparkngum which is located in the eastern part of Vientiane Capital, 53.0 % of the interviewed households have lived there for “30 years or more”.



Source: JST (Household Survey)

Figure 2.2.10: Living Period of Time at the Actual Dwelling Places by District

While the group “30 years or more” is the majority for Vientiane Capital, the group “20-29 years” occupies the first place in Xaythany (29.8%) and Sikhottabong (28.0%). In Sangthong the group “10-19 years” is at the top with a percentage of 34.0%. Compared with Table 2.2.1 which shows the demographic growth between 1995 and 2005 by district, these three (3) districts (Xaythany, Sikhottabong and Sangthong) come accidentally to be the top three (3) districts regarding the population increase. This fact implies that a certain correlation exists between the demographic growth and the continuance at the present place of the households, as the demographic inflow is remarkable recently in there three districts.

Table 2.2.1: Demographic Growth between 1995 and 2005 by District

| No. | District | Population (2005) | Population (1995) | Increase (1995-2005) | Increase Rate |
|-----|--------------|-------------------|-------------------|----------------------|---------------|
| 1 | Chanthabouly | 68,858 | 58,855 | 10,003 | 17.0% |
| 2 | Sikhottabong | 99,908 | 74,251 | 25,657 | 34.6% |
| 3 | Xaysetha | 97,514 | 75,255 | 22,259 | 29.6% |
| 4 | Sisattanak | 68,686 | 58,178 | 10,508 | 18.1% |
| 5 | Naxaithong | 58,368 | 44,104 | 14,264 | 32.3% |
| 6 | Xaythany | 150,793 | 97,829 | 52,964 | 54.1% |
| 7 | Hadxaifong | 78,338 | 64,962 | 13,376 | 20.6% |
| 8 | Sangthong | 24,215 | 16,728 | 7,487 | 44.8% |
| 9 | Mayparkngum | 45,041 | 33,945 | 11,096 | 32.7% |
| | Total | 691,721 | 524,107 | 167,614 | 32.0% |

Source: JST (National Census 1995 and 2005)

2.2.2 Key Informant Survey

The main result of the key informant survey is summarized below. Here only the outline of main items is described briefly. The detailed analyses for all the questioned items appear in Appendix-1.

(1) Lack or Shortage of Infrastructure

Table 2.2.2 shows the lack or shortage of infrastructure presently. As a whole, 72% of the key informants answered that the bad condition of the “Small Access Roads” is the most serious problem for their district. The second and the third most serious problems are “Drainage/ Sewerage” and “Waste Dumping Site”, respectively. The majority also mentions “Drinking Water Supply” and “Main Roads”. In some districts

“Irrigation Water”, “Parks/ Open Spaces”, and “Medical facilities” are also considered to have problems. “Schools” and “Electricity” seem to be provided comparatively well.

Table 2.2.2: Lacking or Insufficient Infrastructure by District

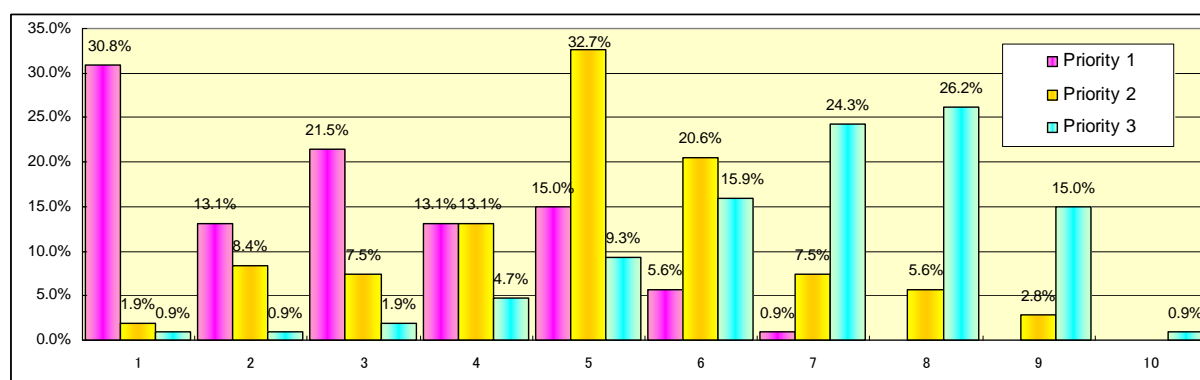
| No. | District | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Other |
|-----|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-------|
| 1 | Chanthabouly | 83% | 25% | 0% | 33% | 0% | 83% | 33% | 17% | 0% | 25% | 0% | 0% | 0% | 0% | 0% | 0% |
| 2 | Sikhottabong | 86% | 14% | 0% | 29% | 14% | 57% | 71% | 0% | 0% | 14% | 0% | 0% | 0% | 0% | 14% | 0% |
| 3 | Xaysetha | 54% | 31% | 0% | 31% | 8% | 85% | 54% | 0% | 0% | 31% | 0% | 0% | 8% | 0% | 0% | 0% |
| 4 | Sisattanak | 89% | 6% | 0% | 17% | 0% | 94% | 61% | 0% | 0% | 33% | 0% | 0% | 0% | 0% | 0% | 0% |
| 5 | Naxaithong | 67% | 11% | 0% | 44% | 33% | 33% | 44% | 0% | 11% | 22% | 0% | 0% | 11% | 22% | 0% | 0% |
| 6 | Xaythany | 80% | 0% | 7% | 53% | 20% | 27% | 47% | 7% | 7% | 20% | 7% | 0% | 7% | 0% | 20% | 0% |
| 7 | Hadxaifong | 55% | 45% | 0% | 36% | 0% | 64% | 36% | 0% | 0% | 45% | 9% | 0% | 0% | 9% | 0% | 0% |
| 8 | Sangthong | 50% | 60% | 10% | 80% | 40% | 20% | 0% | 0% | 0% | 0% | 0% | 10% | 0% | 10% | 20% | 0% |
| 9 | Mayparkngum | 75% | 25% | 17% | 33% | 33% | 17% | 33% | 8% | 0% | 8% | 0% | 0% | 8% | 25% | 17% | 0% |
| | Grand Total | 72% | 22% | 4% | 38% | 15% | 56% | 43% | 4% | 2% | 23% | 2% | 1% | 4% | 7% | 7% | 0% |

| | | | | |
|--------|--|-------------------------|-----------------------|------------------------------|
| Legend | Most serious problem | 1 Small Access Roads | 7 Waste Dumping Site | 13 High Schools |
| | Secondly serious problem | 2 Main Roads | 8 Electricity | 14 Medical Centers (Clinics) |
| | Thirdly serious problem | 3 Bridges | 9 Telecommunication | 15 Hospitals |
| | | 4 Drinking Water Supply | 10 Parks/ Open Spaces | |
| | | 5 Irrigation Water | 11 Primary Schools | |
| | | 6 Drainage/ Sewerage | 12 Secondary Schools | |

Source: JST (Key Informant Survey)

(2) Problems about the Actual Urban Planning System

Figure 2.2.11 shows the problems about the actual urban planning system in Vientiane Capital. Each key informant enumerated three (3) items with a priority by the importance of the problem.



Problem List

- 1 Public workers' urban planning skills are not good enough.
- 2 Public workers in charge are not really committed for urban planning.
- 3 The division of responsibilities among the organizations concerned is not appropriate or unclear.
- 4 Urban planning method is not appropriately standardized or unclear or impractical.
- 5 Legal force is lacking and urban planning may turn out to be nothing but pie in the sky.
- 6 Budget and/or equipment are(is) not enough for conducting a good survey on urban planning.
- 7 Activities for improving of public awareness are not enough.
- 8 Public involvement is not enough.
- 9 Ordinary citizens are not cooperative for urban planning.
- 10 Other

Source: JST (Key Informant Survey)

Figure 2.2.11: Problems about the Actual Urban Planning System

Table 2.2.3 shows the top three (3) problems. The insufficiency of the actual public workers' urban planning skills is recognized to be one of the most serious problems. The unclear responsibility to be shared among the urban planning related organizations, the lack of the legal enforcement, a budgetary insufficiency, and the inappropriate planning method are also considered to be main problems. The participatory approach related items are largely recognized as “Priority 3” problems.

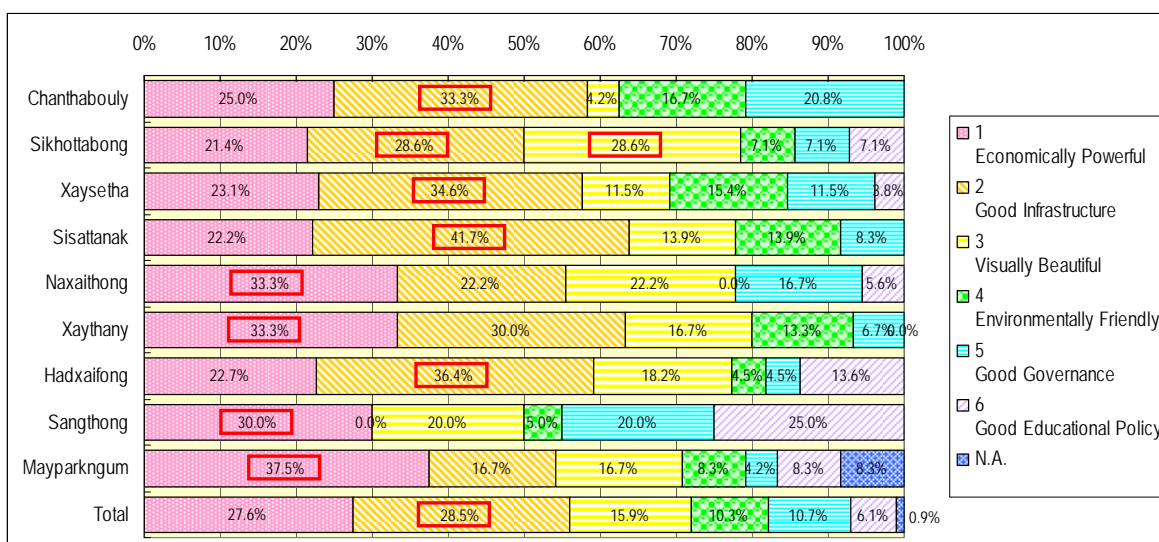
Table 2.2.3: Top Three (3) Problem Items for “Priority 1”, “Priority 2”, and “Priority 3”

| | No.1 | No.2 | No.3 |
|------------|--------------------------------|--|-------------------------------|
| Priority 1 | Skills not enough (30.8 %) | Organization/ Responsibility (21.5 %) | Legal force (15.0 %) |
| Priority 2 | Legal force (32.7 %) | Budget/ Equipment (20.6 %) | Planning method (13.1 %) |
| Priority 3 | Public Involvement (26.2 %) | Public Awareness Activities (24.3 %) | Budget/ Equipment (20.6 %) |

Source: JST (Key Informant Survey)

(3) Development Visions (Vientiane Capital)

Figure 2.2.12 shows the development visions on the whole Vientiane Capital level. Generally, people consider the infrastructure and the economy as the most important elements in their future development visions. Key informants in the central districts (Chanthabouly, Xaysetha, Sisattanak, and Sikhottabong) consider that the infrastructure has a top priority. It is note worthy that in Sikhottabong District “Visually Beautiful” is also considered to be the most important. This high environmental awareness at the authority level might be an outcrop from the district’s proximity to Phou Phanang National Protection Area where the existing greenery should be properly protected. As a whole, “Environmentally Friendly”, “Good Governance” and “Good Educational Policy” are also considered to be important to some extent.



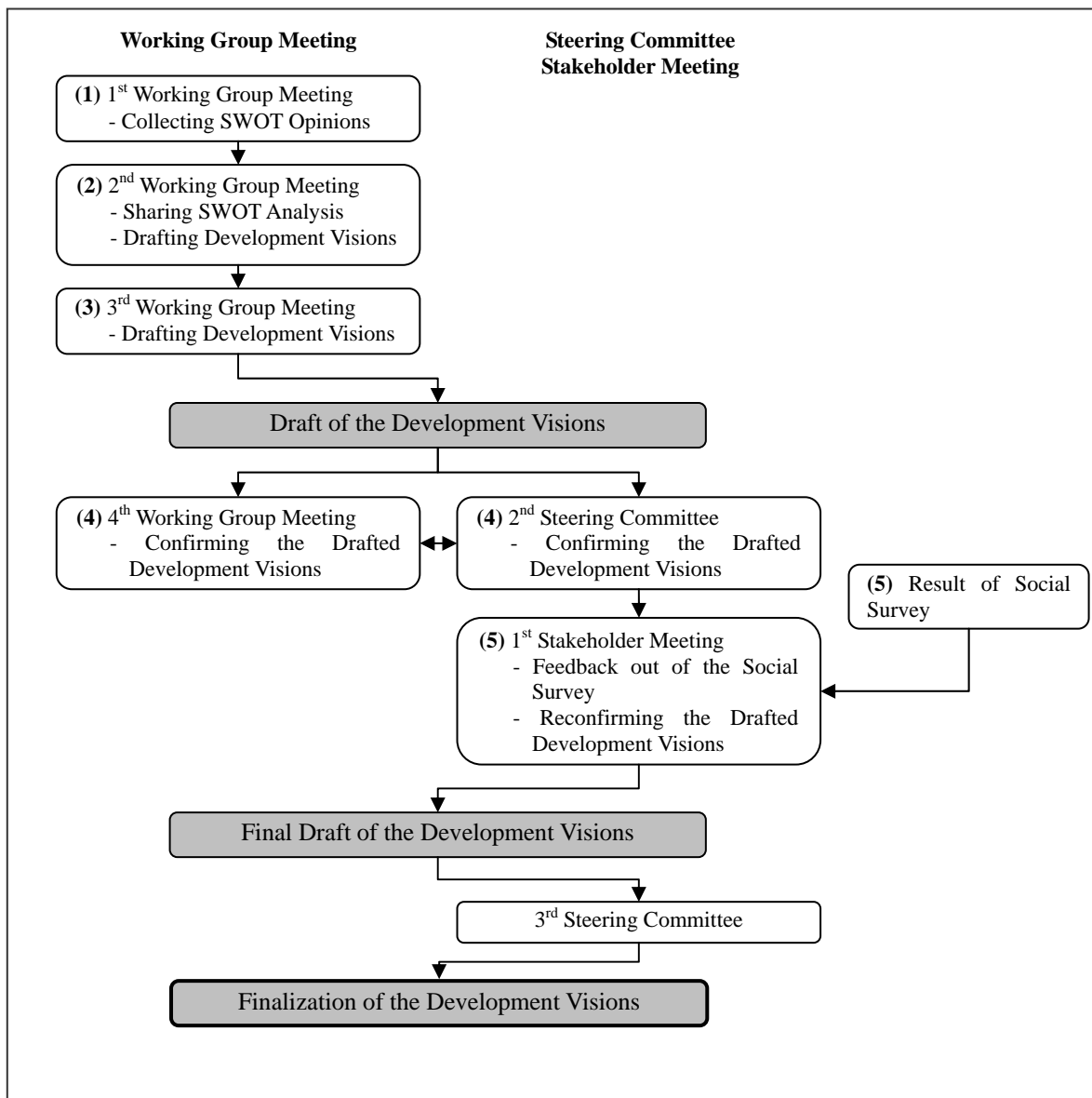
Source: JST (Key Informant Survey)

Figure 2.2.12: Development Visions at the Whole Vientiane Capital Level by District

2.3 Justification through the Feedback of the Social Survey

2.3.1 Justification of the proposed Development Visions

Based on the discussions mentioned in the previous section, a detailed process of formulating the development visions is shown in Figure 2.3.1.



Source: JST

Figure 2.3.1: Working Flow for Formulating the Development Visions

Development visions shown in Chapter 3 have been discussed, and will be finalized based on the process described below.

(1) Collecting SWOT Opinions (1st Working Group Meeting)

In 1st Working Group Meeting, JICA Study Team made a visual presentation about the actual and the future socioeconomic framework for the working group members. Upon understanding the actual and the future socioeconomic framework, the Working Group members went on to a SWOT analysis of Vientiane Capital by answering individually the questionnaire that JICA Study Team had prepared prior to the session.

(2) Sharing SWOT Analysis (2nd Working Group Meeting)

The result of the SWOT analysis was summarized and presented by the Lao counterpart for all the attendees of the Second Working Group Meeting, who basically agreed with the presented output.

A summary of the SWOT analysis is as shown in Table 2.3.1 The result is a SWOT analysis at the whole Vientiane Capital level and by area respectively. This is one of the outputs of the working group discussion.

Table 2.3.1: SWOT Analysis at the Whole Vientiane Capital Level

| SWOT | Description |
|-------------------|--|
| S : Strengths | <ul style="list-style-type: none"> ✓ Stable domestic politics ✓ Good and stable relationship with the GMS countries, other Asian countries, and developed countries |
| W : Weaknesses | <ul style="list-style-type: none"> ✓ Uncontrolled urban expansion toward the suburbs and international/ domestic migration ✓ Insufficient provision of social services (infrastructure, basic health care, etc) from the viewpoint of international standard |
| O : Opportunities | <ul style="list-style-type: none"> ✓ Possibility of becoming an international/ domestic transportation hub for tourists who move in Lao PDR ✓ Possibility of becoming one of the Inter-Regional Economic Centers in the GMS. |
| T : Threats | <ul style="list-style-type: none"> ✓ Recent changes in young generation's attitude toward the daily lifestyle and the traditional culture ✓ Different housing issues (Increase of squatters, skyrocketing land rent, etc) |

Source: JST and the Working Group Meetings

(3) Drafting Development Visions (3rd Working Group Meeting)

Based on the results of the SWOT analysis approved by the working group, development visions were drafted by the working group members, considering the socioeconomic framework as well as the “urban landscape improvement” of Vientiane Capital of which JICA Study Team made a visual presentation to share the concept of urban landscaping among the attendees.

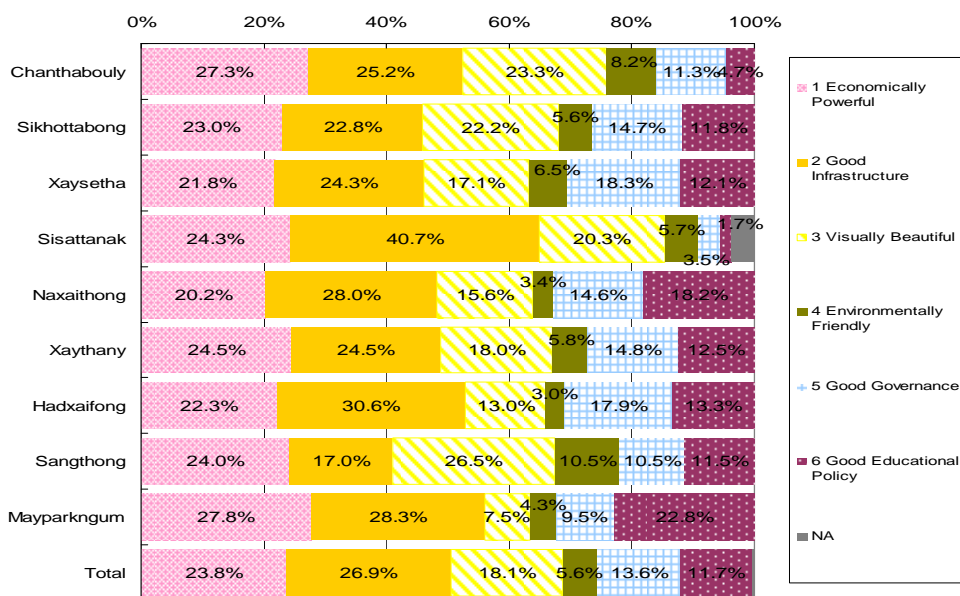
(4) Confirming the Drafted Development Visions (4th Working Group Meeting and 2nd Steering Committee)

A visual presentation was made first by JICA Study Team about the urban structure and a basic policy for future land use to give preliminary ideas on planning bases to the attendees, then the drafted development visions were reviewed and agreed with by the working group members.

(5) Feedback out of the Social Survey (1st Stakeholder Meeting)

1) Household Survey

Figure 2.3.2 shows the result of a question about the development visions for Vientiane Capital which is a part of the household survey. According to the result, “Good Infrastructure”, “Economically Powerful”, and “Visually Beautiful” accounted for 26.9 %, 23.8 %, 18.1% of the total sample number (= 6,000), respectively.



Note: 3,000 household were interviewed (The total sample number is 6,000 as one (1) household chose two (2) options).

Source: JST (Household Survey)

Figure 2.3.2: Development Visions for Vientiane Capital (Feedback out of the Household Survey)

Table 2.3.2 shows the relevance of top three (3) answers which became clear through the household survey to the development visions shown in Figure 2.3.2. For example, “Economically Powerful” and “Good Infrastructure” are closely related to the Vision “Regional Hub in GMS.” “Visually Beautiful” is strongly connected to the Vision “Comfortably-Livable and Beloved Hometown”. Hence, the development visions thus formulated basically reflect the main points of the survey results properly.

Table 2.3.2: Relevance of the Household Survey to the Development Visions

| No. | Answer Choices | Economically Powerful | Good Infrastructure | Visually Beautiful |
|-----|--|-----------------------|---------------------|--------------------|
| 1 | Regional Hub in GMS | XXX | XXX | XX |
| 2 | Center of Nation | XXX | XXX | XX |
| 3 | Comfortably-Livable and Beloved Hometown | X | XX | XXX |

Note: XXX = Much relevance, XX = Some relevance, X = Little relevance

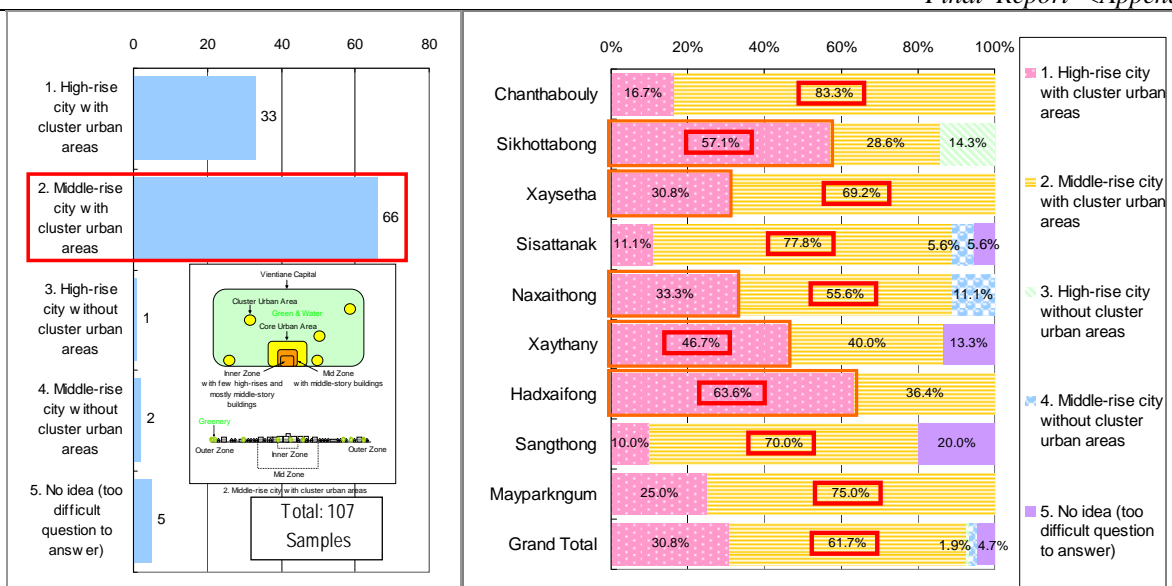
Source: JST (Household Survey)

2) Key Informant Survey

The key informants, namely, 107 public workers for different Lao public authorities answered a question about the desirable vertical and horizontal urban extension of Vientiane Capital in 2030.

As shown in Figure 2.3.3, 66 key informants out of 107 (61.7 %) consider the option “2” as the most desirable. That is, the majority agreed with “2 Middle-rise city with urban clusters”.

However, 33 interviewees out of 107 (30.8 %) chose “1 High-rise city with urban clusters”. It is remarkable that in the five (5) districts (Hadxaifong, Sikhottabong, Xaythany, Naxaithong, and Xaysetha), which are located between the urban center districts (Chanthabouly and Sisattanak) and the fringe districts (Sangthong and Mayparkngum), those who consider the “high-rise city” as ideal are not the minority. Especially, the first three (3) districts (Hadxaifong, Sikhottabong, and Xaythany), the “high-rise” surpasses the “middle-rise” in percentage.



Source: JST (Key Informant Survey)

Figure 2.3.3: Development Visions about Spatial Extent at Vientiane Capital Level

Table 2.3.3 shows the reasons for responding to each option in the development visions about spatial extent.

“Beautiful” for the “high-rise” could be interpreted as a preference for high-rises as the symbolic existence of the economic development or the dignity of a national hub of economy. “Efficient Land Use” is also an answer from the economical viewpoint. In all 28.8 % of the key informants for the “middle-rise” cite the reason “Environment-friendly”.

On a general term, one-third of the key informants selected the “high-rise city” for economic reasons, and two-third selected “middle-rise city” for environmental and other reasons. In other words, both a dynamic economic development including the improvement in capital hub functions and the environmental protection in the urban center are considered to be important by the key informants. This result basically agrees with the development visions shown in Figure 2.3.2.

Table 2.3.3: Reasons for the Question on Development Visions about Spatial Extent

| No. | Option | Reason | Number | % |
|-----|-------------|---|--------|-------|
| 1 | High-Rise | Beautiful | 16 | 48.5% |
| | | Efficient Land Use | 11 | 33.3% |
| | | Economically Reasonable | 4 | 12.1% |
| | | Total | 33 | |
| 2 | Middle-Rise | Environment-friendly | 19 | 28.8% |
| | | Judging from the Abundance in Vacant Land | 14 | 21.2% |
| | | Judging from the Small Population... | 10 | 15.2% |
| | | Total | 66 | |

Source: JST (Key Informant Survey)

2.3.2 Justification of the proposed Planning Zones

Prior to the formulation of basic policies for each planning zone, it is important to check what kinds of characteristics the six (6) planning zones have from the viewpoint of the result of the social survey. Table 2.3.4 shows the correspondence of the six (6) planning zones to the nine (9) districts.

Table 2.3.4: Correspondence of the Six (6) Planning Zones to the Nine (9) Districts

| | Planning Zone | | District No. | District |
|---|-----------------------|--------------|--------------|--------------|
| 1 | Historic Conservation | | 1 | Chanthabouly |
| 2 | Inner Urban | | 4 | Sisattanak |
| 3 | Outer Urban | 4 Sub-Center | 2 | Sikhottabong |
| | | | 3 | Xaysetha |
| 5 | Outskirts | | 5 | Naxaithong |
| | | | 7 | Hadxaifong |
| 6 | Urban Cluster | | 6 | Xaythany |
| | | | 8 | Sangthong |
| | | | 9 | Mayparkngum |

Source JST Note: For purpose of convenience, the inconsistency between the planning zone boundaries and the district boundaries is disregarded, as the main objective here is to roughly clarify the characteristics of each zone.

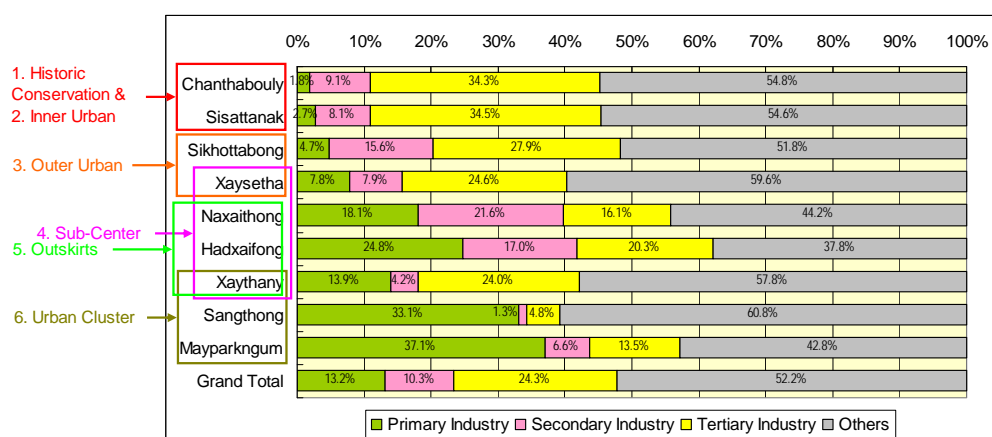
2.3.3 Feedback from the Household Survey

1) Key Industry

According to the household survey (Figure 2.3.2), of the respondents in the “Historic Conservation” and the “Inner Urban” Zones, that is, in Chanthabouly and Sisattanak Districts, those who engage in the primary industry account for 1.8 % and 2.7 %, while those who engage in the third industry account for 34.3% and 34.5%, respectively.

The percentage of the primary industry is much higher in the “Urban Cluster” Zone such as Sangthong (33.1%) and Mayparkngum (37.1%). More people make their living by agriculture in the fringe of Vientiane Capital.

The percentage of the secondary industry is the highest in the “Outer Urban” and the “Sub-Center” Zones.



Note: Others include “Unemployment”, “Pupil/ Student”, “Housewife”, “Retired”, etc.

Grand Total = 15,271 persons

HH: Household

Source: JST (Social Survey: Household Survey)

Figure 2.3.4: Percentages of the Working Population in the Interviewed HH by Industry and District

It is necessary to take the characteristics of the prevailing local activities into consideration when the basic policies for the planning zones are formulated. Table 2.3.5 shows the main land use potentials for the future by the planning zone, in consideration of the characteristics of the local industrial structure.

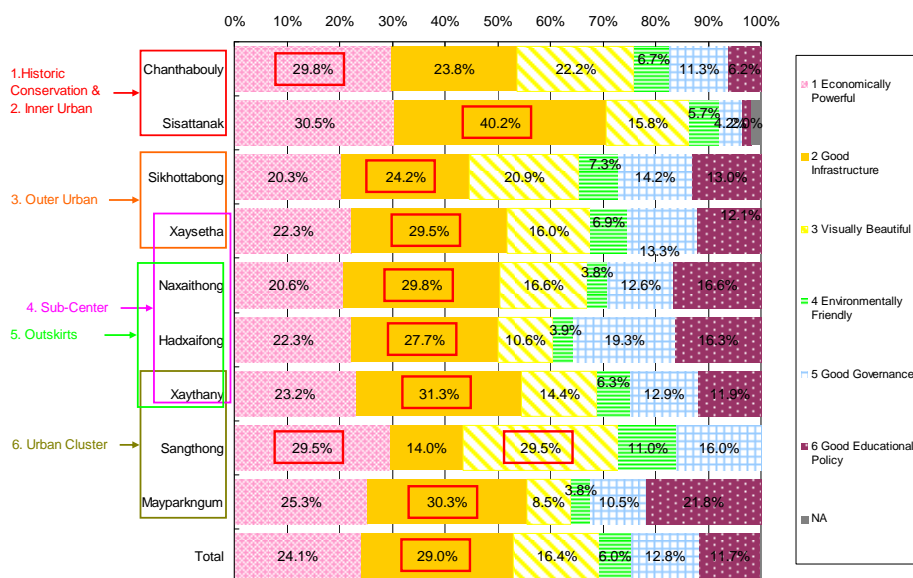
Table 2.3.5: Main Land Use Potentials for the Future by Planning Zone

| | Planning Zone | | | Main Land Use Potentials for the Future | District No. | District |
|---|-----------------------|---|------------|--|--------------|--------------|
| 1 | Historic Conservation | | | Business & commercial use International tourism (Historic monuments & architecture) | 1 | Chanthabouly |
| 2 | Inner Urban | | | | 4 | Sisattanak |
| 3 | Outer Urban | | | Complementary business & commercial use Residential use | 2 | Sikhottabong |
| | | | | | 3 | Xaysetha |
| 5 | Outskirts | 4 | Sub-Center | Manufacturing & logistic use Residential use | 5 | Naxaithong |
| | | | | | 7 | Hadxaifong |
| | | | | | 6 | Xaythany |
| 6 | Urban Cluster | | | Agricultural use International tourism (Richness in wild nature) | 8 | Sangthong |
| | | | | | 9 | Mayparkngum |

Source: JST

2) Development Visions (District Level)

Figure 2.3.5 shows the development visions as depicted in the social survey on the district level. Generally, people consider the infrastructure as the most important thing in their future development visions which is shown in the fact that in six (6) districts out of nine (9), “Good Infrastructure” comes first. In three (3) other districts, “Economically Powerful” is at the top. As a whole, there seems to be only minor differences among the districts or planning zones. However, it is note worthy that “Visually Beautiful” is considered to be the most important in Sangthong District. Then, in the “Outer Urban”, the “Outskirts” and the “Urban Cluster” Zones, “Good Governance” and “Good Educational Policy” are also considered to be important to some extent when compared with “Historic Conservation & Inner Urban” Zone. It could be said that this result implies an essential desire for the improvement in intellectual aspects in the rural area. It is worth considering improving educational facilities into these zones in the future.



Source: JST (Social Survey: Household Survey)

Figure 2.3.5: Development Visions at District Level

Table 2.3.6 shows the development visions by district and planning zone, which was summarized based on Figure 2.3.5. Besides the infrastructure and the economy, it is important to realize the good governance and the good educational policy when formulating the basic policies for the “Outer Urban”, the “Outskirts” and the “Urban Cluster” Zones.

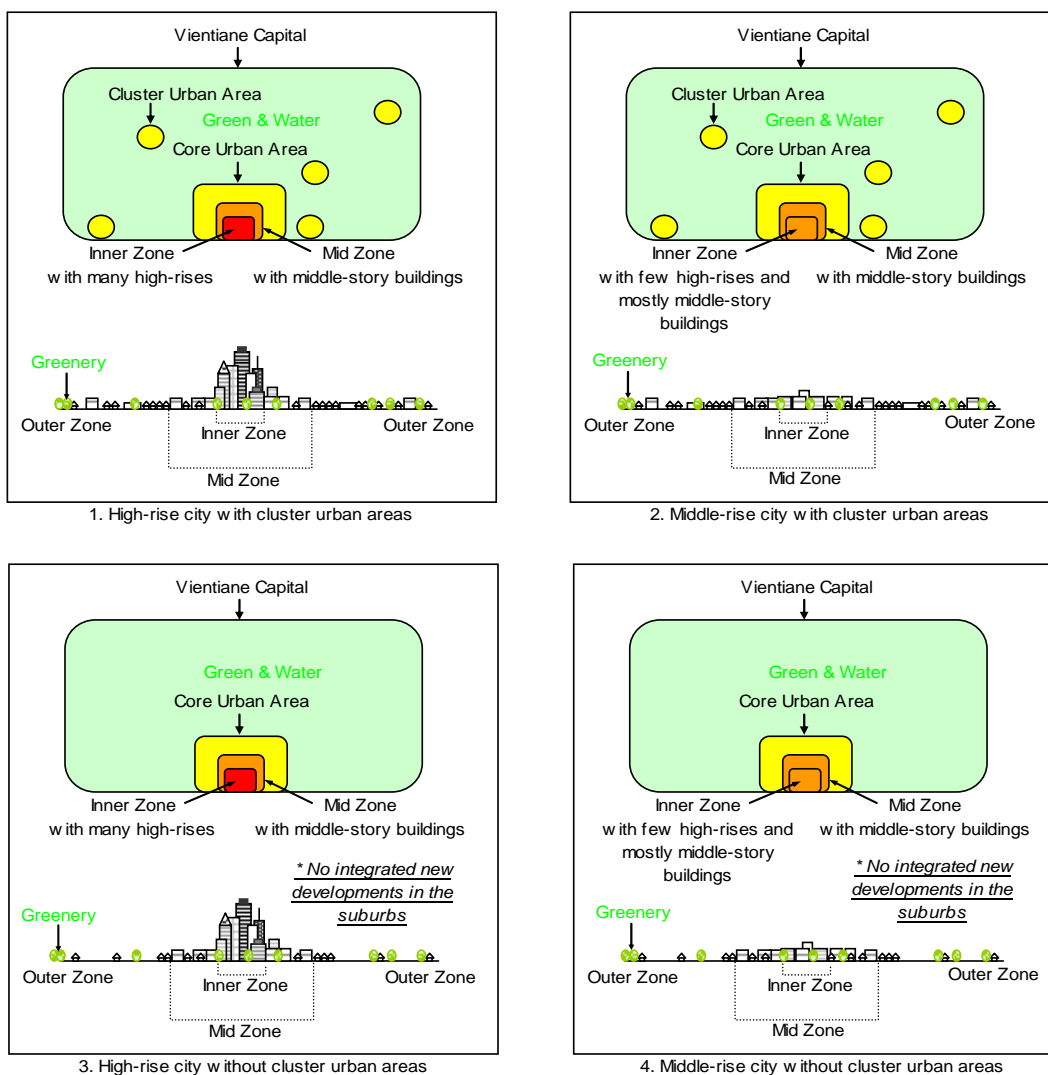
Table 2.3.6: Important Development Visions by Planning Zone

| Planning Zone | Visions Considered to be Important at District Level | | District No. | District |
|--|--|--|--------------|--------------|
| 1 Historic Conservation 2 Inner Urban | Good Infrastructure Economically Powerful | | 1 | Chanthabouly |
| | Visually Beautiful | | 4 | Sisattanak |
| 3 Outer Urban | Good Infrastructure Economically Powerful | | 2 | Sikhottabong |
| | 4 Sub-Center | Good Infrastructure Economically Powerful | 3 | Xaysetha |
| 5 Outskirts | | Good Governance Visually Beautiful Good educational Policy | 5 | Naxaithong |
| | 6 Urban Cluster | Good Infrastructure Economically Powerful Good Governance | 7 | Hadxaifong |
| Visually Beautiful Good Educational Policy | | 6 | Xaythany | |
| | | 8 | Sangthong | |
| | | 9 | Mayparkngum | |

Source: JST

(2) Feedback from the Key Informant Survey
1) Development Visions (Vientiane Capital Level)

Figure 2.3.6 shows the development visions about the spatial (vertical and horizontal) extent for the whole Vientiane Capital by district and planning zone. This question is about the ideal spatial expansion of Vientiane Capital for 2030. The interviewees (107 public workers) were requested to choose one answer which is the closest to their ideal among the four (4) options shown in Figure 2.3.6.



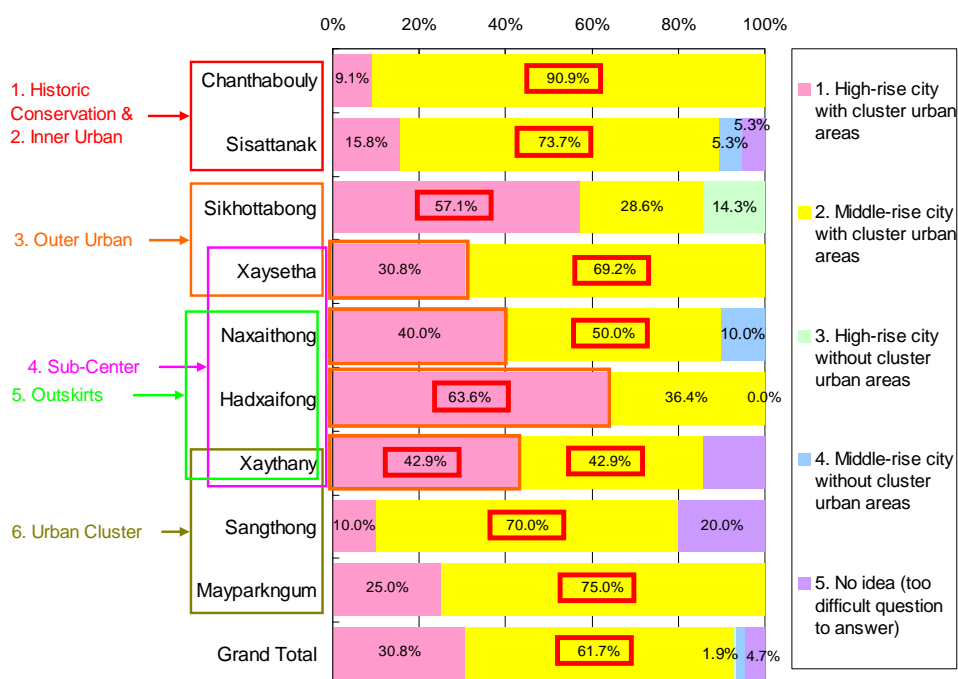
Source: JST (Social Survey: Key Informant Survey)

Figure 2.3.6: Four (4) Options for the Question about the Spatial Vision for 2030

Very few people preferred “No urban cluster” to “With urban clusters” (Only three (3) out of 107 (2.8 %)). In all 99 interviewees chose “2 Middle-rise city with urban clusters” or “1 High-rise city with urban clusters”.

As a whole, the majority could agree upon “2 Middle-rise city with urban clusters” (66 people out of 107 (61.7 %) chose this option). Especially, in the “Historic Conservation & Inner Urban” Zones and in the Outskirts districts such as Sangthong and Mayparkngum, people tend to prefer a low-rise city to a high-rise city.

However, 33 interviewees out of 107 (30.8 %) chose “1 High-rise city with urban clusters”. It is remarkable that in the “Sub-center” Zone, which surrounds the “Inner Urban” Zone, a high-rise city is taken in a good light as future spatial picture of Vientiane Capital.



Source: JST (Social Survey: Key Informant Survey)

Figure 2.3.7: Development Visions about Spatial Extent at Vientiane Capital Level

Table 2.3.7 shows the development visions about spatial extent by planning zone. It is worth mentioning that people in the districts which correspond to the “Sub-Center” Zone such as Hadxaifong, Xaythany, Naxaithong, and Xaysetha show more tolerance to high rises.

Table 2.3.7: Development Visions about Spatial Extent by Planning Zone

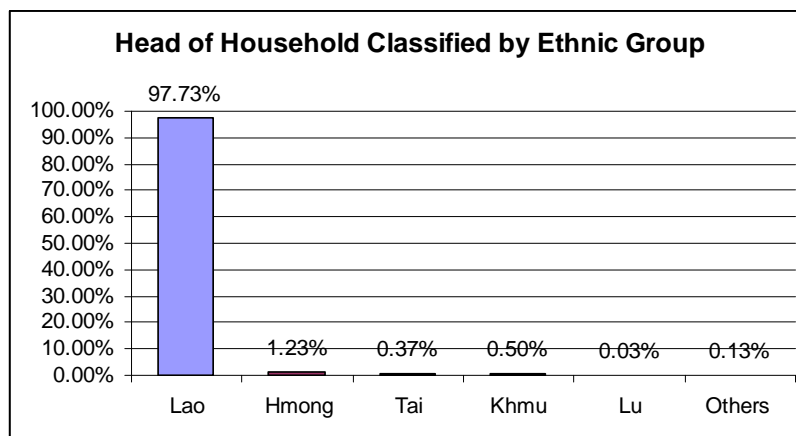
| Planning Zone | Desirable Spatial Visions | District No. | District |
|--|---|--------------|--------------|
| 1 Historic Conservation & 2 Inner Urban | Core urban area/ Low to middle-rise | 1 | Chanthabouly |
| | | 4 | Sisattanak |
| 3 Outer Urban | Core urban area/ Low to middle-rise | 2 | Sikhottabong |
| | | 3 | Xaysetha |
| 5 Outskirts | 4 Sub-Center Core urban area/ Middle-rise (Partially high-rise) | 5 | Naxaithong |
| | | 7 | Hadxaifong |
| | | 6 | Xaythany |
| 6 Urban Cluster | Urban clusters/ Low to middle-rise | 8 | Sangthong |
| | | 9 | Mayparkngum |
| | | | |

Source: JST

2.4 Results of the Household Survey

2.4.1 Ethnic Group

97.73 % of the interviewed households have a householder ethnically categorized in “Lao” as shown in Figure 2.4.1.



Source: JST (Household Survey)

Figure 2.4.1: Ethnic Attribute of the Householders

2.4.2 Household Structure

The household structure of the 3,000 households is as shown in Table 2.4.1.

Table 2.4.1: Household Structure

| No | Relation to HH head | District Name | | | | | | | | | Total |
|----|----------------------------|---------------|--------------|--------------|--------------|--------------|--------------|--------------|------------|--------------|---------------|
| | | Chanthabouly | Sikhottabong | Xaysetha | Sisattanak | Naxaithong | Xaythany | Hadxaifong | Sangthong | Mayparkngum | |
| 1 | Household Head | 300 | 450 | 400 | 300 | 250 | 650 | 350 | 100 | 200 | 3,000 |
| | | 20.8% | 19.3% | 19.4% | 19.6% | 19.9% | 19.0% | 20.2% | 21.0% | 19.5% | 19.6% |
| 2 | Wife/ Husband | 253 | 394 | 350 | 233 | 214 | 593 | 291 | 96 | 186 | 2,610 |
| | | 17.5% | 16.9% | 17.0% | 15.2% | 17.0% | 17.3% | 16.8% | 20.1% | 18.1% | 17.1% |
| 3 | Child | 701 | 1,233 | 1,043 | 786 | 687 | 1,750 | 786 | 233 | 551 | 7,770 |
| | | 48.5% | 53.0% | 50.7% | 51.4% | 54.7% | 51.2% | 45.4% | 48.8% | 53.6% | 50.9% |
| 4 | Grandchild | 97 | 130 | 159 | 137 | 63 | 212 | 173 | 13 | 55 | 1,039 |
| | | 6.7% | 5.6% | 7.7% | 9.0% | 5.0% | 6.2% | 10.0% | 2.7% | 5.4% | 6.8% |
| 5 | Real Parent | 2 | 11 | 7 | 2 | 5 | 12 | 9 | 7 | 0 | 55 |
| | | 0.1% | 0.5% | 0.3% | 0.1% | 0.4% | 0.4% | 0.5% | 1.5% | 0.0% | 0.4% |
| 6 | Parent in Law | 6 | 22 | 11 | 6 | 12 | 33 | 13 | 7 | 11 | 121 |
| | | 0.4% | 0.9% | 0.5% | 0.4% | 1.0% | 1.0% | 0.8% | 1.5% | 1.1% | 0.8% |
| 7 | Grandparent: Father's Side | 3 | 10 | 8 | 0 | 1 | 18 | 1 | 4 | 5 | 50 |
| | | 0.2% | 0.4% | 0.4% | 0.0% | 0.1% | 0.5% | 0.1% | 0.8% | 0.5% | 0.3% |
| 8 | Grandparent: Mother's Side | 6 | 7 | 17 | 4 | 2 | 17 | 1 | 3 | 13 | 70 |
| | | 0.4% | 0.3% | 0.8% | 0.3% | 0.2% | 0.5% | 0.1% | 0.6% | 1.3% | 0.5% |
| 9 | Uncle/Aunt: Father's Side | 1 | 6 | 3 | 5 | 0 | 6 | 4 | 0 | 1 | 26 |
| | | 0.1% | 0.3% | 0.1% | 0.3% | 0.0% | 0.2% | 0.2% | 0.0% | 0.1% | 0.2% |
| 10 | Uncle/Aunt: Mother's Side | 3 | 14 | 20 | 4 | 3 | 14 | 8 | 2 | 6 | 74 |
| | | 0.2% | 0.6% | 1.0% | 0.3% | 0.2% | 0.4% | 0.5% | 0.4% | 0.6% | 0.5% |
| 11 | Nephew/Niece | 6 | 25 | 9 | 8 | 6 | 29 | 13 | 1 | 0 | 97 |
| | | 0.4% | 1.1% | 0.4% | 0.5% | 0.5% | 0.8% | 0.8% | 0.2% | 0.0% | 0.6% |
| 12 | Other Near Relative | 62 | 16 | 22 | 44 | 4 | 30 | 27 | 2 | 0 | 207 |
| | | 4.3% | 0.7% | 1.1% | 2.9% | 0.3% | 0.9% | 1.6% | 0.4% | 0.0% | 1.4% |
| 13 | Unrelated Person | 4 | 9 | 8 | 0 | 10 | 57 | 55 | 9 | 0 | 152 |
| | | 0.3% | 0.4% | 0.4% | 0.0% | 0.8% | 1.7% | 3.2% | 1.9% | 0.0% | 1.0% |
| | Grand Total | 1,444 | 2,327 | 2,057 | 1,529 | 1,257 | 3,421 | 1,731 | 477 | 1,028 | 15,271 |
| | (%) | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |

Source: JST (Household Survey)

(1) Spouse

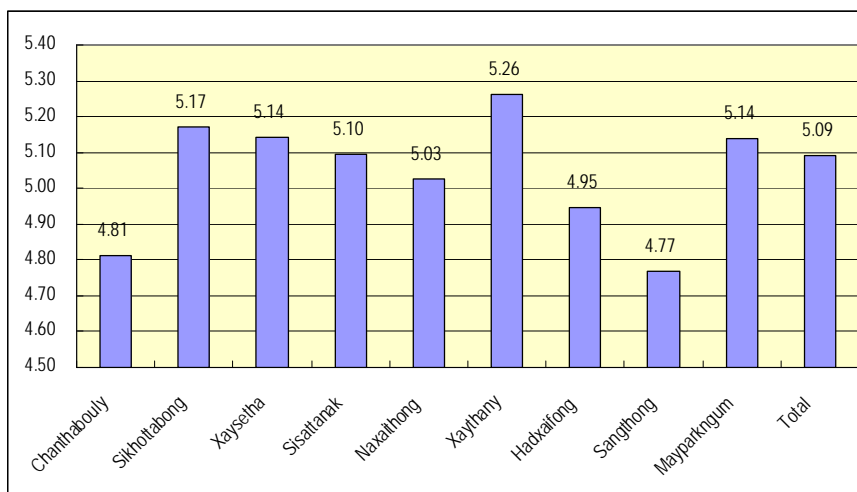
2,610 household heads out of 3,000 (87.0 %) have a spouse.

(2) Children

In average, a household head lives with $(7,770/3,000 =)$ 2.59 children.

(3) Household Size

The average family size by district is as shown in Figure 2.4.2. There are 5.09 persons per household in Vientiane Capital in average. When it comes to the district level, Xaythany comes first with an average figure of 5.26 persons/ family, and Sangthong comes last with 4.77 persons/ family.



Source: JST (Household Survey)

Figure 2.4.2: Average Family Size by District

2.4.3 Sex and Age

Table 2.4.2 shows the number of the household members by sex and by age group.

Table 2.4.2: Number of the Household Members by Sex and by Age Group

| No. | District | Sex | Age | | | | | | | Total | |
|-------------|--------------|--------|-------|-------|-------|-------|-------|-------|-------|-------|--------|
| | | | _9 | 10_19 | 20_29 | 30_39 | 40_49 | 50_59 | 60_69 | | 70_ |
| 1 | Chanthabouly | Male | 62 | 135 | 156 | 105 | 98 | 87 | 51 | 22 | 716 |
| | | Female | 56 | 119 | 162 | 138 | 102 | 92 | 33 | 26 | 728 |
| | | Total | 118 | 254 | 318 | 243 | 200 | 179 | 84 | 48 | 1,444 |
| 2 | Sikhottabong | Male | 145 | 226 | 261 | 161 | 142 | 121 | 61 | 37 | 1,154 |
| | | Female | 149 | 213 | 290 | 196 | 141 | 103 | 53 | 28 | 1,173 |
| | | Total | 294 | 439 | 551 | 357 | 283 | 224 | 114 | 65 | 2,327 |
| 3 | Xaysetha | Male | 147 | 185 | 216 | 139 | 120 | 75 | 44 | 31 | 957 |
| | | Female | 147 | 191 | 248 | 183 | 165 | 88 | 51 | 27 | 1,100 |
| | | Total | 294 | 376 | 464 | 322 | 285 | 163 | 95 | 58 | 2,057 |
| 4 | Sisattanak | Male | 88 | 143 | 160 | 139 | 87 | 65 | 45 | 21 | 748 |
| | | Female | 76 | 140 | 182 | 134 | 107 | 85 | 39 | 18 | 781 |
| | | Total | 164 | 283 | 342 | 273 | 194 | 150 | 84 | 39 | 1,529 |
| 5 | Naxaithong | Male | 90 | 144 | 139 | 85 | 72 | 62 | 32 | 16 | 640 |
| | | Female | 88 | 128 | 140 | 94 | 84 | 45 | 21 | 17 | 617 |
| | | Total | 178 | 272 | 279 | 179 | 156 | 107 | 53 | 33 | 1,257 |
| 6 | Xaythany | Male | 242 | 352 | 399 | 197 | 203 | 147 | 95 | 44 | 1,679 |
| | | Female | 200 | 352 | 455 | 256 | 212 | 156 | 74 | 37 | 1,742 |
| | | Total | 442 | 704 | 854 | 453 | 415 | 303 | 169 | 81 | 3,421 |
| 7 | Hadxayfong | Male | 96 | 135 | 189 | 113 | 104 | 101 | 66 | 41 | 845 |
| | | Female | 91 | 128 | 216 | 128 | 141 | 95 | 58 | 29 | 886 |
| | | Total | 187 | 263 | 405 | 241 | 245 | 196 | 124 | 70 | 1,731 |
| 8 | Sangthong | Male | 18 | 52 | 48 | 28 | 26 | 35 | 16 | 5 | 228 |
| | | Female | 27 | 58 | 65 | 33 | 32 | 26 | 4 | 4 | 249 |
| | | Total | 45 | 110 | 113 | 61 | 58 | 61 | 20 | 9 | 477 |
| 9 | Mayparkgum | Male | 62 | 105 | 113 | 63 | 76 | 51 | 28 | 20 | 518 |
| | | Female | 53 | 106 | 120 | 75 | 65 | 51 | 23 | 17 | 510 |
| | | Total | 115 | 211 | 233 | 138 | 141 | 102 | 51 | 37 | 1,028 |
| Sub -Total | Male | 950 | 1,477 | 1,681 | 1,030 | 928 | 744 | 438 | 237 | 7,485 | |
| | Female | 887 | 1,435 | 1,878 | 1,237 | 1,049 | 741 | 356 | 203 | 7,786 | |
| Grand Total | | | 1,837 | 2,912 | 3,559 | 2,267 | 1,977 | 1,485 | 794 | 440 | 15,271 |

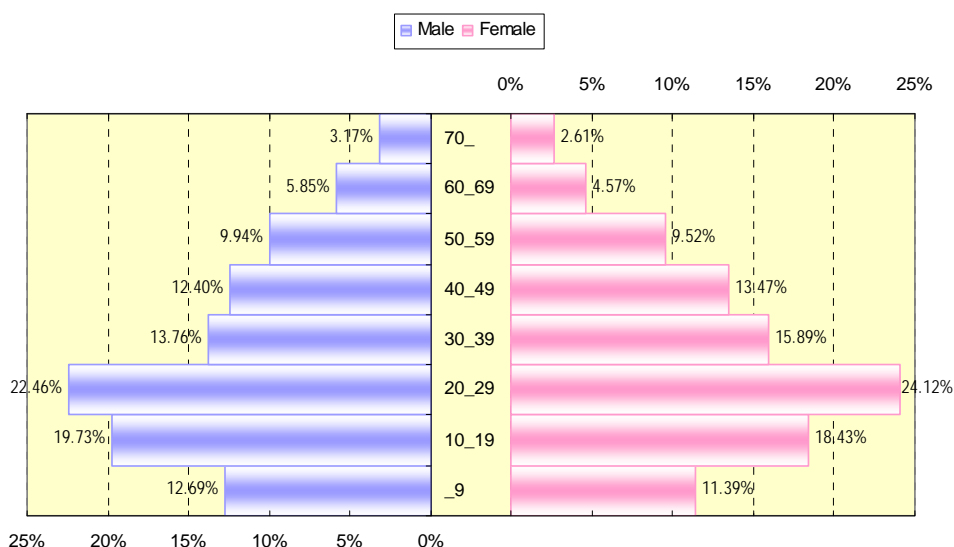
Source: JST (Household Survey)

(1) Sex

There are 15,271 people living in the 3,000 interviewed households, of which 7,485 (49.01%) are men and 7,786 (50.99%) are women. The number of men is smaller than that of women in the seven (7) districts (Chanthabouly, Sikhottabong, Xaysetha, Sisattanak, Xaythany, Hadxaifong, and Sangthong), but this is not a case only in the two (2) districts, which are Naxaithong and Mayparkgum.

(2) Age Group

Figure 2.4.3 shows a population pyramid of the interviewed 3,000 households with an age range of 10 years. According to this pyramid, the age group “20-29” is the largest for both “male (22.46%)” and “female (24.12%)”, followed by age group “10-19” with a percentage for the “male”, 19.73%, and a percentage for the “female”, 18.43%.



Source: JST (Household Survey)

Figure 2.4.3: Household Members Distribution by Age Group and by Sex

2.4.4 Educational Background

Table 2.4.3, Table 2.4.4, and Figure 2.4.4 show the educational background of the interviewed households’ members. At the whole Vientiane Capital level, the last education background is “Primary school” for 38.8 % of the people living in the interviewed families, and “Junior high school” for 18.3 %.

16.6 % of the people have no educational background in spite of the fact that they are 15 years old or more. The lack of basic education of the active population is remarkable especially in the fringe districts such as Sangthong (42.6 %) and Mayparkgnum (16.6 %).

Table 2.4.3: Educational Background of the Household Members (Real Number)

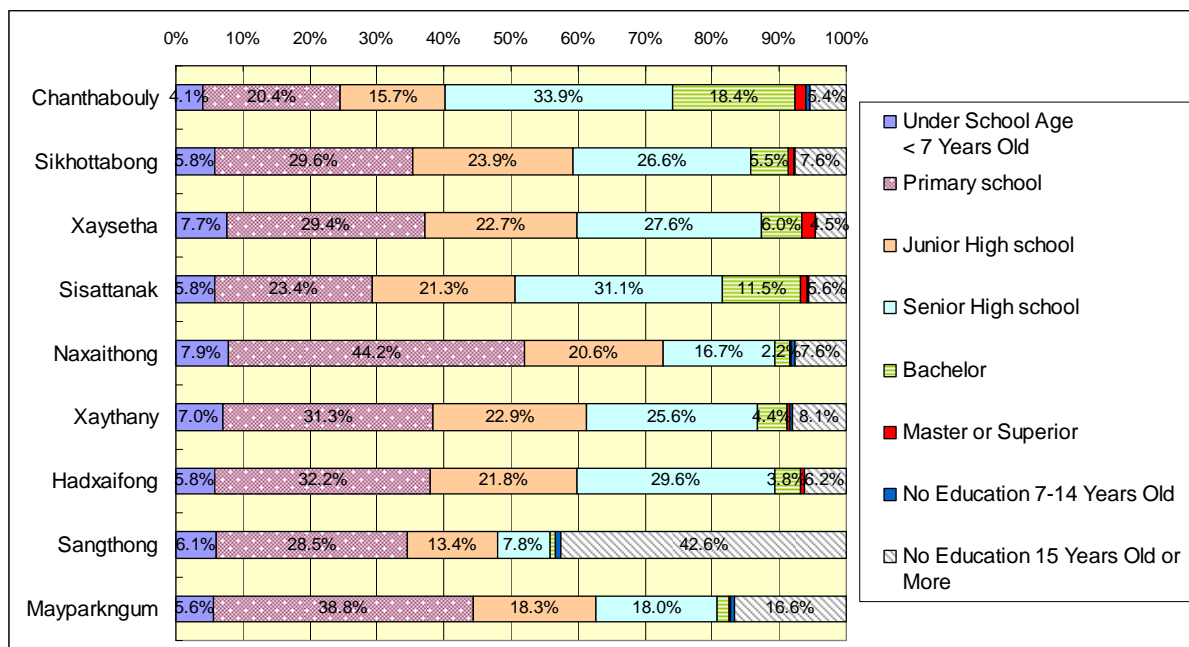
| No. | District | Under School Age < 7 Years Old | Primary school | Junior High school | Senior High school | Bachelor | Master or Superior | No Education | | Total |
|-----|--------------|--------------------------------|----------------|--------------------|--------------------|----------|--------------------|----------------|----------------------|--------|
| | | | | | | | | 7-14 Years Old | 15 Years Old or More | |
| 1 | Chanthabouly | 59 | 294 | 226 | 490 | 265 | 23 | 9 | 78 | 1,444 |
| 2 | Sikhottabong | 134 | 688 | 556 | 618 | 129 | 20 | 6 | 176 | 2,327 |
| 3 | Xaysetha | 158 | 605 | 467 | 567 | 123 | 42 | 2 | 93 | 2,057 |
| 4 | Sisattanak | 89 | 358 | 326 | 475 | 176 | 16 | 3 | 86 | 1,529 |
| 5 | Naxaithong | 99 | 556 | 259 | 210 | 28 | 1 | 9 | 95 | 1,257 |
| 6 | Xaythany | 241 | 1,072 | 782 | 875 | 149 | 14 | 12 | 276 | 3,421 |
| 7 | Hadxaifong | 100 | 557 | 378 | 513 | 65 | 9 | 2 | 107 | 1,731 |
| 8 | Sangthong | 29 | 136 | 64 | 37 | 4 | 0 | 4 | 203 | 477 |
| 9 | Mayparkngum | 58 | 399 | 188 | 185 | 18 | 3 | 6 | 171 | 1,028 |
| | Grand Total | 967 | 4,665 | 3,246 | 3,970 | 957 | 128 | 53 | 1,285 | 15,271 |

Source: JST (Household Survey)

Table 2.4.4: Educational Background of the Household Members (Percentage)

| No. | District | Under School Age < 7 Years Old | Primary school | Junior High school | Senior High school | Bachelor | Master or Superior | No Education | | Total |
|-----|--------------|--------------------------------|----------------|--------------------|--------------------|----------|--------------------|----------------|----------------------|--------|
| | | | | | | | | 7-14 Years Old | 15 Years Old or More | |
| 1 | Chanthabouly | 4.1% | 20.4% | 15.7% | 33.9% | 18.4% | 1.6% | 0.6% | 5.4% | 100.0% |
| 2 | Sikhottabong | 5.8% | 29.6% | 23.9% | 26.6% | 5.5% | 0.9% | 0.3% | 7.6% | 100.0% |
| 3 | Xaysetha | 7.7% | 29.4% | 22.7% | 27.6% | 6.0% | 2.0% | 0.1% | 4.5% | 100.0% |
| 4 | Sisattanak | 5.8% | 23.4% | 21.3% | 31.1% | 11.5% | 1.0% | 0.2% | 5.6% | 100.0% |
| 5 | Naxaithong | 7.9% | 44.2% | 20.6% | 16.7% | 2.2% | 0.1% | 0.7% | 7.6% | 100.0% |
| 6 | Xaythany | 7.0% | 31.3% | 22.9% | 25.6% | 4.4% | 0.4% | 0.4% | 8.1% | 100.0% |
| 7 | Hadxaifong | 5.8% | 32.2% | 21.8% | 29.6% | 3.8% | 0.5% | 0.1% | 6.2% | 100.0% |
| 8 | Sangthong | 6.1% | 28.5% | 13.4% | 7.8% | 0.8% | 0.0% | 0.8% | 42.6% | 100.0% |
| 9 | Mayparkngum | 5.6% | 38.8% | 18.3% | 18.0% | 1.8% | 0.3% | 0.6% | 16.6% | 100.0% |
| | Grand Total | 6.3% | 30.5% | 21.3% | 26.0% | 6.3% | 0.8% | 0.3% | 8.4% | 100.0% |

Source: JST (Household Survey)



Source: JST (Household Survey)

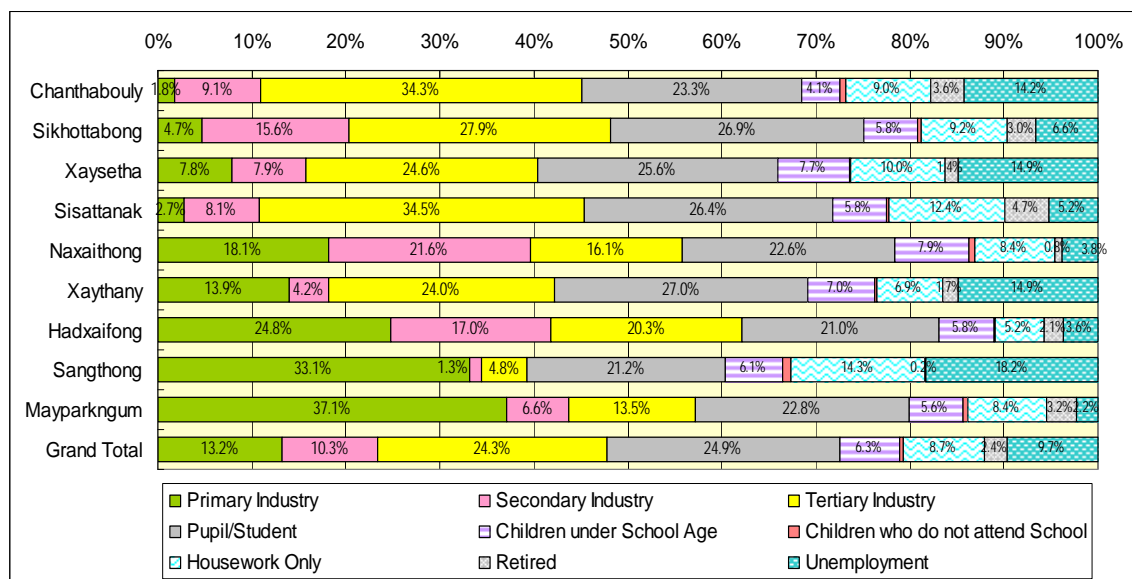
Figure 2.4.4: Educational Background of the Household Members

2.4.5 Employment

Figure 2.4.5 shows the occupation of the interviewed family members.

At the whole Vientiane Capital level, 13.2 %, 10.3 %, and 24.3 % of the interviewed household members are engaged in the primary, the secondary, and the tertiary industries, respectively. “Pupil/ Student” accounts for 24.9%. The unemployment rate, the ratio of the people who look for a job but does not work actually to the total interviewed household members, is 9.7%.

At district level, 37.1 % of the interviewed household members in Mayparkngum and 33.1 % in Sangthong are engaged in the primary industry, which account for only 1.8 % and 2.7 % in Chanthabouly and Sisattanak, respectively.



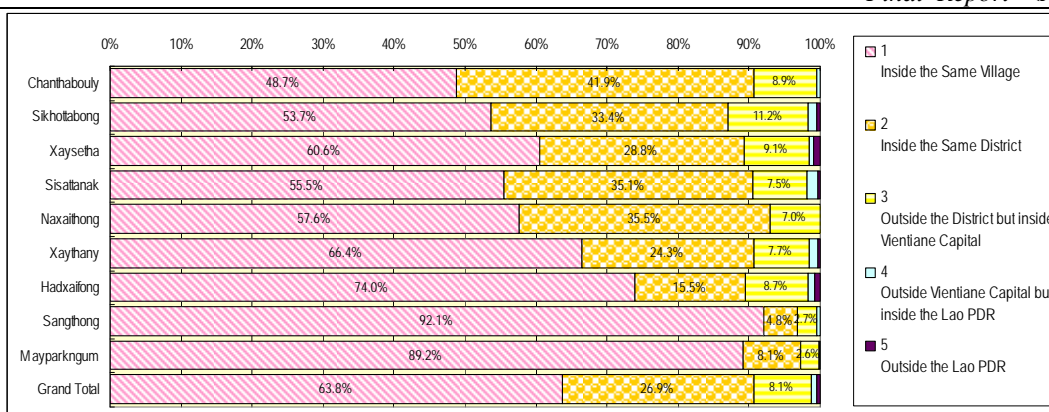
Source: JST (Household Survey)

Figure 2.4.5: Occupation of the Interviewed Family Members by District

2.4.6 Daily Movements

(1) Location of Workplace/ School

Figure 2.4.6 shows the location of workplace/ school of the interviewed household members. At the whole Vientiane Capital level, 63.8 % of those who go to work or go to school/ university on a daily basis commute inside the village where they live. Then, 26.9 % and 8.1 % commute inside the district and inside Vientiane Capital, respectively. Only 1.3 % commute outside Vientiane Capital. In the central districts such as Chanthabouly, Sisattanak, etc., people cross the village borders more often than in the fringe districts such as Sangthong and Mayparkngum. Sangthong and Mayparkngum are much more independent than the other seven (7) districts when it comes to commuters’ daily movements, as there are less than 3.0 % go to another district on daily basis while 7.0 % to 11.2 % of the people in the other seven (7) districts cross the district border into another district.



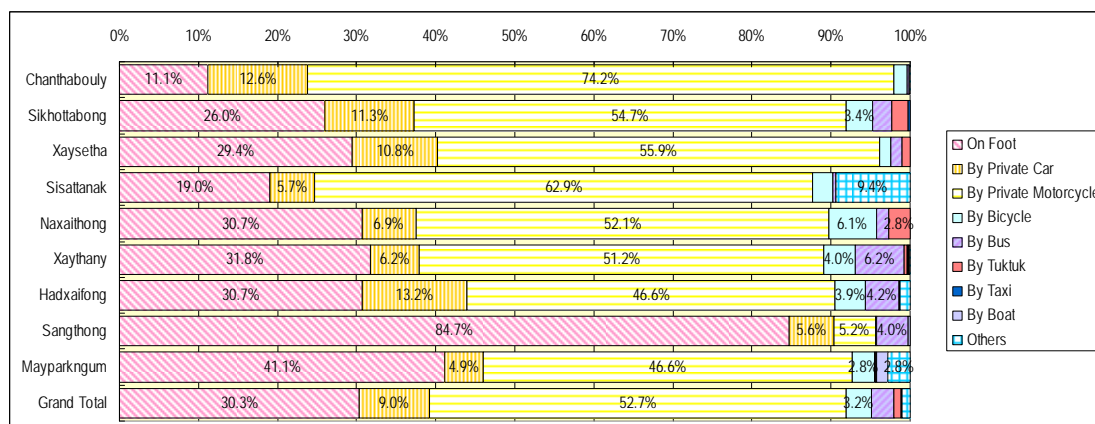
Note: 12,231 people go to work or go to school/ University on a daily basis.

Source: JST (Household Survey)

Figure 2.4.6: Location of Workplace/ School of the Interviewed Household Members

(2) Means of Transport

Figure 2.4.7 shows the means of transport for daily commute of the interviewed household members. At the whole Vientiane Capital level, 52.7 % of the people use a private motorcycle. This tendency is especially remarkable in the central districts such as Chanthabouly (74.2 %), Sisattanak (62.9 %), Xaysetha (55.9 %), etc. On the contrary, 84.7 % of the interviewed household members in Sangthong walk to their workplace or school, not using any vehicles.



Source: JST (Household Survey)

Figure 2.4.7: Means of Transport for Daily Commute by District

(3) Commute Frequency from the Outer Districts to the Inner Districts

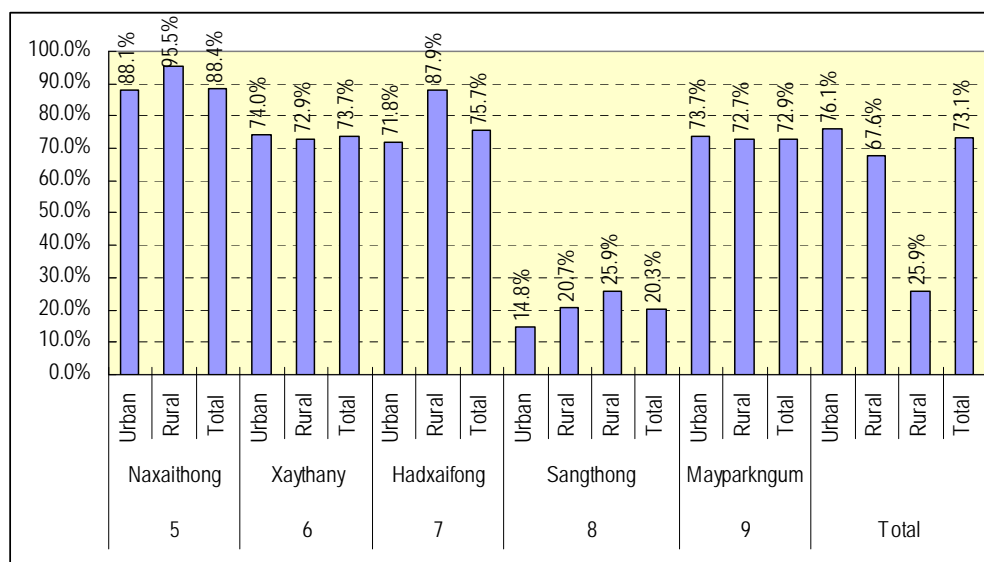
As shown in Table 2.4.5 and Figure 2.4.8, 5,789 out of 7,914 people (73.1%) living in the outer five (5) districts (Naxaithong, Xaythany, Hadxaifong, Sangthong, Mayparkngum) commute periodically to the inner four (4) districts (Chanthabouly, Sikhottabong, Xaysetha, Sisattanak).

Table 2.4.5: Commute Frequency of the Outer Districts' Household Members

| No. | District Name | Village Category | Frequency of Travel to Vientiane Center | | | | | | | Total | |
|-------|---------------|--------------------|---|---------------------|----------------------|----------------------|-----------------------|---------------------|--------------------|--------------|--------------------------------|
| | | | Every day (7/7) | Six (6) days a week | Five (5) days a week | Four (4) days a week | Three (3) days a week | Two (2) days a week | One (1) day a week | | Less often than one day a week |
| 5 | Naxaithong | Urban | 10 | 33 | 84 | 6 | 37 | 45 | 96 | 758 | 1,069 |
| | | Rural | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 38 | |
| | | Total | 11 | 33 | 87 | 6 | 37 | 45 | 96 | 796 | |
| 6 | Xaythany | Urban | 69 | 77 | 219 | 65 | 110 | 253 | 196 | 928 | 1,917 |
| | | Rural | 26 | 14 | 47 | 7 | 20 | 50 | 67 | 374 | |
| | | Total | 95 | 91 | 266 | 72 | 130 | 303 | 263 | 1,302 | |
| 7 | Hadxaifong | Urban | 20 | 37 | 127 | 21 | 56 | 90 | 151 | 438 | 940 |
| | | Rural | 10 | 9 | 24 | 4 | 16 | 22 | 43 | 242 | |
| | | Total | 30 | 46 | 151 | 25 | 72 | 112 | 194 | 680 | |
| 8 | Sangthong | Urban | 0 | 0 | 1 | 0 | 0 | 1 | 3 | 3 | 8 |
| | | Rural | 3 | 3 | 9 | 0 | 3 | 2 | 2 | 60 | |
| | | Rural without road | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | |
| | | Total | 4 | 3 | 10 | 0 | 3 | 3 | 5 | 69 | |
| 9 | Mayparkngum | Urban | 2 | 3 | 10 | 0 | 2 | 5 | 12 | 78 | 112 |
| | | Rural | 11 | 2 | 42 | 3 | 13 | 29 | 72 | 465 | |
| | | Total | 13 | 5 | 52 | 3 | 15 | 34 | 84 | 543 | |
| Total | Urban | 101 | 150 | 441 | 92 | 205 | 394 | 458 | 2,205 | 4,046 | |
| | Rural | 51 | 28 | 125 | 14 | 52 | 103 | 184 | 1,179 | | |
| | Total | 153 | 178 | 566 | 106 | 257 | 497 | 642 | 3,390 | | |

Note: Outer Districts: 5.Naxaithong, 6.Xaythany, 7.Hadxaifong, 8.Sangthong, 9.Mayparkngum
Inner Districts: 1.Chanthabouly, 2.Sikhottabong, 3.Xaysetha, 4.Sisattanak

Source: JST (Household Survey)

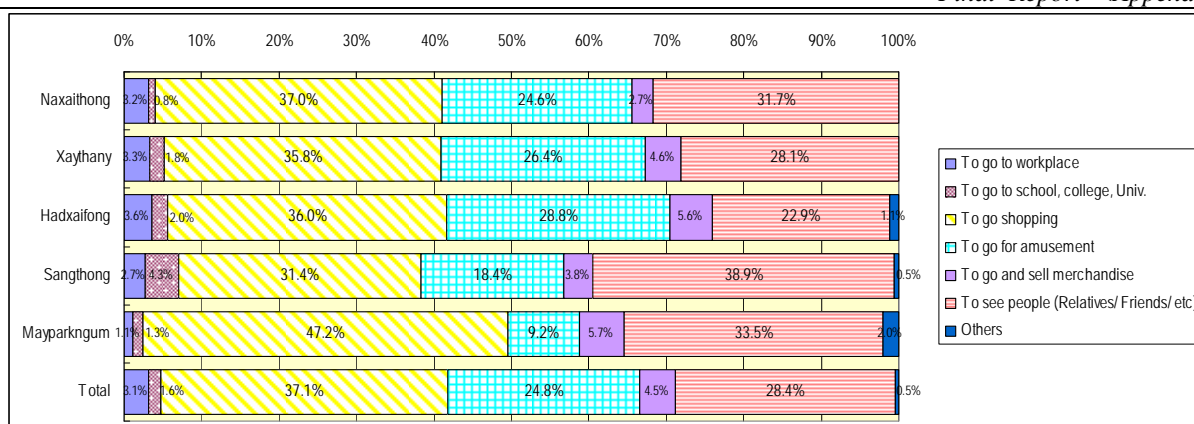


Source: JST (Household Survey)

Figure 2.4.8: Commuters' Ratio to the Total Population by District

(4) Main Purposes of the Commute from the Outer Districts to the Inner Districts

The main purposes of the commute from the outer districts to the inner districts are as shown in Figure 2.4.9. 37.1 % of the people go shopping. 28.4 % and 24.8 % go to see people and go for amusement, respectively.

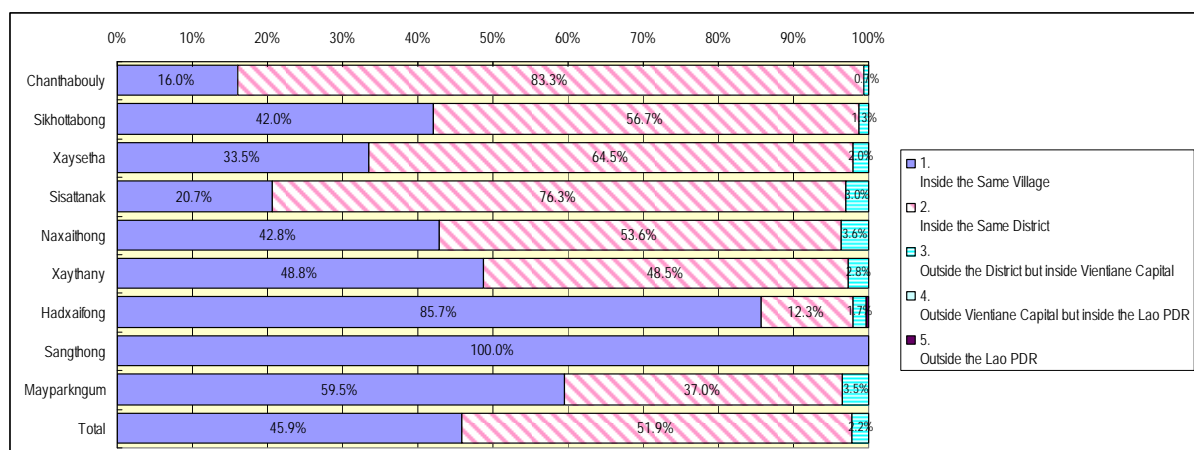


Source: JST (Household Survey)

Figure 2.4.9: Main Purposes of the Commute from the Outer Districts to the Inner Districts by District

(5) Movements for Buying Daily Perishable Food

Figure 2.4.10 shows the movements of the people for buying daily perishable food. At the whole Vientiane Capital level, 45.9 % of the people buy meat, fish, or vegetable inside the same village as they live in. 51.9 % buy daily food inside the same district. In other words, 97.8 % of the people buy daily perishable food in the vicinity of their dwelling and do not go far.



Source: JST (Household Survey)

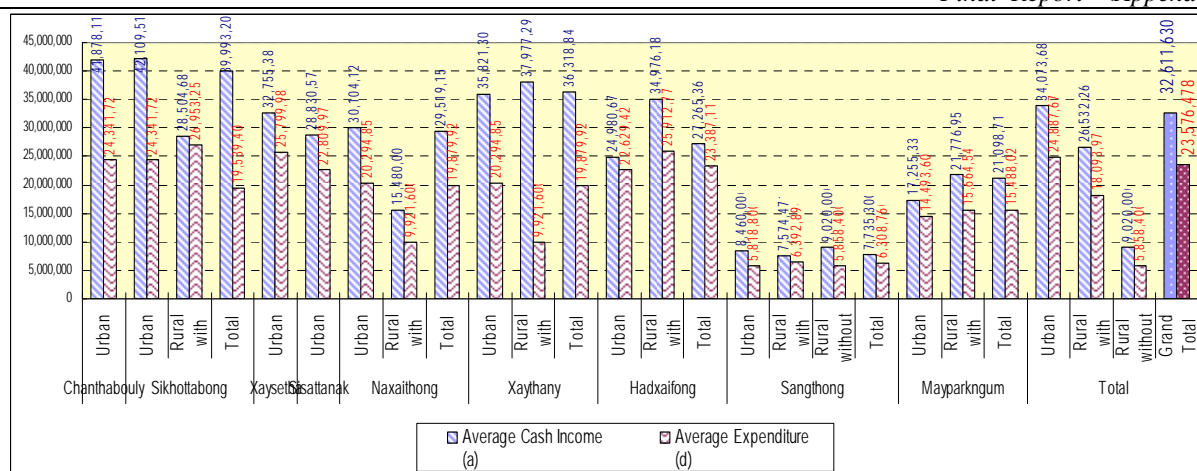
Figure 2.4.10: Movements for Buying Daily Perishable Food by District

2.4.7 Household Income and Outlay

(1) Income and Outlay

Figure 2.4.11 shows the annual cash income and expenditure by district and village type (urban/ rural). In average, a household earns LAK 32,611,630, and spends LAK 23576,478, annually. The ratio of balance to cash Income is 25.8%.

Generally, the urban villages are better off than the rural villages. The average income in the urban villages (LAK 34,073,687) is 1.28 times of the average income in the rural villages with road (LAK 26,532,264). Chanthabouly District (LAK 41,878,113), which is composed of urban villages only, earns 5.41 times than Sangthong District (LAK 7,735,300), which is located a long way off from the core urban area and mainly composed of rural villages.

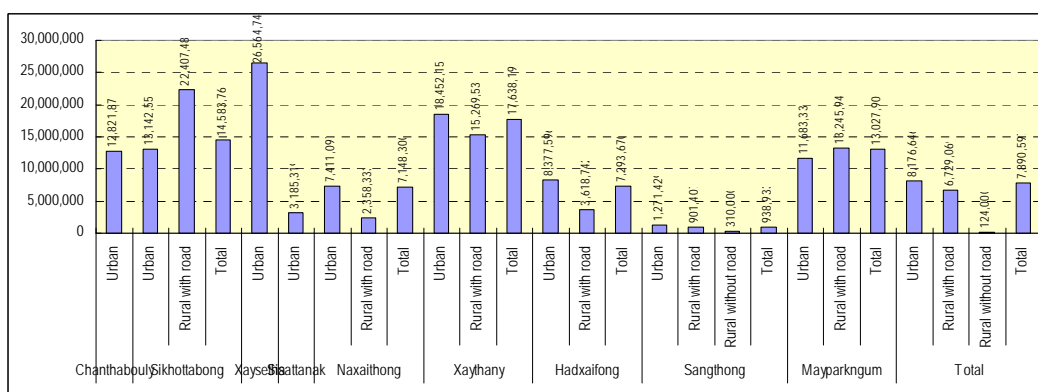


Source: JST (Household Survey)

Figure 2.4.11: Annual Cash Income and Expenditure by District and Village Type

(2) Savings

Figure 2.4.12 shows the savings (cash and bank deposit). As a whole, the average savings amount in Vientiane Capital is LAK 7,890,059. In the urban villages (LAK 8.18 million), people save more than in the rural villages (6.73 million).



Source: JST (Household Survey)

Figure 2.4.12: Savings (Cash + Bank Deposit) by District and Village Type

2.4.8 Household Goods

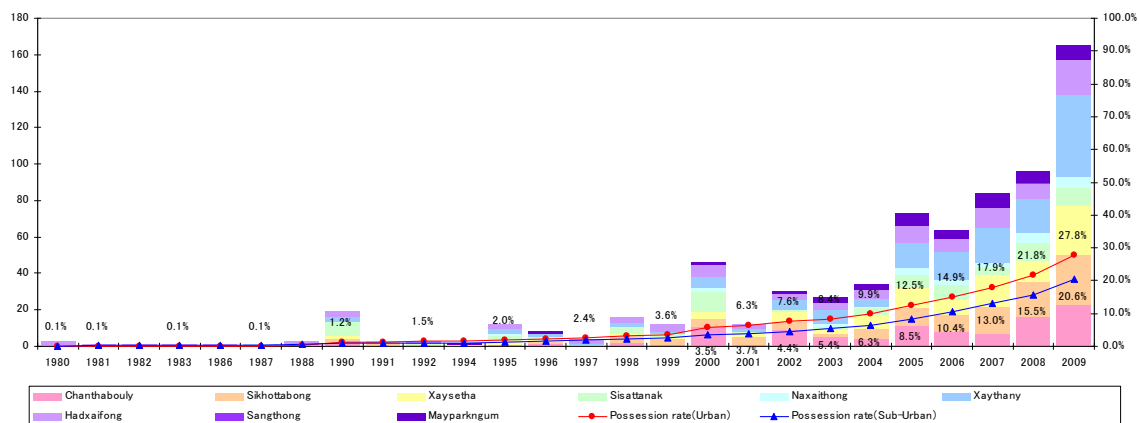
(1) Four-wheeled Car

Table 2.4.6 and Figure 2.4.13 show the diffusion of four-wheeled car in Vientiane Capital.

Table 2.4.6: Diffusion of Four-wheeled Car

| No. | District Name | Household | 1980 | 1981 | 1982 | 1983 | 1986 | 1987 | 1988 | 1990 | 1991 | 1992 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
|-----|-----------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|---|
| 1 | Chanthabouly | 300 | 1 | | | | | | | 2 | | | | 1 | 2 | | 2 | 1 | 11 | 1 | 9 | 5 | 4 | 11 | 8 | 7 | 16 | 23 | 5 | |
| 2 | Sikhottabong | 450 | | | | | | | 1 | 2 | 3 | 1 | | | 1 | 1 | 4 | 3 | 4 | 4 | 5 | 2 | 6 | 10 | 9 | 15 | 19 | 27 | 5 | |
| 3 | Xaysetha | 400 | | | | | | | | 2 | | 1 | 2 | 1 | | 1 | 1 | 4 | 2 | 5 | 2 | 7 | 11 | 9 | 17 | 12 | 27 | 9 | | |
| 4 | Sisattanak | 300 | | | | | | | | 8 | | 1 | 3 | 1 | 4 | 2 | 11 | 1 | 1 | 1 | 2 | 4 | 7 | 8 | 4 | 10 | 10 | 7 | | |
| 5 | Naxaithong | 250 | | | | | | | | | | | | 1 | | | | | | 2 | | 1 | 1 | 4 | 3 | 3 | 5 | 6 | 6 | |
| 6 | Xaythany | 650 | | | | | | 1 | | 2 | | | | 3 | 2 | 1 | 2 | 1 | 6 | 2 | 6 | 8 | 4 | 14 | 15 | 19 | 19 | 45 | 22 | |
| 7 | Hadxaifong | 350 | 2 | 1 | 1 | 1 | 1 | | 2 | 3 | | 1 | | 2 | | 2 | 3 | 4 | 7 | 2 | 3 | 4 | 5 | 9 | 7 | 11 | 8 | 19 | 5 | |
| 8 | Sangthong | 100 | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | 1 |
| 9 | Mayparkngum | 200 | | | | | | | | | | | | | | | | | | 1 | | 1 | 3 | 3 | 7 | 5 | 8 | 6 | 8 | 6 |
| | Possession rate (Urban) | | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.1% | 0.2% | 1.2% | 1.4% | 1.5% | 1.6% | 2.0% | 2.3% | 2.4% | 3.2% | 3.6% | 5.7% | 6.3% | 7.6% | 8.4% | 9.9% | 12.5% | 14.9% | 17.9% | 21.8% | 27.8% | 29.6% | |
| | Possession rate (Sub-Urban) | | 0.1% | 0.2% | 0.3% | 0.3% | 0.4% | 0.5% | 0.6% | 0.9% | 0.9% | 1.0% | 1.0% | 1.4% | 1.6% | 1.8% | 2.1% | 2.5% | 3.5% | 3.7% | 4.4% | 5.4% | 6.3% | 8.5% | 10.4% | 13.0% | 15.5% | 20.6% | 23.2% | |
| | Total | | 3 | 1 | 1 | 1 | 1 | 1 | 3 | 19 | 3 | 3 | 2 | 12 | 8 | 4 | 16 | 12 | 46 | 12 | 30 | 27 | 34 | 73 | 64 | 84 | 96 | 165 | 66 | |

Source: JST (Household Survey)



Source: JST (Household Survey)

Figure 2.4.13: Diffusion of Four-wheeled Car

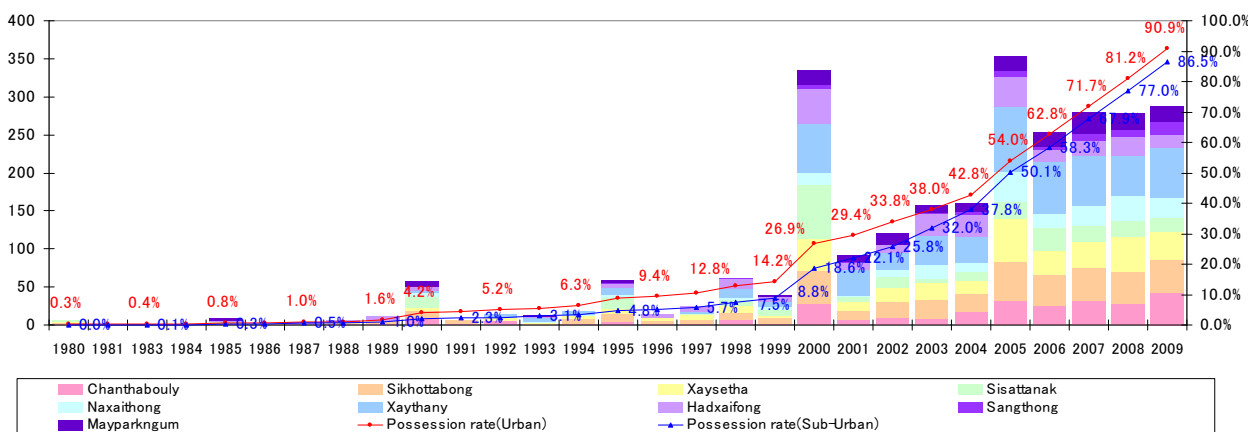
(2) Motorcycle

Table 2.4.7 and Figure 2.4.14 show the diffusion of motorcycle in Vientiane Capital.

Table 2.4.7: Diffusion of Motorcycle

| No. | District Name | HHs | 1980 | 1981 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total | |
|-----|----------------------------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|
| 01 | Chanthabouly | 300 | 1 | | | | | | | 2 | 2 | 10 | 2 | 5 | 2 | 4 | 2 | 1 | 7 | 2 | 29 | 7 | 9 | 8 | 17 | 33 | 26 | 31 | 29 | 42 | 15 | 286 | | |
| 02 | Sikhottabong | 450 | 2 | | | | 2 | 1 | 1 | | | 3 | 9 | 3 | 1 | 1 | 6 | 11 | 4 | 6 | 9 | 8 | 41 | 12 | 22 | 24 | 24 | 50 | 40 | 43 | 41 | 44 | 13 | 421 |
| 03 | Xaysetha | 400 | 1 | | | 1 | 1 | | 1 | 1 | | | | | 4 | 2 | 4 | 7 | 3 | 6 | 10 | 2 | 44 | 12 | 18 | 24 | 17 | 56 | 31 | 36 | 46 | 38 | 9 | 378 |
| 04 | Sisattanak | 300 | 1 | 1 | | | | | | | | 1 | 15 | | | | | | | 2 | 8 | 8 | 70 | 5 | 15 | 5 | 12 | 23 | 30 | 20 | 21 | 17 | 6 | 276 |
| 05 | Naxaithong | 250 | | | | | | | | | | 4 | | | 1 | 1 | 2 | | | 3 | 4 | 17 | 2 | 9 | 17 | 11 | 40 | 19 | 27 | 33 | 26 | 9 | 225 | |
| 06 | Xaythany | 650 | | | 1 | | | | | | | 3 | 1 | 3 | 5 | 10 | | | 3 | 10 | 7 | 64 | 35 | 22 | 39 | 34 | 84 | 66 | 65 | 53 | 66 | 28 | 606 | |
| 07 | Hadxaifong | 350 | | | | | 2 | 1 | 2 | 2 | 5 | 5 | | 1 | 2 | | 5 | 5 | 6 | 14 | 7 | 46 | 8 | 11 | 30 | 30 | 41 | 17 | 21 | 25 | 17 | 6 | 309 | |
| 08 | Sangthong | 100 | | | | | | | | | | | | | | | | | | | 1 | | 5 | 2 | | 1 | 4 | 7 | 3 | 8 | 8 | 17 | 5 | 62 |
| 09 | Mayparkngum | 200 | | | | | | 2 | | | | | | | | | | | | | 2 | 19 | 8 | 15 | 9 | 11 | 19 | 19 | 29 | 22 | 20 | 4 | 190 | |
| | Possession rate(Urban) | | 0.3% | 0.4% | 0.4% | 0.5% | 0.6% | 0.6% | 1.0% | 1.2% | 1.6% | 4.2% | 4.6% | 5.2% | 5.4% | 6.3% | 8.8% | 9.4% | 10.5% | 12.8% | 14.2% | 26.9% | 29.4% | 33.8% | 38.0% | 42.8% | 54.0% | 62.8% | 71.7% | 81.2% | 90.9% | | | |
| | Possession rate(Sub-Urban) | | 0.0% | 0.0% | 0.1% | 0.1% | 0.3% | 0.4% | 0.5% | 0.6% | 1.0% | 2.2% | 2.3% | 2.5% | 3.1% | 3.5% | 4.8% | 5.2% | 5.7% | 7.5% | 8.8% | 18.6% | 22.1% | 25.8% | 32.0% | 37.8% | 50.1% | 58.3% | 67.9% | 77.0% | 86.5% | 88.8% | | |
| | Total | | 3 | 1 | 1 | 1 | 9 | 2 | 4 | 5 | 11 | 57 | 8 | 14 | 12 | 18 | 58 | 14 | 24 | 62 | 40 | 335 | 91 | 121 | 157 | 160 | 353 | 253 | 280 | 278 | 287 | 95 | 2753 | |

Source: JST (Household Survey)



Source: JST (Household Survey)

Figure 2.4.14: Diffusion of Motorcycle

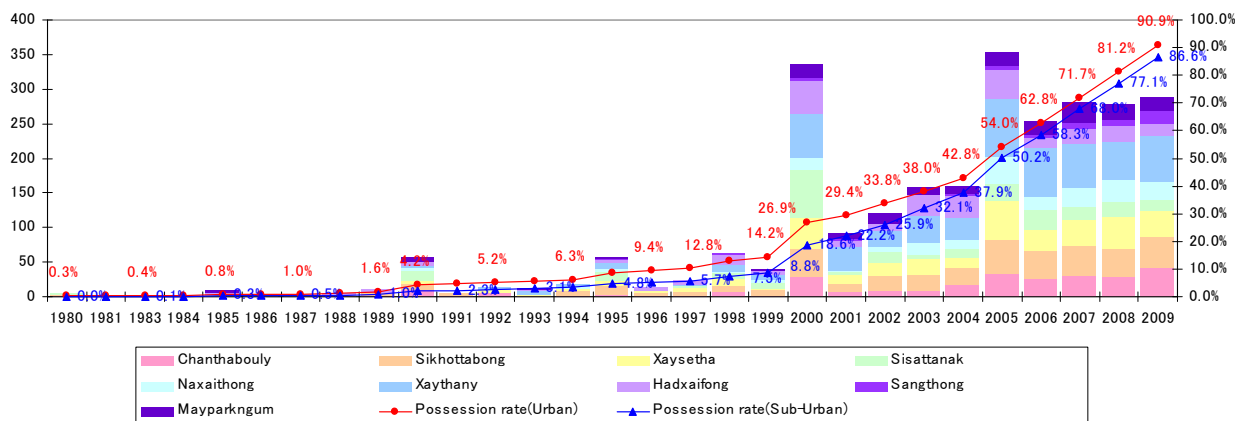
(3) Bicycle

Table 2.4.8 and Figure 2.4.15 show the diffusion of bicycle in Vientiane Capital.

Table 2.4.8: Diffusion of Bicycle

| No. | District | Household | 1980 | 1981 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | Total | | | |
|-----|----------------------------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-----|-----|-----|
| 01 | Chanthabouly | 300 | 1 | | | | | | | | 2 | 2 | 10 | 2 | 5 | 2 | 4 | 2 | 1 | 7 | 2 | 29 | 7 | 9 | 8 | 17 | 33 | 26 | 31 | 29 | 42 | 15 | 286 | | | |
| 02 | Sikhottabong | 450 | 2 | | | | 2 | 1 | 1 | | 3 | 9 | 3 | 1 | 1 | 6 | 11 | 4 | 6 | 9 | 8 | 41 | 12 | 22 | 24 | 24 | 50 | 40 | 43 | 41 | 44 | 13 | 421 | | | |
| 03 | Xaysetha | 400 | 1 | | | | 1 | | | 1 | | 4 | | | 4 | 2 | 4 | 7 | 3 | 6 | 10 | 2 | 44 | 12 | 18 | 24 | 17 | 50 | 31 | 36 | 48 | 39 | 378 | | | |
| 04 | Sisattanak | 300 | 1 | 1 | | | | | | | | 1 | 15 | | | | | | | | | 2 | 8 | 8 | 70 | 5 | 15 | 5 | 12 | 23 | 30 | 20 | 21 | 17 | 6 | 278 |
| 05 | Naxaithong | 250 | | | | | | | | | | | 4 | | | 1 | 1 | 2 | | | | 3 | 4 | 17 | 2 | 9 | 17 | 11 | 40 | 19 | 27 | 33 | 26 | 9 | 225 | |
| 06 | Xaythany | 650 | | | 1 | | | | | | | 3 | 1 | 3 | 3 | 5 | 10 | | | | 3 | 10 | 7 | 64 | 35 | 22 | 39 | 34 | 84 | 68 | 65 | 53 | 67 | 28 | 607 | |
| 07 | Hadxaifong | 350 | | | | | 2 | 1 | 2 | 2 | 5 | 5 | | 1 | 2 | | 5 | 5 | 6 | 14 | 7 | 47 | 8 | 11 | 30 | 30 | 41 | 17 | 21 | 25 | 17 | 6 | 310 | | | |
| 08 | Sangthong | 100 | | | | | | | | | | | | | | | | | | | | 5 | 2 | | 1 | 4 | 7 | 3 | 8 | 5 | 17 | 5 | 62 | | | |
| 09 | Mayparkngum | 200 | | | | | | | | | | | | | | | | | | | | 2 | 19 | 8 | 15 | 9 | 11 | 19 | 19 | 29 | 22 | 30 | 4 | 190 | | |
| | Possession rate(Urban) | | 0.3% | 0.4% | 0.4% | 0.5% | 0.8% | 1.0% | 1.2% | 1.6% | 4.2% | 4.6% | 5.2% | 5.4% | 6.3% | 8.8% | 9.4% | 10.5% | 12.8% | 14.2% | 26.9% | 29.4% | 33.8% | 38.0% | 42.8% | 54.0% | 62.8% | 71.7% | 81.2% | 90.9% | 93.9% | | | | | |
| | Possession rate(Sub-Urban) | | 0.0% | 0.0% | 0.1% | 0.1% | 0.3% | 0.4% | 0.5% | 1.0% | 2.2% | 2.3% | 2.5% | 3.1% | 3.5% | 4.8% | 5.2% | 5.3% | 7.5% | 8.8% | 18.6% | 22.2% | 25.9% | 32.1% | 37.9% | 50.2% | 58.3% | 68.0% | 77.1% | 86.6% | 88.9% | | | | | |
| | Total | | 5 | 1 | 1 | 1 | 8 | 2 | 4 | 5 | 11 | 57 | 6 | 14 | 12 | 18 | 58 | 14 | 24 | 62 | 40 | 336 | 91 | 121 | 157 | 160 | 353 | 253 | 280 | 278 | 288 | 95 | 2755 | | | |

Source: JST (Household Survey)

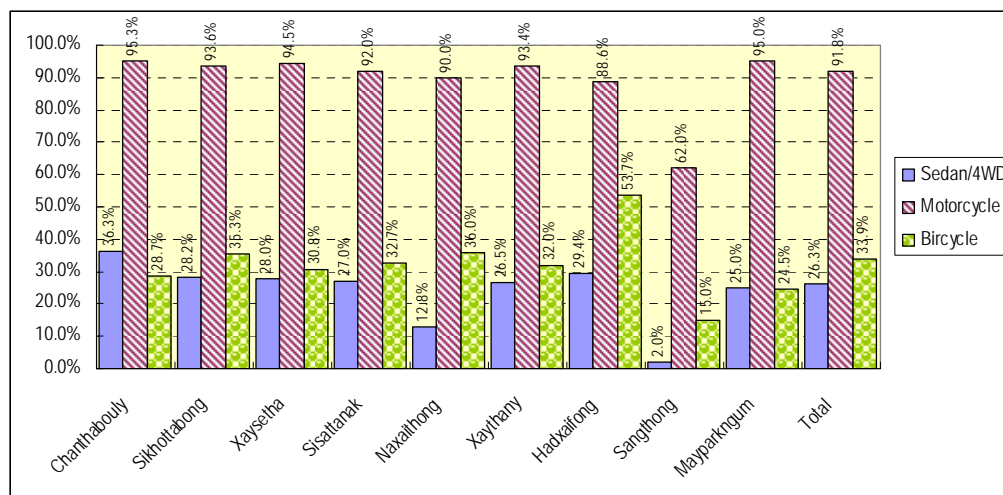


Source: JST (Household Survey)

Figure 2.4.15: Diffusion of Bicycle

(4) Diffusion of Vehicles

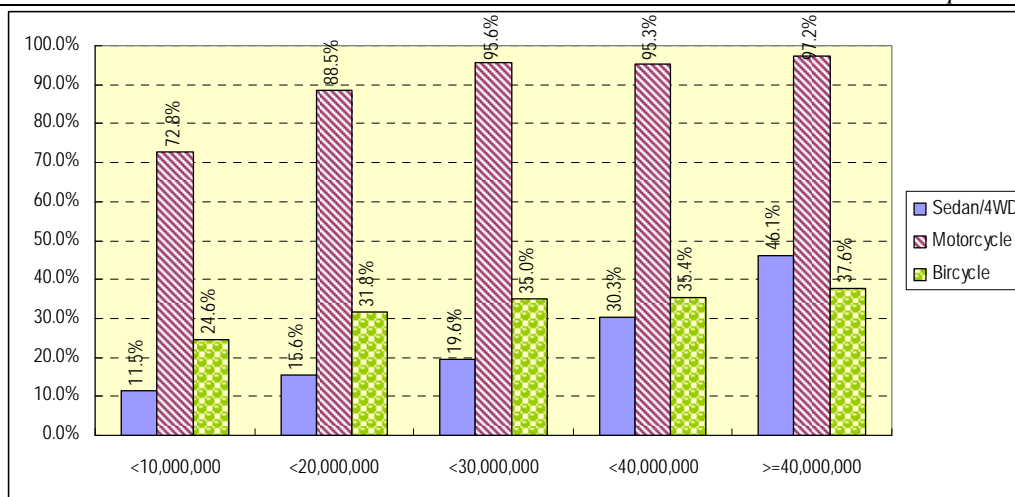
Figure 2.4.16 shows the diffusion of vehicles by district. It is remarkable that Sangthong District is far behind the other districts. The motorcycle is the most popular means of transport for the ordinary people in Vientiane Capital.



Source: JST (Household Survey)

Figure 2.4.16: Diffusion of Vehicles by District

Figure 2.4.17 shows the diffusion of vehicles by income group. Generally, all the vehicles are more possessed in proportion to the increase of income. The people's wants seem to be satisfied generally with an annual income of 30 million for both bicycle and motorcycle. Judging from the diffusion percentages, people seem to prefer motorcycle to bicycle these days.

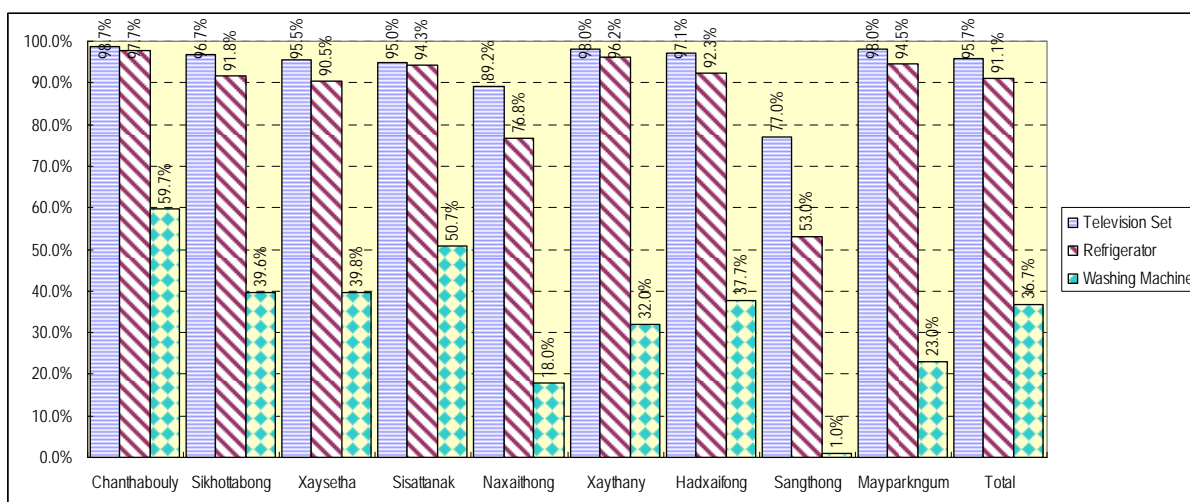


Source: JST (Household Survey)

Figure 2.4.17: Diffusion of Vehicles by Income Group

(5) Other Household Goods

Figure 2.4.18 show the diffusion of TV set, refrigerator, and washing machine. Television set and refrigerator are possessed by most of the households with a percentage of more than 90 %, while the diffusion of washing machine remains only 36.7 %.

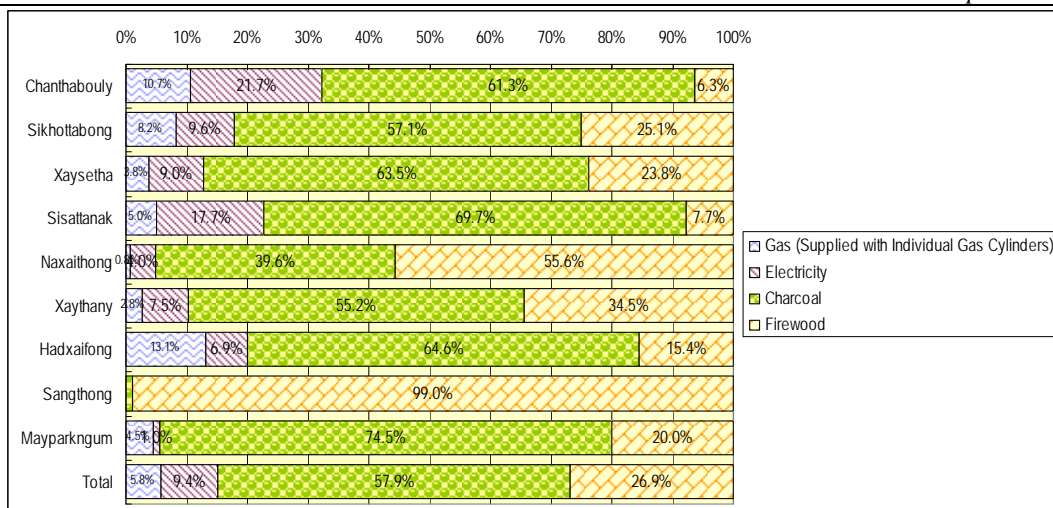


Source: JST (Household Survey)

Figure 2.4.18: Diffusion of TV Set, Refrigerator, and Washing Machine by District

2.4.9 Heat Sources

Figure 2.4.19 show the heat source for cooking by district. Gas and electricity are used only by 5.8 % and 9.4 % of the interviewed households, respectively. 57.9 % of the families depend on charcoal for their daily cooking. In the urban fringe such as Sangthong, Naxaithong, Xaythany, etc, firewood is also used widely.



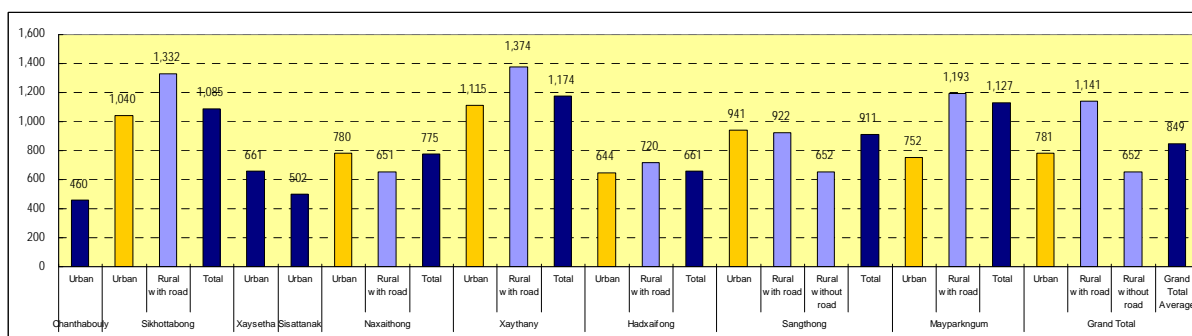
Source: JST (Household Survey)

Figure 2.4.19: Heat Source for Cooking by District

2.4.10 Housing

(1) Land Area

Figure 2.4.20 shows the land area of the interviewed households. The average land size at the whole Vientiane Capital level is 849 m². Generally, the rural lots (1,141 m²) are larger than the urban lots (781 m²). In the central districts such as Chanthabouly (460 m²) and Sisattanak (502 m²), the land lot is not as large as in the fringe districts.



Source: JST (Household Survey)

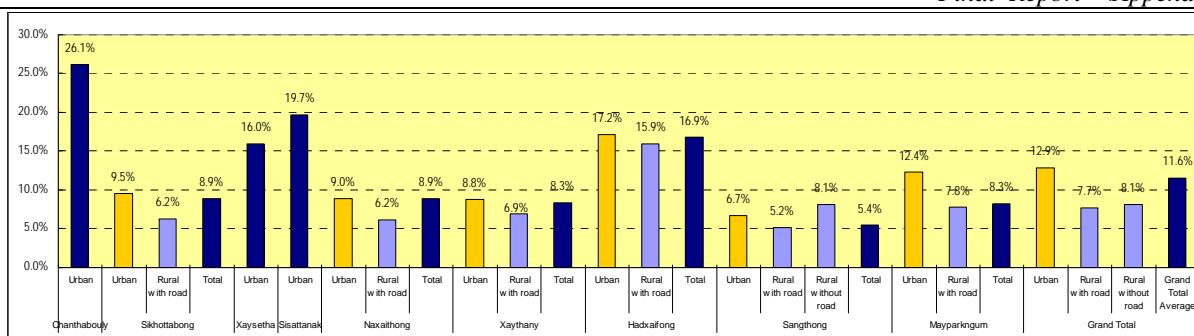
Figure 2.4.20: Land Area by District

(2) Building Type

Out of the interviewed 3,000 households, 1,621 households (54.0 %) live in a one-floor building, and 1,358 households (45.3 %) live in a two-floor building. There are only 21 families (0.7 %) that live in a three-floor building or a four-floor building. There are no five (5) or more storied buildings for the interviewed households.

(3) Building-to-Land Ratio

Figure 2.4.21 shows the building-to-land ratio of the interviewed households. The average building-to-land ratio at the whole Vientiane Capital level is 11.6 %. Generally, the ratio is much lower in the rural villages (7.7 %) than in the urban villages (12.9 %). In the central districts such as Chanthabouly (26.1 %) and Sisattanak (19.7 %), the ratio is even larger than in the fringe districts.

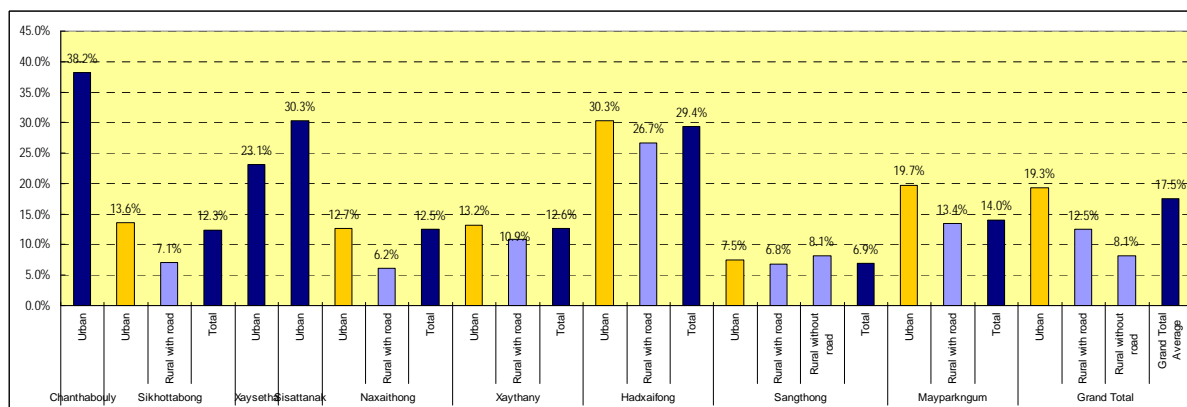


Source: JST (Household Survey)

Figure 2.4.21: Building-to-Land Ratio by District

(4) Floor Area Ratio

Figure 2.4.22 shows the floor area ratio (ratio of total floor area to land area) of the interviewed households. The average floor area ratio at the whole Vientiane Capital level is 17.5 %. Generally, the ratio is much lower in the rural villages (12.5 %) than in the urban villages (19.3 %). In the central districts such as Chanthabouly (38.2 %) and Sisattanak (30.3 %), the ratio is by far larger than in the fringe districts.

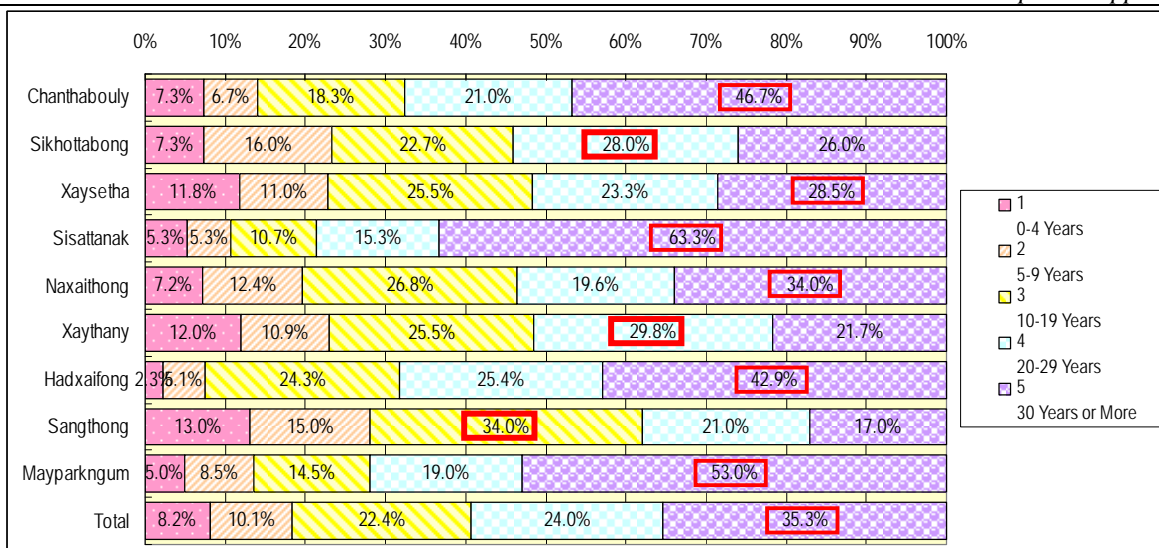


Source: JST (Household Survey)

Figure 2.4.22: Floor Area Ratio by District

(5) Living Period of Time at the Actual Dwelling Places

Figure 2.4.23 shows the total living period of time at the actual dwelling places by district. The majority of the households have been living in the actual place since 30 years or more, especially in the urban center such as Sisathanak (63.3%) and Chanthabouly (46.7%). In Mayparkngum which is located in the eastern fringe of Vientiane Capital, 53.0 % of the interviewed households belong to the group “30 years or more”.



Source: JST (Household Survey)

Figure 2.4.23: Living Period of Time at the Actual Dwelling Places by District

While the group “30 years or more” comes first for the whole Vientiane Capital, the group “20-29 years” occupies the first place in Xaythany (29.8%) and Sikhottabong (28.0%). In Sangthong the group “10-19 years” is at the top with a percentage of 34.0%. Compared with Table 2.4.9 which shows the demographic growth between 1995 and 2005 by district, these three (3) districts (Xaythany, Sikhottabong and Sangthong) come accidentally to be the top three (3) districts regarding the population increase. This fact could imply a certain correlation between the demographic growth and the continuance at the present place of the households. In other words, the demographic inflow is remarkable recently in these three districts.

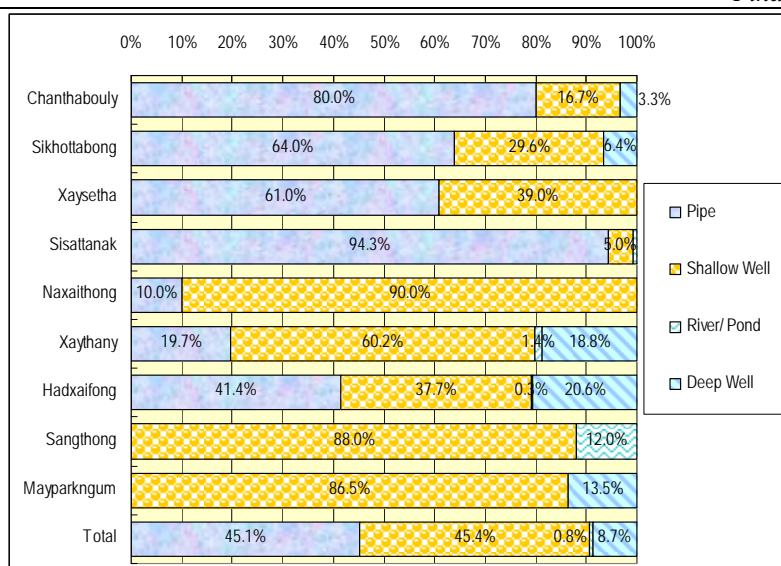
Table 2.4.9: Demographic Growth between 1995 and 2005 by District

| No. | District | Population (2005) | Population (1995) | Increase (1995-2005) | Increase Rate |
|-----|--------------|-------------------|-------------------|----------------------|---------------|
| 1 | Chanthabouly | 68,858 | 58,855 | 10,003 | 17.0% |
| 2 | Sikhottabong | 99,908 | 74,251 | 25,657 | 34.6% |
| 3 | Xaysetha | 97,514 | 75,255 | 22,259 | 29.6% |
| 4 | Sisattanak | 68,686 | 58,178 | 10,508 | 18.1% |
| 5 | Naxaithong | 58,368 | 44,104 | 14,264 | 32.3% |
| 6 | Xaythany | 150,793 | 97,829 | 52,964 | 54.1% |
| 7 | Hadxaifong | 78,338 | 64,962 | 13,376 | 20.6% |
| 8 | Sangthong | 24,215 | 16,728 | 7,487 | 44.8% |
| 9 | Mayparkngum | 45,041 | 33,945 | 11,096 | 32.7% |
| | Total | 691,721 | 524,107 | 167,614 | 32.0% |

Source: JST (National Census 1995 and 2005)

2.4.11 Water Supply System

Figure 2.4.24 shows the water supply system. At the whole Vientiane Capital level, 45.1 % and 45.4 % of the interviewed households use tap and shallow well, respectively. Deep well is used by 8.7 % of the households. In Sangthong where people suffer from a lack of water supply system, 12.0 % of the households still depend on river or pond water.



Source: JST (Household Survey)

Figure 2.4.24: Water Supply Systems by District

2.4.12 Water Consumption

(1) Daily Consumption per Capita

Table 2.4.10 shows the water consumption per day and per capita. In average, one person uses 76.4 liters per day. In Sangthong District where not a few people suffer from a lack of water supply facilities, the daily water consumption quantity per capita is no more than 71.5 % (=54.6/ 76.4) of the whole capital average.

Table 2.4.10: Water Consumption per Day per Capita by District

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | Average |
|---|--------------|-----|------|------|-----|-----|-----|-----|---------|
| 1 | Chanthabouly | 4.6 | 33.2 | 31.1 | 8.9 | 0.2 | 1.6 | 4.6 | 84.2 |
| 2 | Sikhottabong | 6.1 | 21.7 | 37.4 | 3.6 | 1.1 | 2.1 | 6.4 | 78.4 |
| 3 | Xayseltha | 4.4 | 20.4 | 38.3 | 3.9 | 1.2 | 6.8 | 8.2 | 83.1 |
| 4 | Sisattanak | 6.9 | 20.0 | 28.6 | 7.1 | 0.0 | 1.1 | 4.4 | 68.2 |
| 5 | Naxaithong | 5.5 | 26.6 | 37.1 | 2.2 | 0.4 | 1.2 | 7.7 | 80.7 |
| 6 | Xaythany | 3.9 | 20.1 | 37.7 | 2.6 | 0.9 | 3.4 | 8.5 | 77.3 |
| 7 | Hadxaifong | 3.1 | 20.7 | 29.8 | 3.0 | 0.2 | 0.6 | 2.2 | 59.6 |
| 8 | Sangthong | 4.7 | 17.4 | 25.3 | 0.0 | 1.8 | 0.4 | 4.9 | 54.6 |
| 9 | Mayparkngum | 4.0 | 19.3 | 50.3 | 8.4 | 1.2 | 0.2 | 7.3 | 90.7 |
| | Total | 4.8 | 22.1 | 35.7 | 4.3 | 0.7 | 2.5 | 6.4 | 76.4 |

Note:

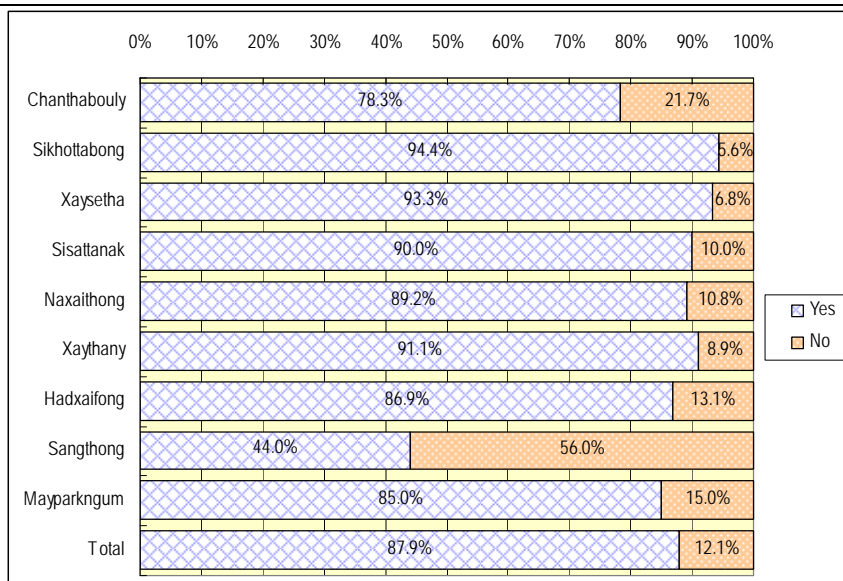
1= Drinking/ Cooking
2= Washing Clothes
3= Bathing/ Shower
4= Toilet Flush

5= Domestic Animals
6= Gardening
7= Others

Source: JST (Household Survey)

(2) Purchase of Mineral Water

As shown in Figure 2.4.25, at the whole capital level, 87.9 % of the households buy mineral. However, the majority do not buy water in Sangthong where people suffer from the poverty and a lack of water supply facilities.



Source: JST (Household Survey)

Figure 2.4.25: Answer for the Question “Does your household buy mineral water?”

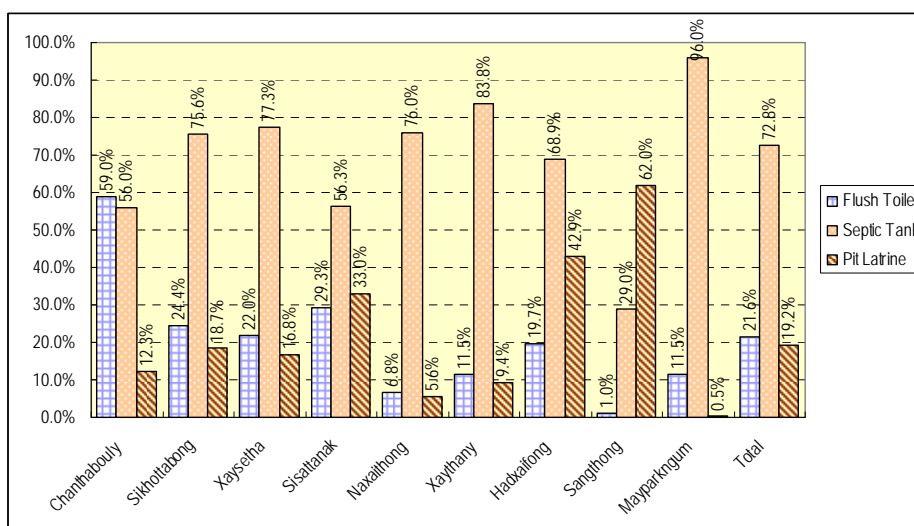
(3) Outlay for Mineral Water

In average, the 2,634 household which buy mineral water spend LAK 46,552 per month and per household. In other words, every month, a household buy 11.6 water bottles on the assumption that one water bottle which contains 20 liters costs LAK 4,000.

2.4.13 Wastewater

(1) Black Water

“Black Water” means the water that is mainly used in a toilet. Figure 2.4.26 shows the percentages of the existence of black water facilities. Flush toilet is used by 59.0 % of the households in Chanthabouly District, while 62.0 % families in Sangthong District depend on pit latrine, which is a simple hole dug in the ground.

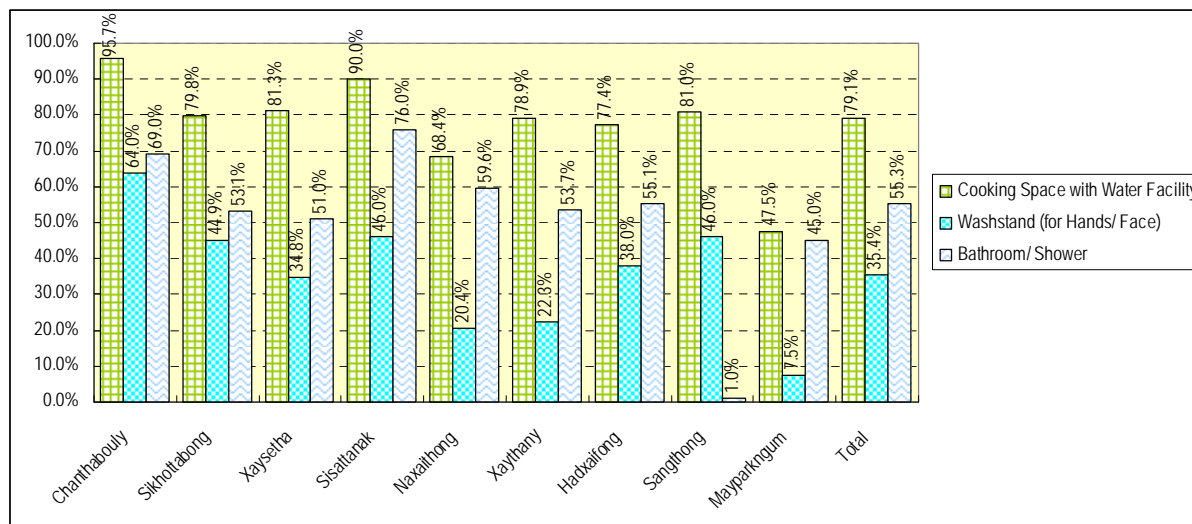


Source: JST (Household Survey)

Figure 2.4.26: Percentages of the Existence of Black Water Facilities by District

(2) Grey Water

“Grey Water” means the water that is used generally in a household except toilet. Figure 2.4.27 shows the percentages of the existence of grey water facilities. At the whole Vientiane Capital level, 79.1 %, 55.3 %, and 35.4 % of the households have a cooking space with water facility, a washstand, or a bathroom/ shower, respectively.



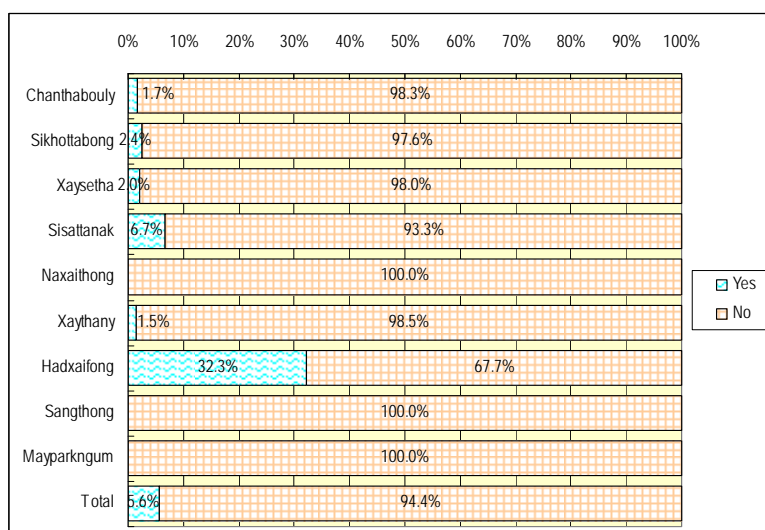
Source: JST (Household Survey)

Figure 2.4.27: Percentages of the Existence of Grey Water Facilities by District

2.4.14 Drainage

(1) Inundation

Figure 2.4.28 shows the experiences of inundation. At the whole Vientiane Capital level, 94.4 % of the households haven't experienced a flood. But in Hadxaifong District, about one-third of the households have experienced a flood of less than 10 cm.

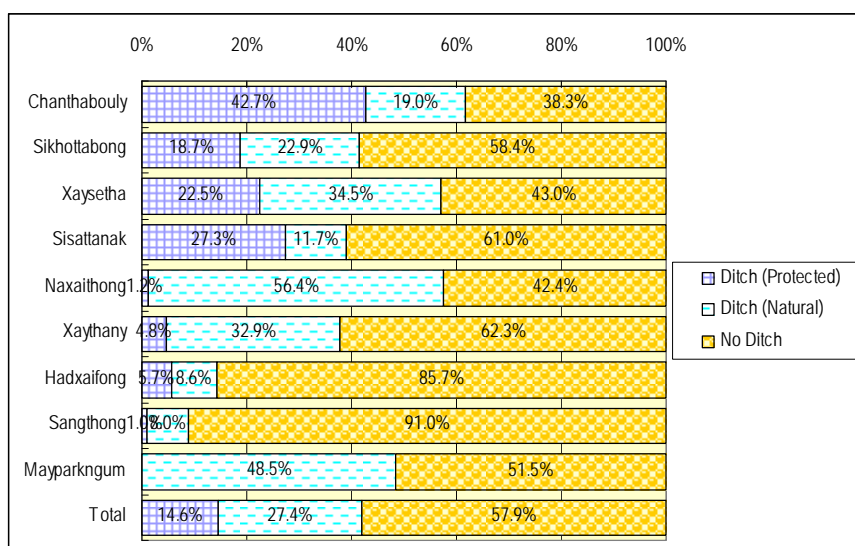


Source: JST (Household Survey)

Figure 2.4.28: Experiences of Inundation by District

(2) Drainage Facilities

Figure 2.4.29 shows the drainage facilities. At the whole Vientiane Capital level, 57.9 % of the households have no ditch around their dwellings. However, protected ditch is provided comparatively widely in the urban center such as Chanthabouly (42.7 %) and Sisattanak (27.3%).



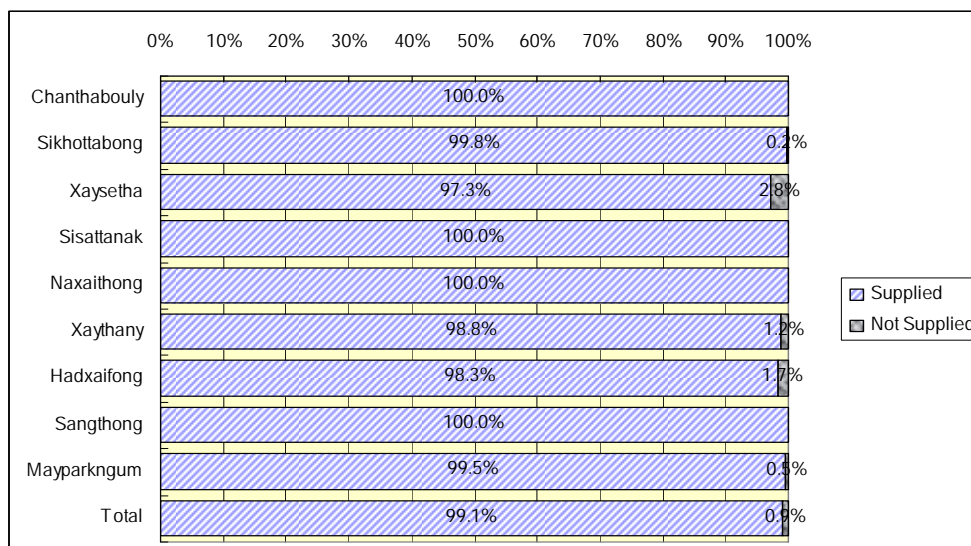
Source: JST (Household Survey)

Figure 2.4.29: Drainage Facilities by District

2.4.15 Electricity (Power Supply)

(1) Power Supply

Figure 2.4.30 shows the power supply. The electric power is supplied to 99.1% of the households at the whole Vientiane Capital level. The situation does not vary widely from district to district.

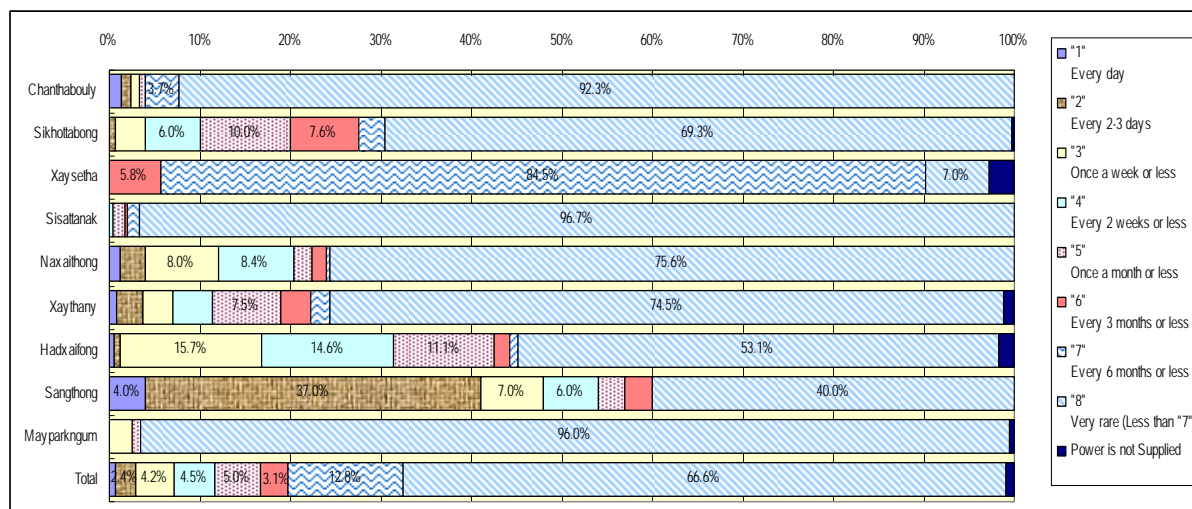


Source: JST (Household Survey)

Figure 2.4.30: Power Supply by District

(2) Power Cut

Figure 2.4.31 shows the experiences of power cut. At the whole Vientiane Capital level, 66.6 % of the households experience power cut very rarely. Those who experience power cut at least once a week are less than 10 % of the all.



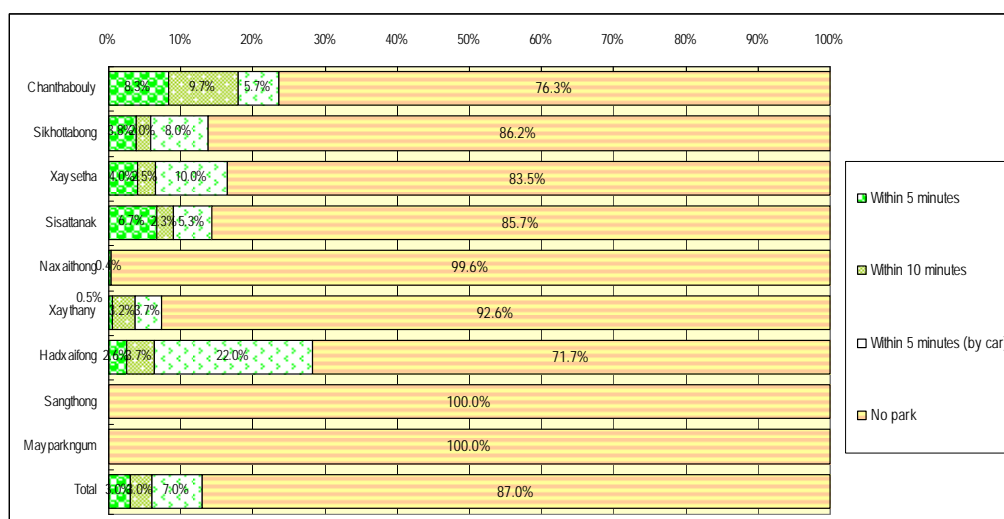
Source: JST (Household Survey)

Figure 2.4.31: Experiences of Power Cut

2.4.16 Parks and Greenery

(1) Existence of Public Parks

Figure 2.4.32 shows the existence of public parks. At the whole Vientiane Capital level, 87.0 % of the household have no park in the vicinity of their dwellings. Especially Sangthong and Mayparkngum, which are located in the fringe of Vientiane Capital, have no park at all, while the central districts, such as Chanthabouly, Sisattanak, Xaysetha, and Sikhottabong have some, even if the households which enjoy the facilities still remain a minority.

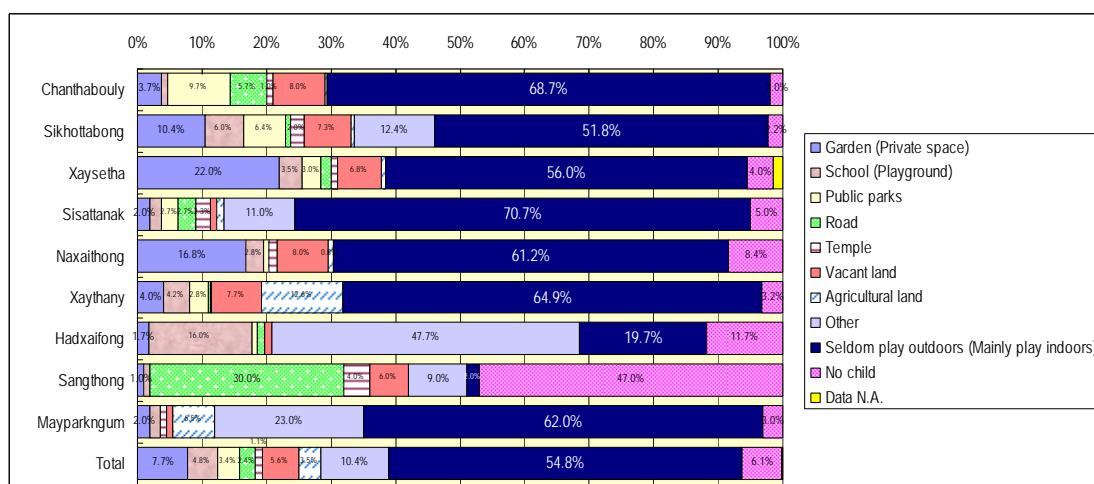


Source: JST (Household Survey)

Figure 2.4.32: Existence of Public Parks by District

(2) “Where do your children usually play?”

Figure 2.4.33 shows the answers for the question “Where do your children usually play?” At the whole Vientiane Capital level, 54.8 % of the households have children who seldom play outdoors. The children who play outdoors enjoy themselves in private gardens (7.7 %), vacant land (5.6 %), school playgrounds (4.8 %), etc. In Sangthong, which is the most rural district in Vientiane Capital, not a few children seem to play in roads (30.0%).

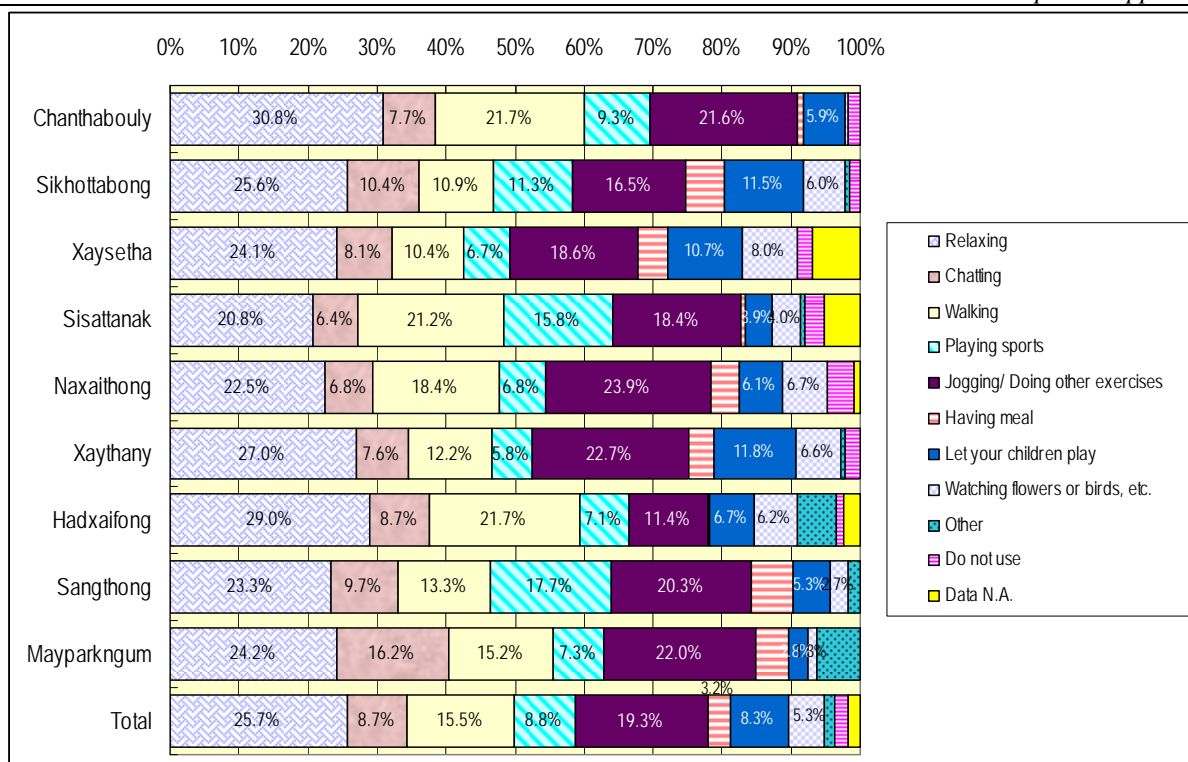


Source: JST (Household Survey)

Figure 2.4.33: Answers for the Question “Where do your children usually play?” by District

(3) Expectations for a Park Nearby

Figure 2.4.34 shows the answers for the question about expectations for a park nearby, if there were any parks in the vicinity. In average, people want to use parks for relaxing (25.7 %), doing physical exercises (19.3 %), taking a walk (15.5 %), etc.



Source: JST (Household Survey)

Figure 2.4.34: Answers for the Question about Expectations for a Park nearby by District

2.4.17 Parking

(1) Parking Place

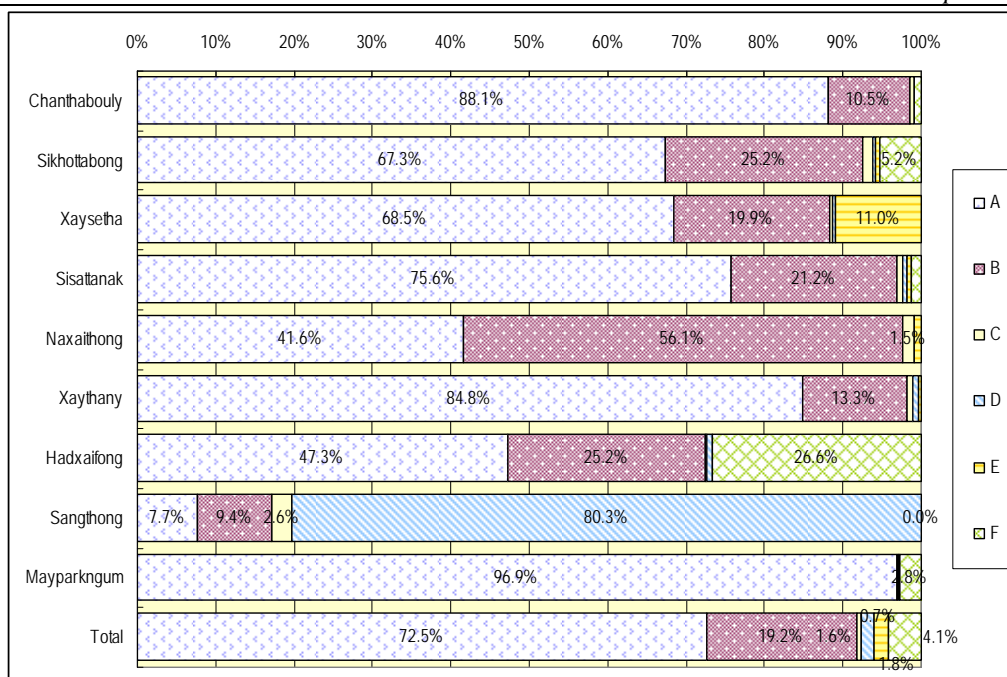
Table 2.4.11 and Figure 2.4.35 show the parking places of the people who regularly go to work or go to school by vehicles. At the whole Vientiane Capital level, 72.5 % of the people use parking spaces inside the workplace or the school. 19.2 % use parking spaces outside the workplace or the school but belong to the same workplace or the school. However, in Sangthong District, 80.3 % of the people park a vehicle in their family's or friend's house nearby.

Table 2.4.11: Parking Places by District

| No. | District | A | B | C | D | E | F | Total |
|-----|--------------|-------|-------|----|-----|-----|-----|-------|
| 1 | Chanthabouly | 569 | 68 | 3 | 0 | 0 | 6 | 646 |
| 2 | Sikhottabong | 840 | 315 | 16 | 6 | 7 | 65 | 1,249 |
| 3 | Xaysetha | 735 | 213 | 4 | 3 | 118 | 0 | 1,073 |
| 4 | Sisattanak | 556 | 156 | 6 | 3 | 5 | 9 | 735 |
| 5 | Naxaithong | 198 | 267 | 7 | 0 | 4 | 0 | 476 |
| 6 | Xaythany | 1,577 | 248 | 13 | 13 | 8 | 0 | 1,859 |
| 7 | Hadxaifong | 391 | 208 | 2 | 5 | 1 | 220 | 827 |
| 8 | Sangthong | 9 | 11 | 3 | 94 | 0 | 0 | 117 |
| 9 | Mayparkngum | 755 | 1 | 0 | 1 | 0 | 22 | 779 |
| | Total | 5,630 | 1,487 | 54 | 125 | 143 | 322 | 7,761 |

| A | B | C | D | E | F |
|------------------------------------|--|--|--|------------------------------|------------------------------|
| Parking (Inside the workplace lot) | Parking (Outside the workplace lot but belongs to the workplace) | Parking (Outside the workplace lot and does not belong to the workplace) | At a friend's or family's house nearby | On a main road (Public road) | On an alleyway (Public road) |

Source: JST (Household Survey)



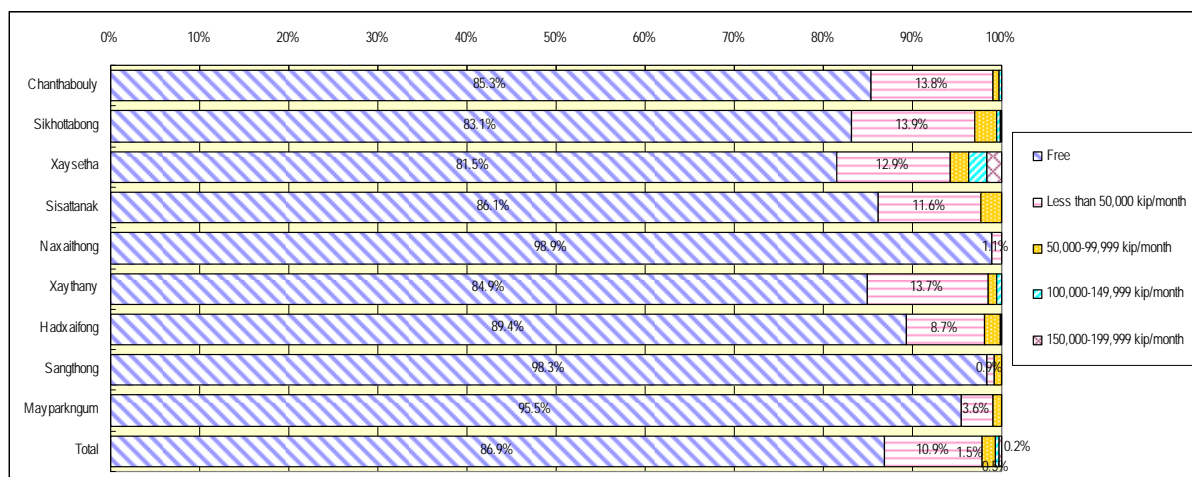
| A | B | C | D | E | F |
|------------------------------------|--|--|--|------------------------------|------------------------------|
| Parking (Inside the workplace lot) | Parking (Outside the workplace lot but belongs to the workplace) | Parking (Outside the workplace lot and does not belong to the workplace) | At a friend's or family's house nearby | On a main road (Public road) | On an alleyway (Public road) |

Source: JST (Household Survey)

Figure 2.4.35: Parking Places by District

(2) Parking Charge

Figure 2.4.36 shows the parking charge. At the whole Vientiane Capital level, 86.9 % of the people park free of charge. 10.9 % of the people pay less than LAK 50,000 per month.



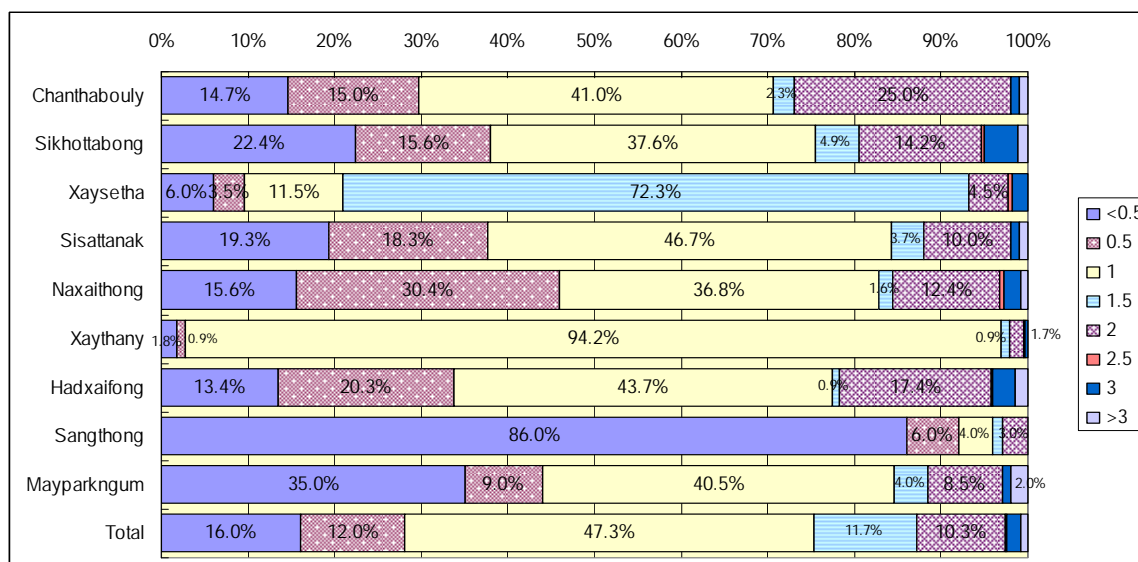
Source: JST (Household Survey)

Figure 2.4.36: Parking Charge by District

2.4.18 Solid Waste

(1) Solid Waste Volume

Figure 2.4.37 shows the weekly household solid waste volume by district. At the whole Vientiane Capital level, 47.3 % of the households generate a one standard basketful of solid waste a week.

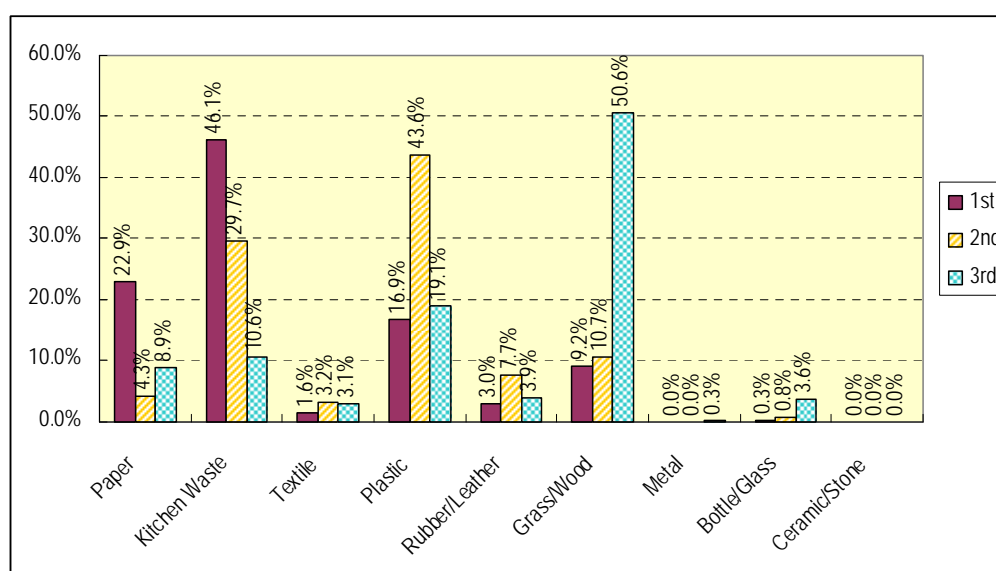


Source: JST (Household Survey)

Figure 2.4.37: Weekly Household Solid Waste Volume by District

(2) Solid Waste Weight Composition

Figure 2.4.38 shows the main components (Weight base) of the household solid waste. In 46.1 %, 22.9 % and 16.9 % of the households, kitchen waste, paper, and plastic come to the top respectively. Then, plastic (43.6 %), kitchen waste (29.7 %) and Grass/ Wood (10.7 %) are the main solid wastes as the secondary main. Grass/ Wood account for 50.6 % of the third main wastes.

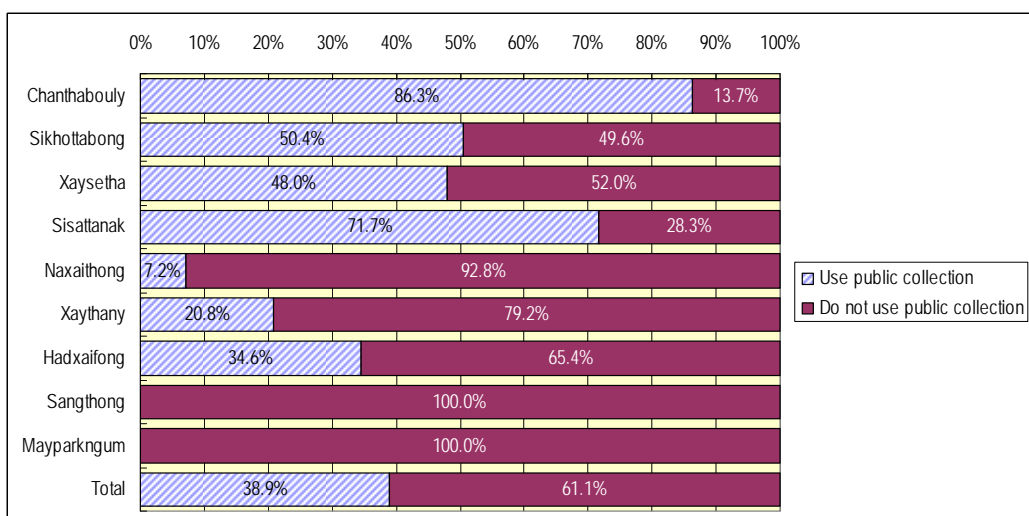


Source: JST (Household Survey)

Figure 2.4.38: Main Components (Weight Base) of the Household Solid Waste

(3) Public Waste Collection Service

Figure 2.4.39 shows the percentages of the households that use public collection service. As a whole, 38.9 % of the households use the service, and 61.1 % do not use the service. In Sangthong and Mayparkngum, there are no households which use the public collection service.

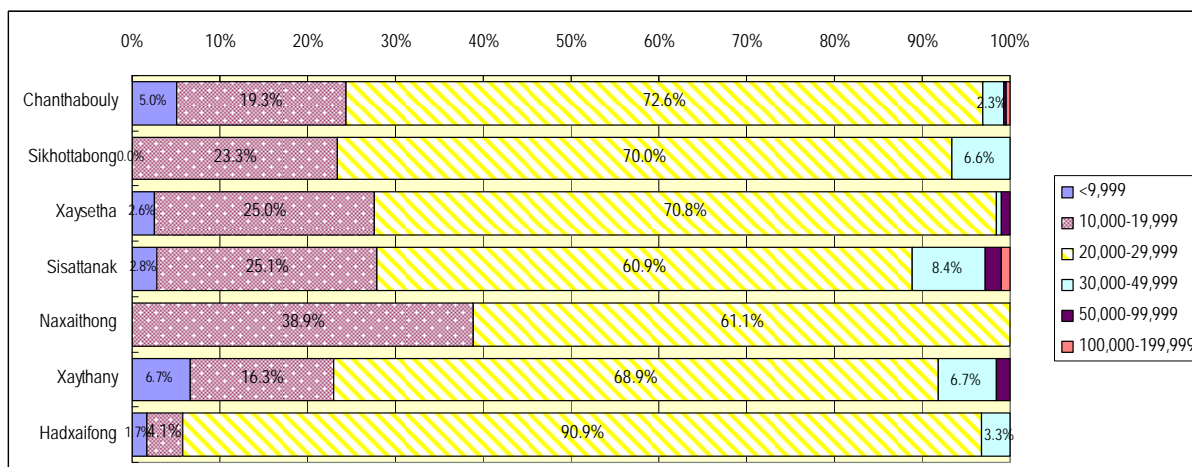


Source: JST (Household Survey)

Figure 2.4.39: Percentages of the Households that Use Public Collection Service

(4) Payment for the Public Waste Collection Service

Figure 2.4.40 shows the payment for the public waste collection service. As a whole, 90.9 % of the household which use the public service pay LAK 20 to 30 thousands per month.

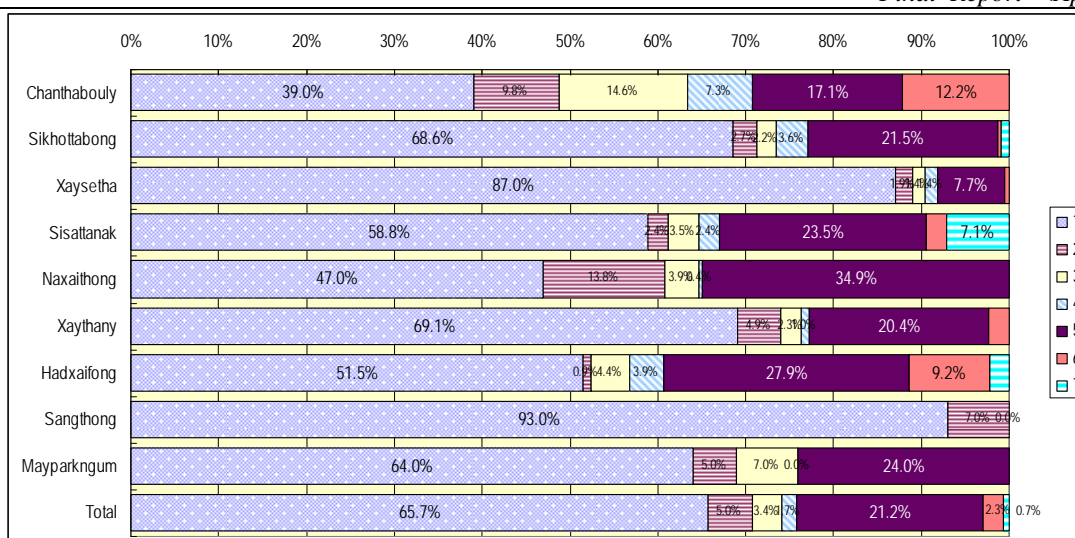


Source: JST (Household Survey)

Figure 2.4.40: Monthly Payment for the Public Collection Service by District

(5) Reasons for not using the Public Waste Collection Service

Figure 2.4.41 shows the reasons for not using the public waste collection service. The main reasons are inexistence of the service (65.7 %), generating little waste (21.2 %), etc.



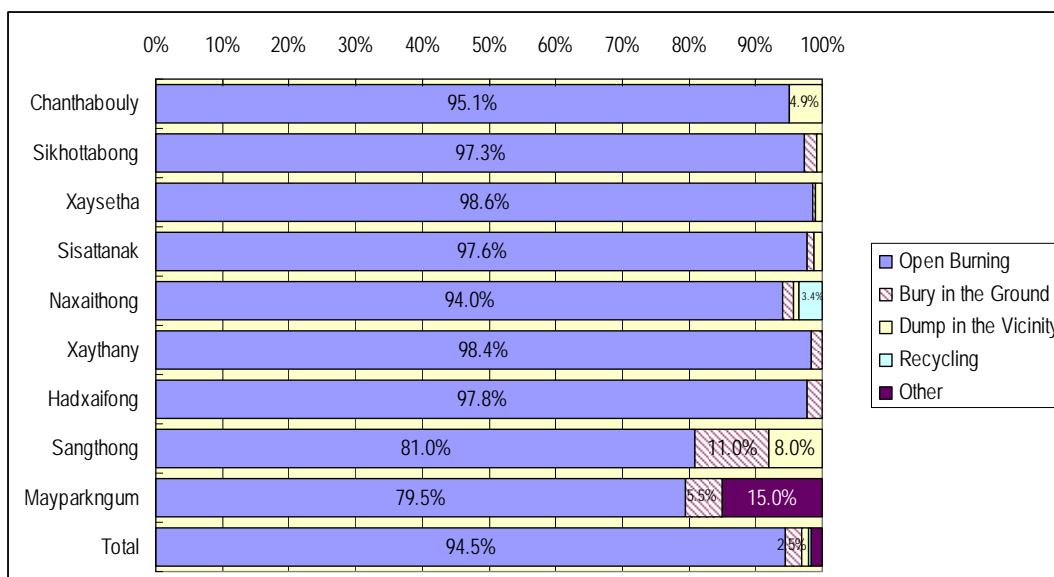
Reason 1 No public waste collection service which covers the area
Reason 2 The collection point(s) is (are) too far from the household.
Reason 3 Not enough household income to pay for waste collection service
Reason 4 The collection charge is too high for the service quality.
Reason 5 Do not generate as much waste as to use the collection service
Reason 6 Simply feel that the waste collection service is not necessary.
Reason 7 Other

Source: JST (Household Survey)

Figure 2.4.41: Reasons for not using the Public Waste Collection Service by District

(6) Domestic Disposal

Figure 2.4.42 shows how to dispose of household waste by the household themselves. 94.5 % of the households which do not use the public collection service burn wastes in the open air.

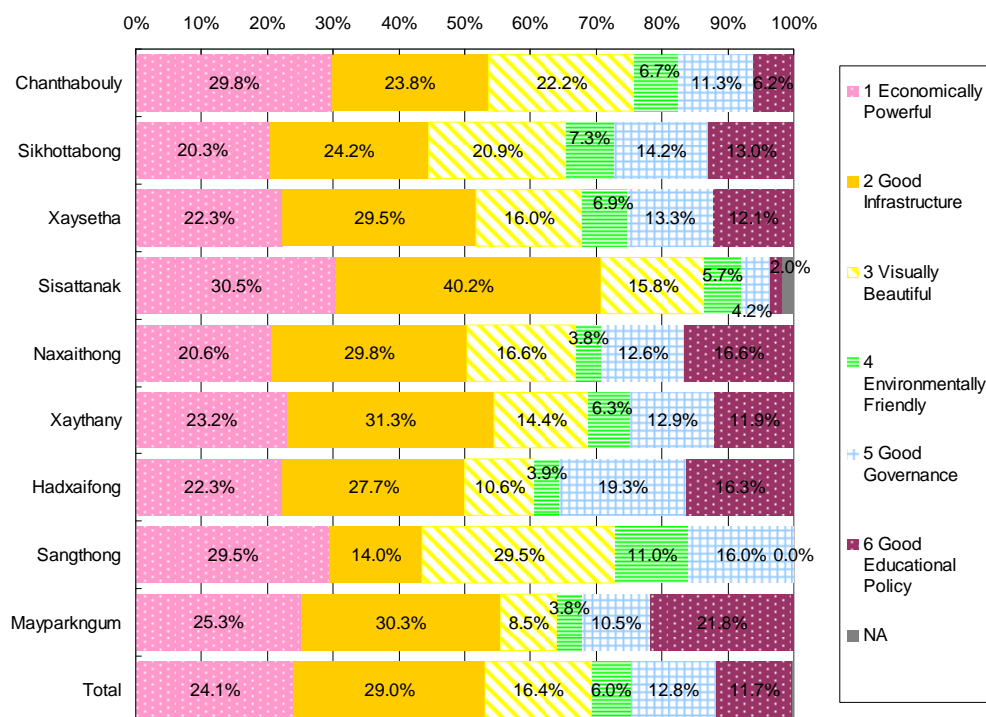


Source: JST (Household Survey)

Figure 2.4.42: How to Dispose of Household Waste by District

2.4.19 Development Visions at District Level

Figure 2.4.43 shows the development visions at district level. As a whole, infrastructure and economic development are considered to be very important. “Visually Beautiful” also comes first in Sangthong District. Good governance, good educational system, and environmental friendliness are also considered to be essential to some extent for a bright future of the district.

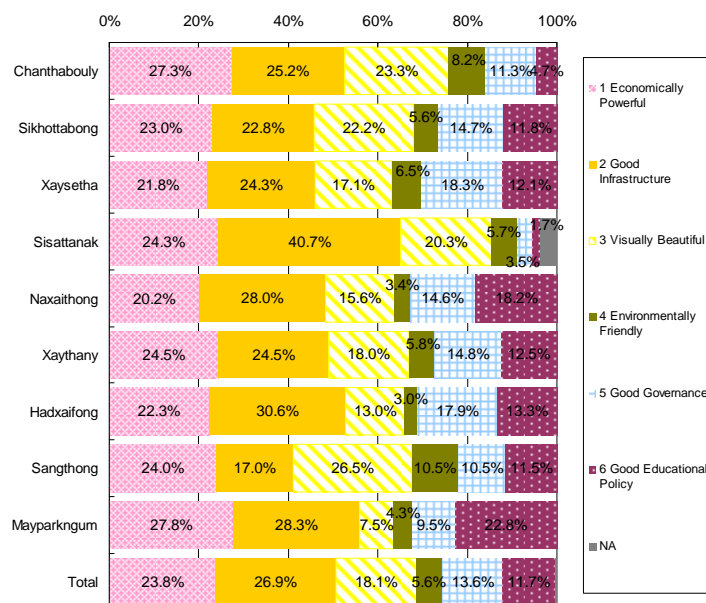


Source: JST (Household Survey)

Figure 2.4.43: Development Visions at District Level

2.4.20 Development Visions at the Whole Vientiane Capital Level

Figure 2.4.44 shows the development visions at the whole Vientiane Capital level. There are no remarkable differences when compared with the visions at district level. As a whole, infrastructure and economic development are considered to be very important. “Visually Beautiful” also comes first in Sangthong District. Good governance, good educational system, and environmental friendliness are also considered to be essential to some extent for a bright future of Vientiane Capital.

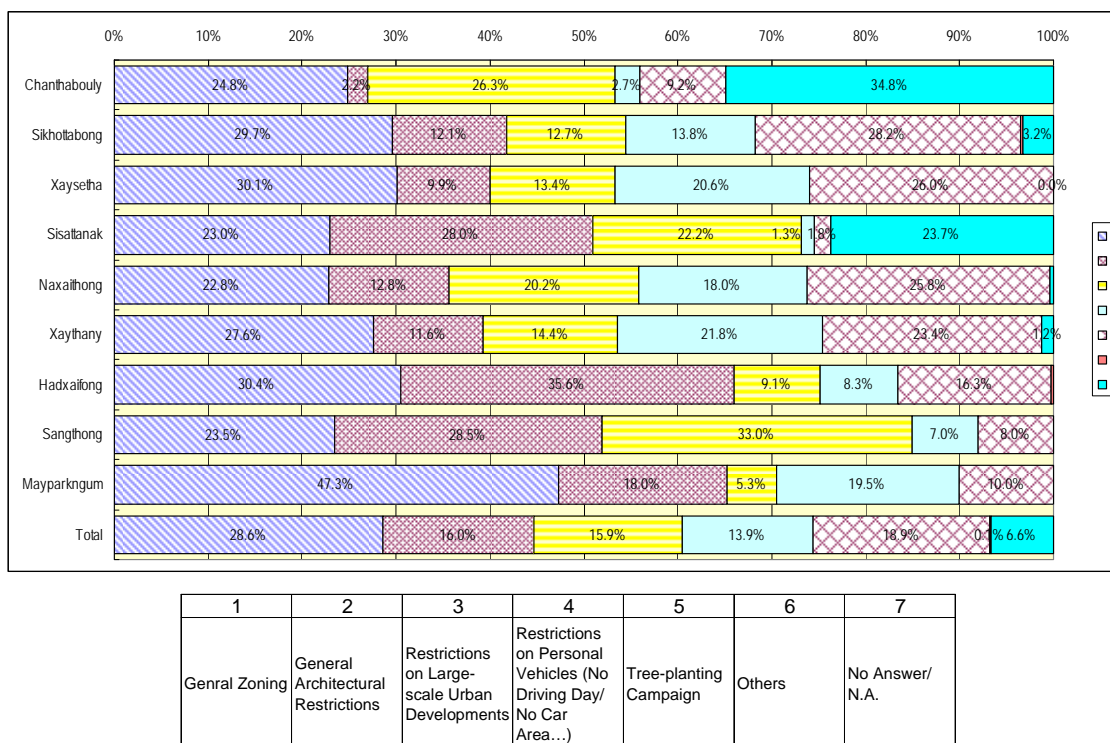


Source: JST (Household Survey)

Figure 2.4.44: Development Visions at the Whole Vientiane Capital Level

2.4.21 Expectations for Urban Planning Policy

Figure 2.4.45 shows the expectations of the households for urban planning policy. The result split into five (5) answers without any remarkable tendency. In other words, general zoning (28.6 %), tree-planting campaign (18.9 %), general architectural restrictions (16.0 %), restrictions on large-scale urban developments (15.9 %), and restrictions on personal vehicles (13.9 %) are all considered to be important.

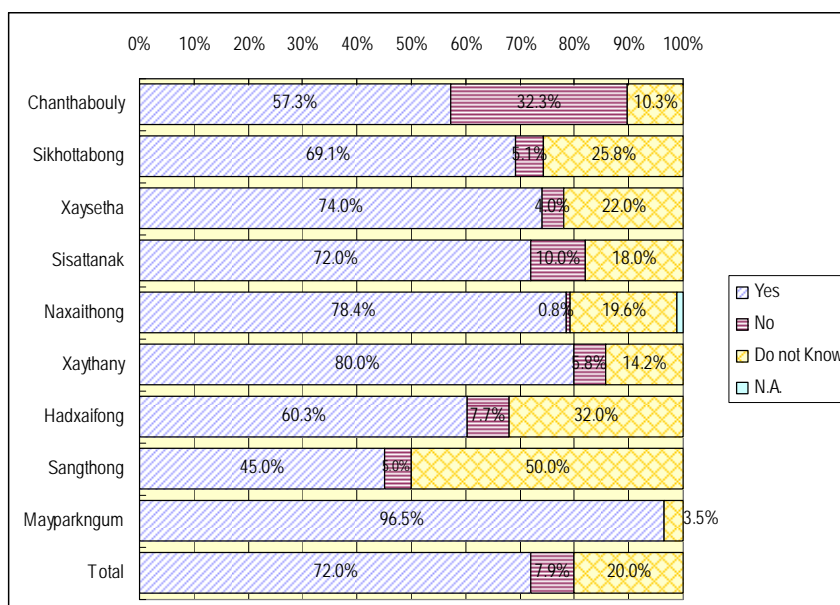


Source: JST (Household Survey)

Figure 2.4.45: Expectations for Urban Planning Policy by District

2.4.22 Attitude toward the Participatory Approaches in Urban Planning

Figure 2.4.46 shows the result of the question “Suppose, there is an area which has a problem from viewpoint of urban planning and you are one of the stakeholders. And do you voluntarily want to take part in the activities to realize the ideal Vientiane Capital in the future (2030)?” As a whole, “Yes” account for 72.0 % to be a majority. A definite refusal “No” is no more than 7.9 % of the total, while 20.0 % of the households answered “Do not know/ Too difficult question to answer”. It is remarkable that 50.0 % of the households in Sangthong are for “Do not know/ Too difficult question to answer”.



Source: JST (Household Survey)

Figure 2.4.46: Attitude toward the Participatory Approaches in Urban Planning by District

2.5 Results of the Key Informant Survey

2.5.1 Sampling

The sample number of the key informant survey is 107. They are mainly public workers for the Lao authorities. The sample structure is as shown in Table 2.5.1.

Table 2.5.1: Samples for the Key Informant Survey

| 1 | Sex | Male | Female | Total | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total |
|----|-----------------------------|-----------|-----------|------------|--------------|--------------|-----------|------------|------------|-----------|------------|-----------|-------------|------------|
| | | | | | Chanthabouly | Sikhottabong | Xaysetha | Sisattanak | Naxaithong | Xaythany | Hadxaifong | Sangthong | Mayparkngum | |
| | District Office | | | | | | | | | | | | | |
| | Governor | 17 | 0 | 17 | 3 | 1 | 1 | 1 | 2 | 2 | 3 | 1 | 3 | 17 |
| | OPWT (under DPWT) | 9 | 0 | 9 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 9 |
| | OAF (under DAF) | 8 | 0 | 8 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 8 |
| | WREO (under WREA) | 5 | 2 | 7 | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 7 |
| | LMO (under NLMA) | 7 | 0 | 7 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | | | 7 |
| | OIC (under DOIC) | 8 | 0 | 8 | 1 | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8 |
| 2 | Head of Village (Ban) Group | 24 | 2 | 26 | 0 | 1 | 3 | 2 | 1 | 8 | 3 | 4 | 4 | 26 |
| 3 | PTI | 1 | 2 | 3 | | | | 3 | | | | | | 3 |
| 4 | DPWT | 3 | 0 | 3 | | | | 3 | | | | | | 3 |
| 5 | DHUP | 2 | 1 | 3 | | | 2 | 1 | | | | | | 3 |
| 6 | Vientiane Capital | 1 | 0 | 1 | 1 | | | | | | | | | 1 |
| 7 | VUDAA | 3 | 0 | 3 | | | | 3 | | | | | | 3 |
| 8 | Women's Union | 1 | 6 | 7 | 1 | 1 | 1 | | 1 | 1 | | 1 | 1 | 7 |
| 9 | DAF | 1 | 0 | 1 | | | | | | | 1 | | | 1 |
| 10 | WREA | 1 | 0 | 1 | | | | | 1 | | | | | 1 |
| 11 | NLMA | 1 | 0 | 1 | 1 | | | | | | | | | 1 |
| 12 | DIC | 0 | 1 | 1 | 1 | | | | | | | | | 1 |
| 13 | DOIC | 0 | 1 | 1 | | | 1 | | | | | | | 1 |
| | Total | 92 | 15 | 107 | 12 | 7 | 13 | 18 | 9 | 15 | 11 | 10 | 12 | 107 |

Source: JST (Key Informant Survey)

2.5.2 Infrastructure

(1) Lacking or Insufficient Infrastructure

Table 2.5.2 shows the lacking or insufficient infrastructure presently. As a whole, 72% of the key informants answered that the bad condition of the “Small Access Roads” is the most serious problem for the district. The secondly and the thirdly serious problems are “Drainage/ Sewerage” and “Waste Dumping Site”, respectively. The majority mentions “Drinking Water Supply” and “Main Roads”, too. “Irrigation Water”, “Parks/ Open Spaces”, and “Medical facilities” are also considered to have problems in some districts. “Schools” and “Electricity” seem to be comparatively provided nicely.

Table 2.5.2: Lacking or Insufficient Infrastructure by District

| No. | District | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Other |
|-----|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-------|
| 1 | Chanthabouly | 83% | 25% | 0% | 33% | 0% | 83% | 33% | 17% | 0% | 25% | 0% | 0% | 0% | 0% | 0% | 0% |
| 2 | Sikhottabong | 86% | 14% | 0% | 29% | 14% | 57% | 71% | 0% | 0% | 14% | 0% | 0% | 0% | 0% | 14% | 0% |
| 3 | Xaysetha | 54% | 31% | 0% | 31% | 8% | 85% | 54% | 0% | 0% | 31% | 0% | 0% | 8% | 0% | 0% | 0% |
| 4 | Sisattanak | 89% | 6% | 0% | 17% | 0% | 94% | 61% | 0% | 0% | 33% | 0% | 0% | 0% | 0% | 0% | 0% |
| 5 | Naxaithong | 67% | 11% | 0% | 44% | 33% | 33% | 44% | 0% | 11% | 22% | 0% | 0% | 11% | 22% | 0% | 0% |
| 6 | Xaythany | 80% | 0% | 7% | 53% | 20% | 27% | 47% | 7% | 7% | 20% | 7% | 0% | 7% | 0% | 20% | 0% |
| 7 | Hadxaifong | 55% | 45% | 0% | 36% | 0% | 64% | 36% | 0% | 0% | 45% | 9% | 0% | 0% | 9% | 0% | 0% |
| 8 | Sangthong | 50% | 60% | 10% | 80% | 40% | 20% | 0% | 0% | 0% | 0% | 10% | 0% | 0% | 10% | 20% | 0% |
| 9 | Mayparkngum | 75% | 25% | 17% | 33% | 33% | 17% | 33% | 8% | 0% | 8% | 0% | 0% | 8% | 25% | 17% | 0% |
| | Grand Total | 72% | 22% | 4% | 38% | 15% | 56% | 43% | 4% | 2% | 23% | 2% | 1% | 4% | 7% | 7% | 0% |

| | | | | |
|--------|--|-------------------------|-----------------------|------------------------------|
| Legend | Most serious problem | 1 Small Access Roads | 7 Waste Dumping Site | 13 High Schools |
| | Secondly serious problem | 2 Main Roads | 8 Electricity | 14 Medical Centers (Clinics) |
| | Thirdly serious problem | 3 Bridges | 9 Telecommunication | 15 Hospitals |
| | | 4 Drinking Water Supply | 10 Parks/ Open Spaces | |
| | | 5 Irrigation Water | 11 Primary Schools | |
| | | 6 Drainage/ Sewerage | 12 Secondary Schools | |

Source: JST (Key Informant Survey)

(2) Comparatively Satisfactory Infrastructure

Table 2.5.3 shows the comparatively satisfactory infrastructure presently. Currently, the infrastructure such as electricity, telecommunication, main roads, primary schools, etc seems to satisfy the people.

Table 2.5.3: Comparatively Satisfactory Infrastructure by District

| No. | District | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Other |
|-----|--------------|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-------|
| 1 | Chanthabouly | 0% | 33% | 8% | 33% | 0% | 0% | 8% | 67% | 83% | 8% | 17% | 17% | 17% | 8% | 0% | 0% |
| 2 | Sikhottabong | 14% | 43% | 0% | 43% | 0% | 14% | 0% | 86% | 71% | 0% | 14% | 14% | 0% | 0% | 0% | 0% |
| 3 | Xaysetha | 0% | 69% | 8% | 23% | 15% | 8% | 8% | 54% | 62% | 0% | 0% | 8% | 8% | 8% | 31% | 0% |
| 4 | Sisattanak | 6% | 44% | 0% | 28% | 17% | 6% | 0% | 61% | 61% | 11% | 28% | 11% | 11% | 11% | 6% | 0% |
| 5 | Naxaithong | 33% | 11% | 11% | 11% | 11% | 11% | 0% | 89% | 78% | 0% | 0% | 11% | 0% | 0% | 33% | 0% |
| 6 | Xaythany | 7% | 33% | 7% | 20% | 7% | 0% | 13% | 73% | 47% | 7% | 33% | 20% | 20% | 7% | 7% | 0% |
| 7 | Hadxaifong | 9% | 36% | 0% | 36% | 36% | 0% | 9% | 64% | 64% | 9% | 27% | 0% | 0% | 0% | 9% | 0% |
| 8 | Sangthong | 20% | 0% | 0% | 10% | 0% | 0% | 0% | 100% | 80% | 0% | 40% | 20% | 20% | 0% | 10% | 0% |
| 9 | Mayparkngum | 0% | 8% | 8% | 0% | 0% | 8% | 0% | 67% | 75% | 0% | 58% | 58% | 8% | 0% | 8% | 0% |
| | Grand Total | 8% | 33% | 5% | 22% | 10% | 5% | 5% | 71% | 67% | 5% | 25% | 18% | 10% | 5% | 11% | 0% |

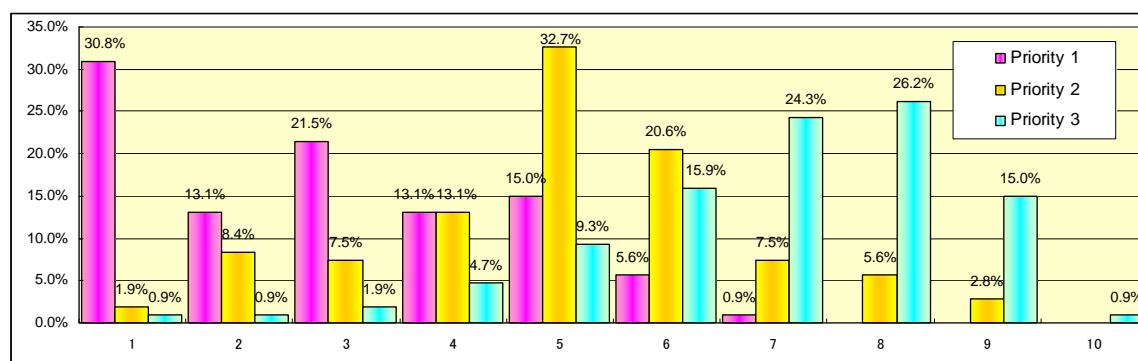
| | | | | |
|--------|--|-------------------------|-----------------------|------------------------------|
| Legend | Most satisfactory | 1 Small Access Roads | 7 Waste Dumping Site | 13 High Schools |
| | Secondly satisfactory | 2 Main Roads | 8 Electricity | 14 Medical Centers (Clinics) |
| | Thirdly satisfactory | 3 Bridges | 9 Telecommunication | 15 Hospitals |
| | | 4 Drinking Water Supply | 10 Parks/ Open Spaces | |
| | | 5 Irrigation Water | 11 Primary Schools | |
| | | 6 Drainage/ Sewerage | 12 Secondary Schools | |

Source: JST (Key Informant Survey)

2.5.3 Problems about the Actual Urban Planning System

(1) Problems about the Actual Urban Planning System

Figure 2.5.1 shows the problems about the actual urban planning system in Vientiane Capital. Each key informant enumerated three (3) items laying a stress by the importance of a problem.



Problem List

- 1 Public workers' urban planning skills are not good enough.
- 2 Public workers in charge are not really committed for urban planning.
- 3 The division of responsibilities among the organizations concerned is not appropriate or unclear.
- 4 Urban planning method is not appropriately standardized or unclear or impractical.
- 5 Legal force is lacking and urban planning may turn out to be nothing but pie in the sky.
- 6 Budget and/or equipment are not enough for conducting a good survey on urban planning.
- 7 Activities for improving of public awareness are not enough.
- 8 Public involvement is not enough.
- 9 Ordinary citizens are not cooperative for urban planning.
- 10 Other

Source: JST (Key Informant Survey)

Figure 2.5.1: Problems about the Actual Urban Planning System

Table 2.5.4 shows the top three (3) problem items for “Priority 1”, “Priority 2”, and “Priority 3”. The insufficiency of the actual public workers’ urban planning skills is recognized to be one of the most serious problems. The indistinctness of the responsibility to be shared among the urban planning related organizations, a lack of the legal enforcement, a budgetary insufficiency, and the inappropriate planning

method are also considered to be main problems. The participatory approach related items are largely recognized as “Priority 3” problems.

Table 2.5.4: Top Three (3) Problem Items for “Priority 1”, “Priority 2”, and “Priority 3”

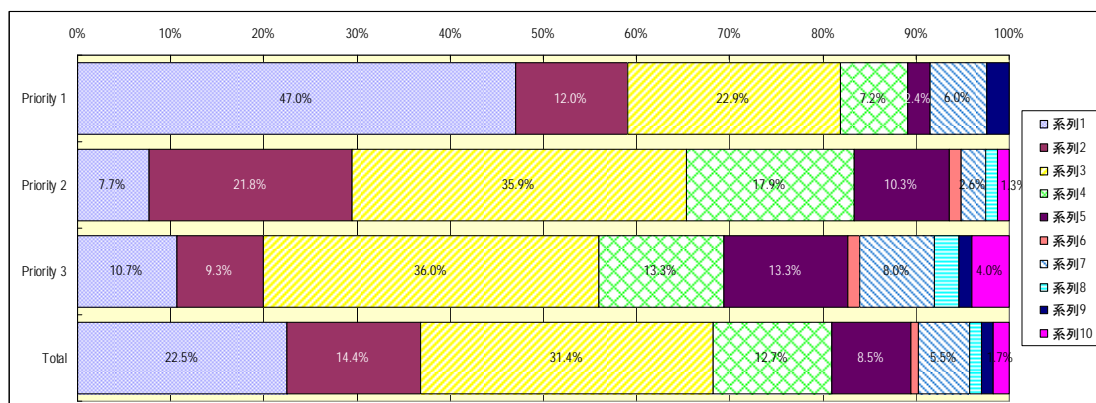
| | No.1 | No.2 | No.3 |
|------------|--------------------------------|--|-------------------------------|
| Priority 1 | Skills not enough (30.8 %) | Organization/ Responsibility (21.5 %) | Legal force (15.0 %) |
| Priority 2 | Legal force (32.7 %) | Budget/ Equipment (20.6 %) | Planning method (13.1 %) |
| Priority 3 | Public Involvement (26.2 %) | Public Awareness Activities (24.3 %) | Budget/ Equipment (20.6 %) |

Source: JST (Key Informant Survey)

(2) Main Actors for the Solution of the Actual Urban Planning System

Figure 2.5.2 shows the main actors for the solution of the actual urban planning system. For “Priority 1” problems, “Government of the Lao PDR especially organizations responsible for urban planning and related sectors” accounts for 47.0 %, while “Vientiane Capital/ VUDAA” accounts for 35.9 % and 36.0 % for “Priority 2” problems and “ Priority 3” problems, respectively.

This result seems to be reasonable to some extent, because “Priority 1” problems are mainly related to technical skills or organizational issues, of which responsibility principally lies on the urban planners in the Lao government. When it comes to legal issues or public involvement, however, “Vientiane Capital/ VUDAA” are also considered to be important as well as the Lao government as a whole and the urban planners who work for it.



- Note:
1. Government of the Lao PDR especially organizations responsible for urban planning and related sectors
 2. Government of the Lao PDR as a whole
 3. Vientiane Capital/ VUDAA,
 4. District Office
 5. Ordinary Citizens,
 6. Private Corporations
 7. Educational Institutions,
 8. International Donors,
 9. NGO/ NPO,
 10. Other

Source: JST (Key Informant Survey)

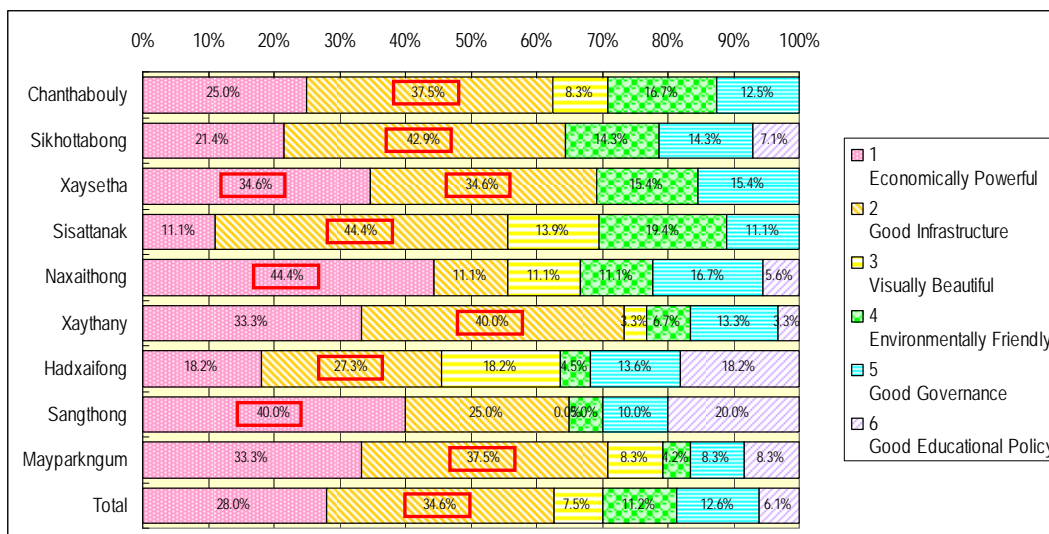
Figure 2.5.2: Main Actors for the Solution of the Actual Urban Planning System

2.5.4 Development Visions

(1) Development Visions for the Districts

Figure 2.5.3 shows the development visions at district level. Generally, each district considers the infrastructure or the economy as the most important thing in their future development visions. There are no remarkable differences between the districts. As a whole, “Environmentally Friendly”, “Good Governance” and “Good Educational Policy” are also considered to be important to some extent. The

environment seems to be regarded as more important in the central districts (Chanthabouly, Xaysetha, Sisattanak, and Sikhottabong) than in the other districts. This might be because the fact that the central districts should be much more urbanized losing greenery rapidly compared with the rural districts.

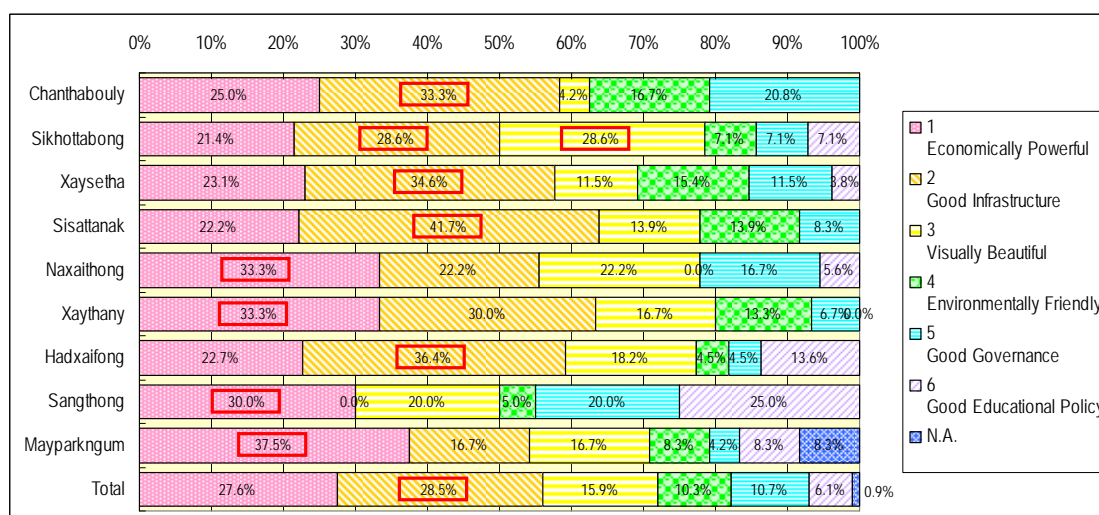


Source: JST (Key Informant Survey)

Figure 2.5.3: Development Visions at District Level

(2) Development Visions for Vientiane Capital

Figure 2.5.4 shows the development visions at the whole Vientiane Capital level. Generally, people consider the infrastructure or the economy as the most important thing in their future development visions. There are no remarkable differences between the districts. If anything, the central districts (Chanthabouly, Xaysetha, Sisattanak, and Sikhottabong), consider that the infrastructure has a top priority. It is remarkable that in Sikhottabong District “Visually Beautiful” is also considered to be the most important. As a whole, “Environmentally Friendly”, “Good Governance” and “Good Educational Policy” are also considered to be important to some extent.



Source: JST (Key Informant Survey)

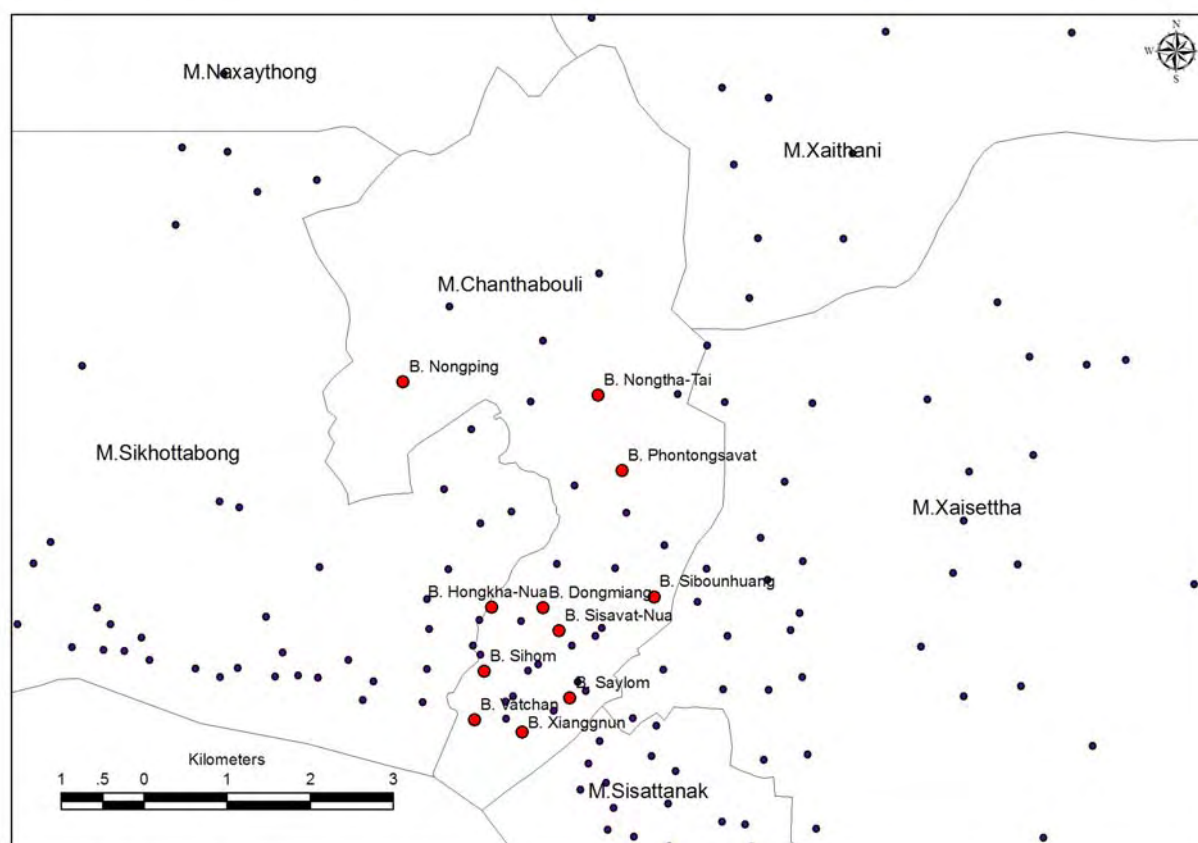
Figure 2.5.4: Development Visions at the Whole Vientiane Capital Level by District

Attachment 1: List of the Surveyed Villages

1. Chantabouly District

In total, there are 37 villages (Census 2005) of which 11 (300 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|--------------|--------|----------------|------|---------|--------------------|------------------|---|---|---------------------------|-------------------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Village group No. |
| Chanthabouly | 01 | 0001 | 0025 | 001 | B.Nongping | 25 | | | Nontha | 5 |
| | | 0026 | 0055 | 006 | B.Nongtha-Tai | 30 | | | Nontha | 5 |
| | | 0056 | 0080 | 008 | B.Phonthong Savath | 25 | | | Phontong | 4 |
| | | 0081 | 0100 | 015 | B. HongKha Neua | 20 | | | Thongtoun | 2 |
| | | 0101 | 0130 | 017 | B.Dongmiang | 30 | | | Thongtoun | 2 |
| | | 0131 | 0160 | 019 | B. Sibounheuang | 30 | | | Sisavath | 3 |
| | | 0161 | 0190 | 026 | B. Sisavath neua | 30 | | | Sisavath | 3 |
| | | 0191 | 0220 | 028 | B. Sihum | 30 | | | Vathchan | 1 |
| | | 0221 | 0250 | 030 | B.Saylom | 30 | | | Vathchan | 1 |
| | | 0251 | 0275 | 035 | B.Vathchanh | 25 | | | Vathchan | 1 |
| | | 0276 | 0300 | 037 | B. Xieng Yue | 25 | | | Vathchan | 1 |

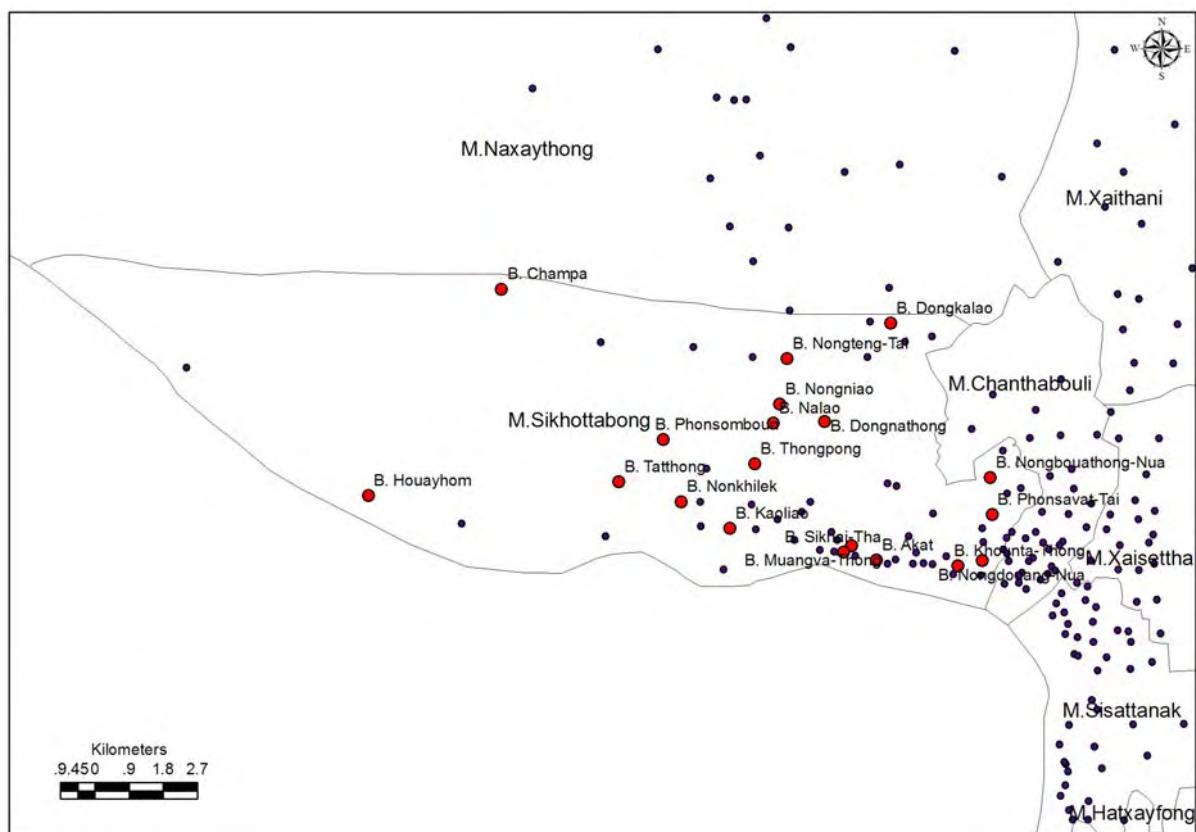


Note: Larger dots are the location of the interviewed villages.

2. Sikhottabong District

In total, there are 60 villages (Census 2005) of which 19 (450 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|--------------|--------|----------------|------|---------|----------------------|------------------|---|----|---------------------------|-----------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Sikhothabong | 02 | 0301 | 0325 | 009 | B. Akad | 25 | | | B.Sythan | 1 |
| | | 0326 | 0350 | 010 | B. Muangvathong | 25 | | | B.Sikhothabong | 3 |
| | | 0351 | 0380 | 012 | B.Sikhai-Tha | 30 | | | B.Sikhothabong | 3 |
| | | 0381 | 0405 | 020 | B.Kaoliao | 25 | | | B.Kaoliao | 4 |
| | | 0406 | 0430 | 022 | B.Nongkilek | 25 | | | B.Mai | 5 |
| | | 0431 | 0455 | 025 | B.Phonsomboun | 25 | | | B.Mai | 5 |
| | | 0456 | 0480 | 026 | B.Tattong | 25 | | | B.Kaoliao | 4 |
| | | 0481 | 0500 | 029 | B.Houayhom | | | 20 | B.Mai | 5 |
| | | 0501 | 0525 | 034 | B.Thongpong | 25 | | | B.Nongnio | 7 |
| | | 0526 | 0550 | 035 | B.Nalao | 25 | | | B.Nongnio | 7 |
| | | 0551 | 0575 | 036 | B.Nongnio | 25 | | | B.Nongnio | 7 |
| | | 0576 | 0600 | 037 | B.Nongteng-Tai | 25 | | | B.Nongnio | 7 |
| | | 0601 | 0620 | 040 | B.Champa | | | 20 | B.Nongnio | 7 |
| | | 0621 | 0630 | 044 | B.Dong-Nathong | | | 10 | B.Nongbeuk | 2 |
| | | 0631 | 0650 | 048 | B.Dongkalao | | | 20 | B.Nongbeuk | 2 |
| | | 0651 | 0675 | 050 | B.Khon Ta thong | 25 | | | B.Sythan | 1 |
| | | 0676 | 0700 | 053 | B.Nong Duang Nua | 25 | | | B.Nongdouang | 7 |
| | | 0701 | 0725 | 056 | B.Phonsavath-Nua | 25 | | | B.Kaoliao | 6 |
| | | 0726 | 0750 | 058 | B.Nong Bouathong Nua | 25 | | | B.Nongdouang | 6 |

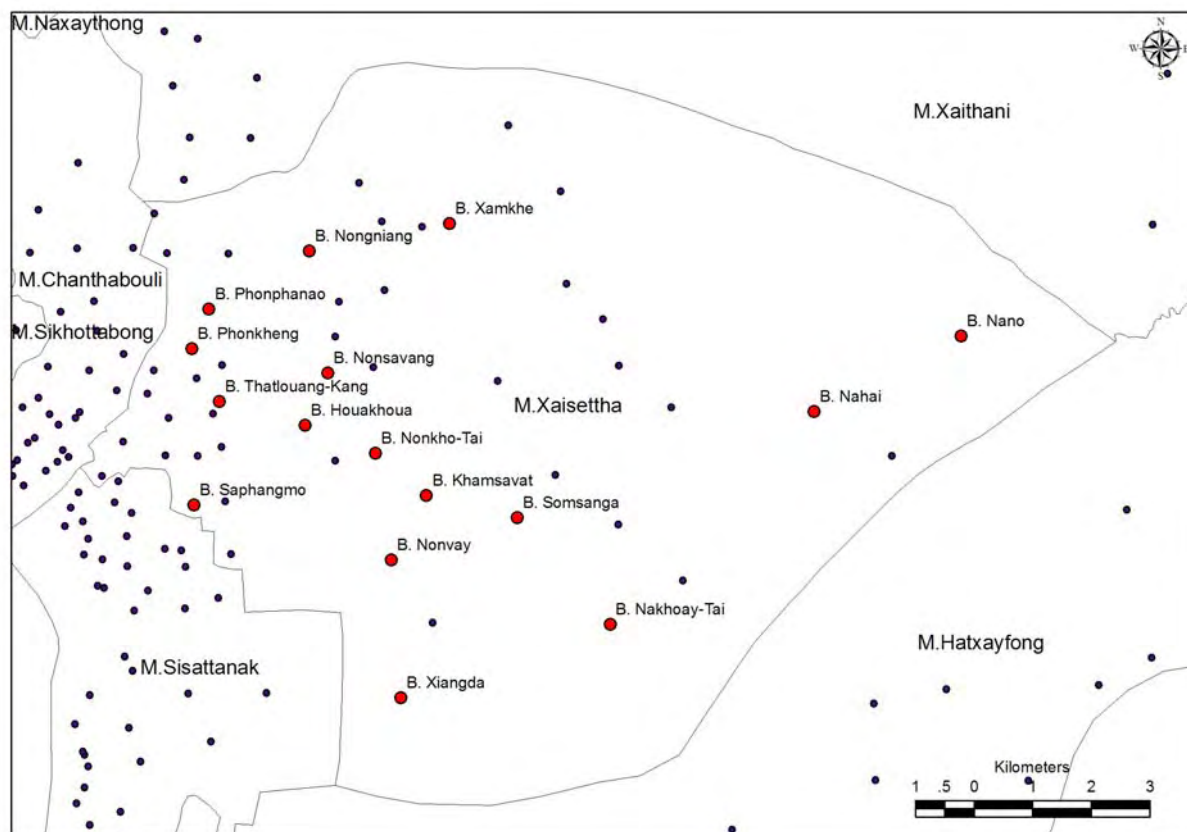


Note: Larger dots are the location of the interviewed villages.

3. Xaysetha District

In total, there are 52 villages (Census 2005) of which 16 (400 households) were selected and surveyed.

| District | | Village | | Village category | | | Village group information | |
|-------------------|----------|---------|--------------------|------------------|---|---|---------------------------|-----------|
| Name | D.code | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Xaiseththa | 3 | 004 | B.Phonphanao | 25 | | | B.Chommani | 1 |
| | | 005 | B.Phonkheng | 25 | | | B.Phonkheng | 2 |
| | | 014 | B.Thathlouang-Kang | 25 | | | B.Phonkheng | 2 |
| | | 018 | B.Saphangmor | 25 | | | B.Sysangvone | 3 |
| | | 023 | B.Nong Niang | 25 | | | B.Vangxay | 5 |
| | | 029 | B.Nonsavang | 25 | | | B.Vangxay | 5 |
| | | 030 | B.Houakhua | 25 | | | B.Nonhvay | 4 |
| | | 032 | B.Khamsavath | 25 | | | B.Nonhvay | 4 |
| | | 033 | B.Nonvay | 25 | | | B.Nonhvay | 4 |
| | | 035 | B.Xiangda | 25 | | | B.Nonhvay | 4 |
| | | 038 | B.Somsa gna | 25 | | | B.Nakhouay | 6 |
| | | 041 | B.Nakhouay Tai | 25 | | | B.Nakhouay | 6 |
| | | 044 | B.Xamkhe | 25 | | | B.Vangxay | 5 |
| | | 049 | B.Na hai | 25 | | | B.Doungkang | 7 |
| | | 050 | B.Na no | 25 | | | B.Doungkang | 7 |
| | | 052 | B.Nonkhor | 25 | | | B.Nonhvay | 4 |

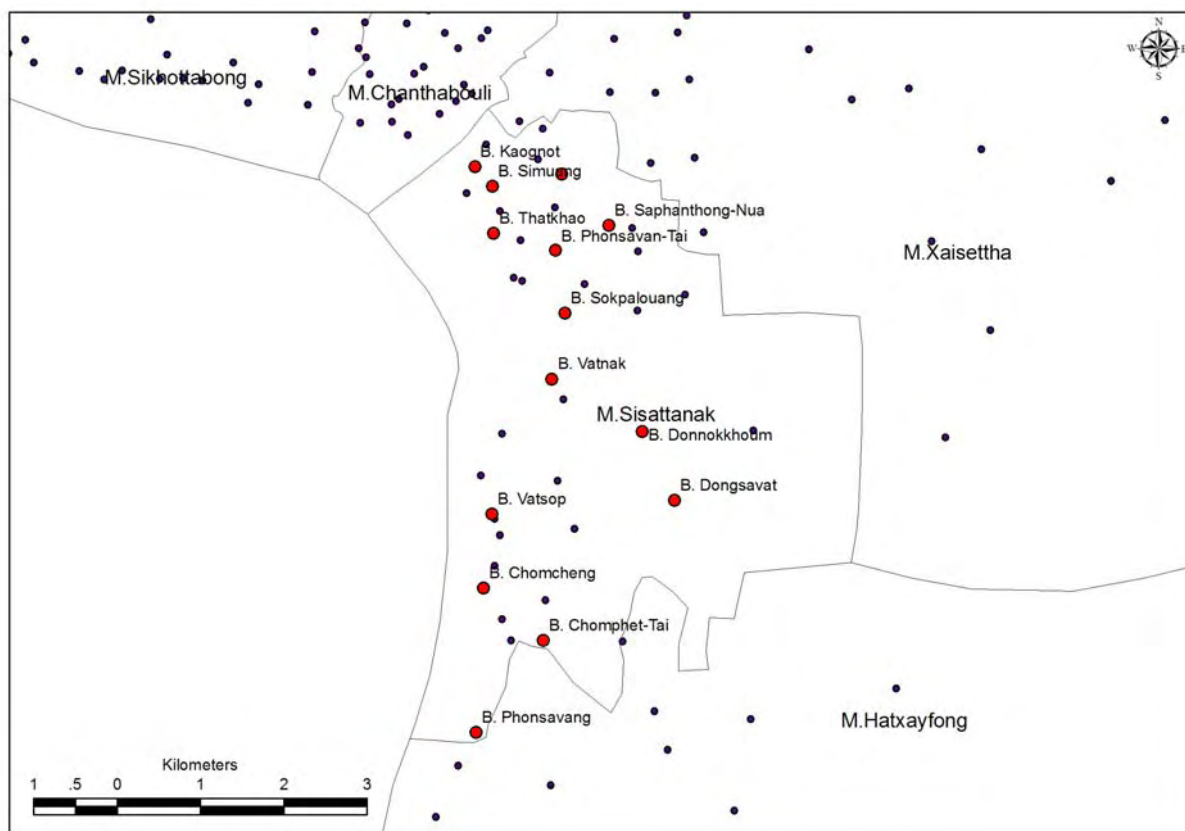


Note: Larger dots are the location of the interviewed villages.

4. Sisattanak District

In total, there are 40 villages (Census 2005) of which 14 (300 households) were selected and surveyed.

| District | | Village | | Village category | | | Village group information | |
|------------|--------|---------|-------------------|------------------|---|---|---------------------------|-----------|
| Name | D.code | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Sisattanak | 04 | 002 | B.Kao gnoth | 20 | | | B.Phiavath | 1 |
| | | 003 | B.Simeuang | 20 | | | B.Phiavath | 1 |
| | | 007 | B.Phonsinouan | 20 | | | B.Phiavath | 1 |
| | | 009 | B.Saphanthong Nua | 20 | | | B.Phiavath | 1 |
| | | 011 | B.Thadkhao | 20 | | | B.Thadkhao | 2 |
| | | 015 | B.Phonsavanh Tai | 25 | | | B.Thadkhao | 2 |
| | | 018 | B.Sokpalouang | 20 | | | B.Thadkhao | 2 |
| | | 020 | B.Vath Nak | 20 | | | B.Vathnak | 3 |
| | | 027 | B.Donenokkhoun | 20 | | | B.Vathnak | 3 |
| | | 029 | B.Vathsop | 20 | | | B.Souanmone | 4 |
| | | 033 | B.Dongsavath | 25 | | | B.Souanmone | 4 |
| | | 036 | B.Chomcheng | 20 | | | B.Chomchaeng | 5 |
| | | 038 | B.Chompheth Tai | 30 | | | B.Chomchaeng | 5 |
| | | 040 | B.Phonsavang | 20 | | | B.Chomchaeng | 5 |

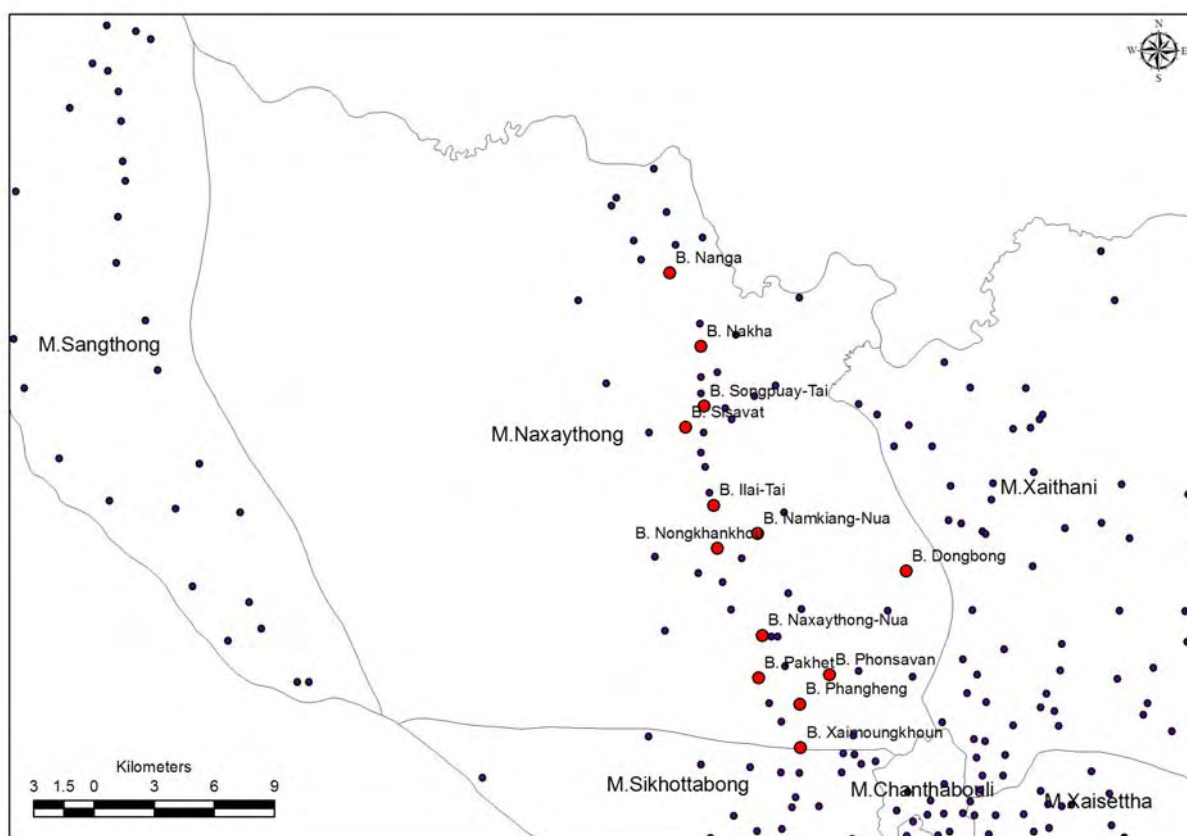


Note: Larger dots are the location of the interviewed villages.

5. Naxaithong District

In total, there are 56 villages (Census 2005) of which 13 (250 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|------------|--------|----------------|------|---------|-----------------|------------------|----|---|---------------------------|-----------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Naxaythong | 05 | 1451 | 1470 | 001 | B. Xaimongkhoun | 20 | | | B.Sikeuth | 1 |
| | | 1471 | 1490 | 004 | B.Phang-Heng | 20 | | | B.Sikeuth | 1 |
| | | 1491 | 1510 | 006 | B.Pak-Het | 20 | | | B.Naxay | 2 |
| | | 1511 | 1530 | 007 | B. Phonesavanh | 20 | | | B.Naxay | 2 |
| | | 1531 | 1550 | 012 | B.Naxay-Nua | 20 | | | B.Naxay | 2 |
| | | 1551 | 1570 | 016 | B.Dongbong | 20 | | | B.Naxay | 2 |
| | | 1571 | 1590 | 022 | B.Nongkhankhou | 20 | | | B.Namkieng | 3 |
| | | 1591 | 1610 | 024 | B.Namkiang-Nua | 20 | | | B.Namkieng | 3 |
| | | 1611 | 1630 | 026 | B.Ilai-Tai | 20 | | | B.Ilai | 4 |
| | | 1631 | 1640 | 031 | B.Sisavat | | 10 | | B.Ilai | 4 |
| | | 1641 | 1660 | 034 | B.Songpeuay-Tai | 20 | | | B.Ilai | 5 |
| | | 1661 | 1680 | 046 | B.Nakha | 20 | | | B.Nakha | 6 |
| | | 1681 | 1700 | 047 | B.Na-Nga | 20 | | | B.Phonthong | 4 |

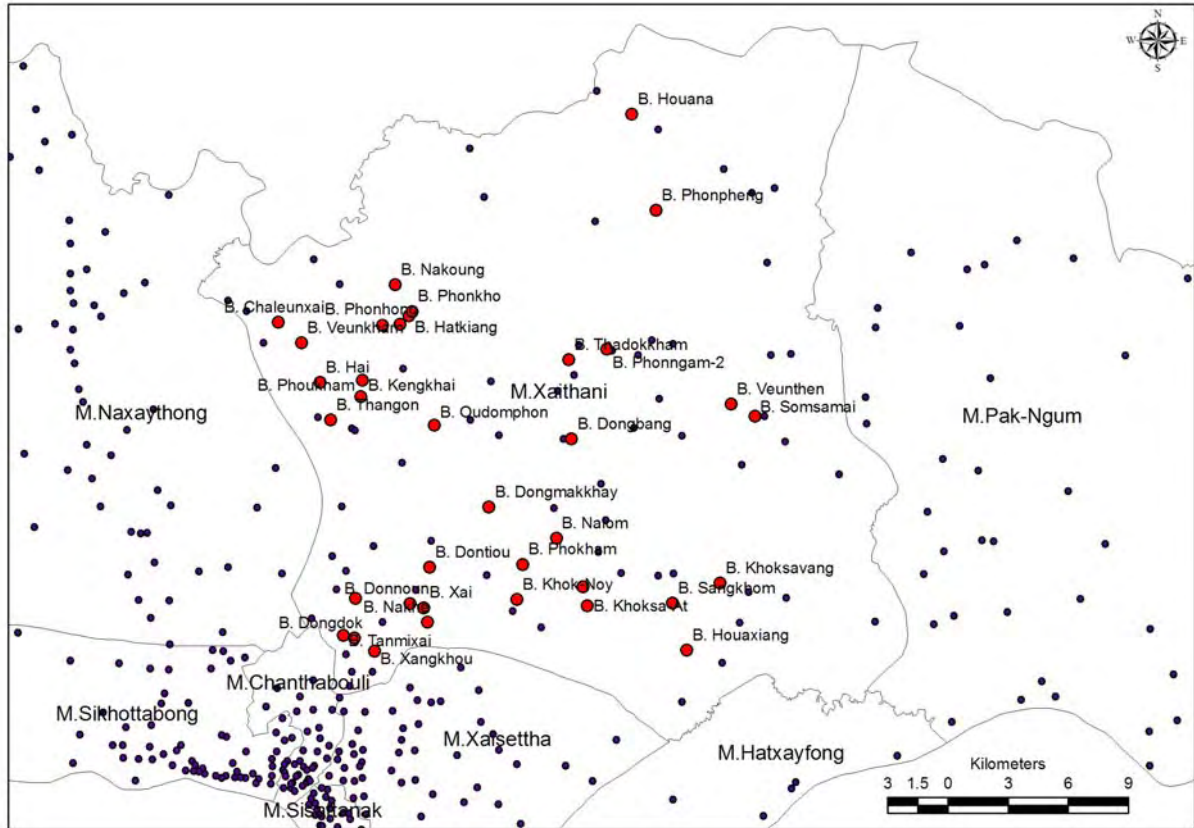


Note: Larger dots are the location of the interviewed villages.

6. Xaythany District

In total, there are 104 villages (Census 2005) of which 38 (650 households) were selected and surveyed.

| Survey ID code | | Village | | Village category | | | Village group information | |
|----------------|------|---------|----------------|------------------|----|---|---------------------------|-----------|
| From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| 1701 | 1710 | 003 | B.Nakoung | | 10 | | B.Hathkieng | 10 |
| 1711 | 1720 | 005 | B.Hatkiang | | 10 | | B.Hathkieng | 10 |
| 1721 | 1740 | 004 | B.Phonkho | 20 | | | B.Hathkieng | 10 |
| 1741 | 1750 | 006 | B.Phonhong | | 10 | | B.Hathkieng | 10 |
| 1751 | 1770 | 007 | B.Phonhaikham | 20 | | | B.Hathkieng | 10 |
| 1771 | 1790 | 008 | B.Hai | 20 | | | B. Tha Ngon | 8 |
| 1791 | 1810 | 010 | B.Veunthen | 20 | | | B. Tha Ngon | 8 |
| 1811 | 1830 | 011 | B.Chaleunxai | 20 | | | B. Tha Ngon | 8 |
| 1831 | 1850 | 017 | B.Tha-ngon | 20 | | | B. Tha Ngon | 8 |
| 1851 | 1870 | 019 | B.Phoukham | 20 | | | B. Tha Ngon | 8 |
| 1871 | 1880 | 020 | B.Kengkhai | | 10 | | B. Tha Ngon | 8 |
| 1881 | 1900 | 022 | B.Oudomphon | 20 | | | B. Tha Ngon | 8 |
| 1901 | 1920 | 025 | B.Dongmakkhay | | 20 | | B.Xai | 3 |
| 1921 | 1940 | 027 | B.Dontiou | 20 | | | B.Xai | 3 |
| 1941 | 1960 | 029 | B.Donenoun | 20 | | | B.Xai | 3 |
| 1961 | 1980 | 030 | B.Xay | 20 | | | B.Xai | 3 |
| 1981 | 2000 | 031 | B.Nakhae | 20 | | | B.Xai | 3 |
| 2001 | 2020 | 033 | B.Sangkhon | 20 | | | B.Xai | 3 |
| 2021 | 2040 | 037 | B.Nongviankham | 20 | | | B. Dongdok | 2 |
| 2041 | 2060 | 039 | B.Dongdok | 20 | | | B. Dongdok | 3 |
| 2061 | 2080 | 040 | B.Tanmixay | 20 | | | B. Dongdok | 3 |
| 2081 | 2100 | 047 | B.Phoukham | 20 | | | B.Khoksyvilai | 4 |
| 2101 | 2110 | 048 | B.Khok-Noy | | 10 | | B.Khoksyvilai | 4 |
| 2111 | 2120 | 051 | B.Nalom | | 10 | | B.Khoksyvilai | 4 |
| 2121 | 2130 | 053 | B.Namon | | 10 | | B.Khoksyvilai | 4 |
| 2131 | 2150 | 054 | B.Dongbang | 20 | | | B.Dongbang | 7 |
| 2151 | 2160 | 056 | B.Phonhong | | 10 | | B.Dongbang | 7 |
| 2161 | 2170 | 059 | B.Thadokham | | 10 | | B.Dongbang | 7 |
| 2171 | 2190 | 061 | B.Phongam 1 | | 20 | | B.Dongbang | 7 |
| 2191 | 2210 | 069 | B.Somsamay | 20 | | | B.Houaychiem | 5 |
| 2211 | 2230 | 070 | B.Veunkham | 20 | | | B.Houaychiem | 6 |
| 2231 | 2250 | 080 | B.Houana | 20 | | | B.Xang | 11 |
| 2251 | 2260 | 082 | B.Phonpheng | | 10 | | B.Xang | 11 |
| 2261 | 2280 | 085 | B.Xaisomboun | 20 | | | B.Khoksyvilai | 4 |
| 2281 | 2300 | 086 | B.Khoksa-At | 20 | | | B.Khoksyvilai | 4 |
| 2301 | 2320 | 089 | B.Houaxiang | 20 | | | B.Houaxiang | 5 |
| 2321 | 2330 | 093 | B.Sangkhom | | 10 | | B.Houaxiang | 5 |
| 2331 | 2350 | 095 | B.Khoksavang | 20 | | | B.Houaxiang | 5 |

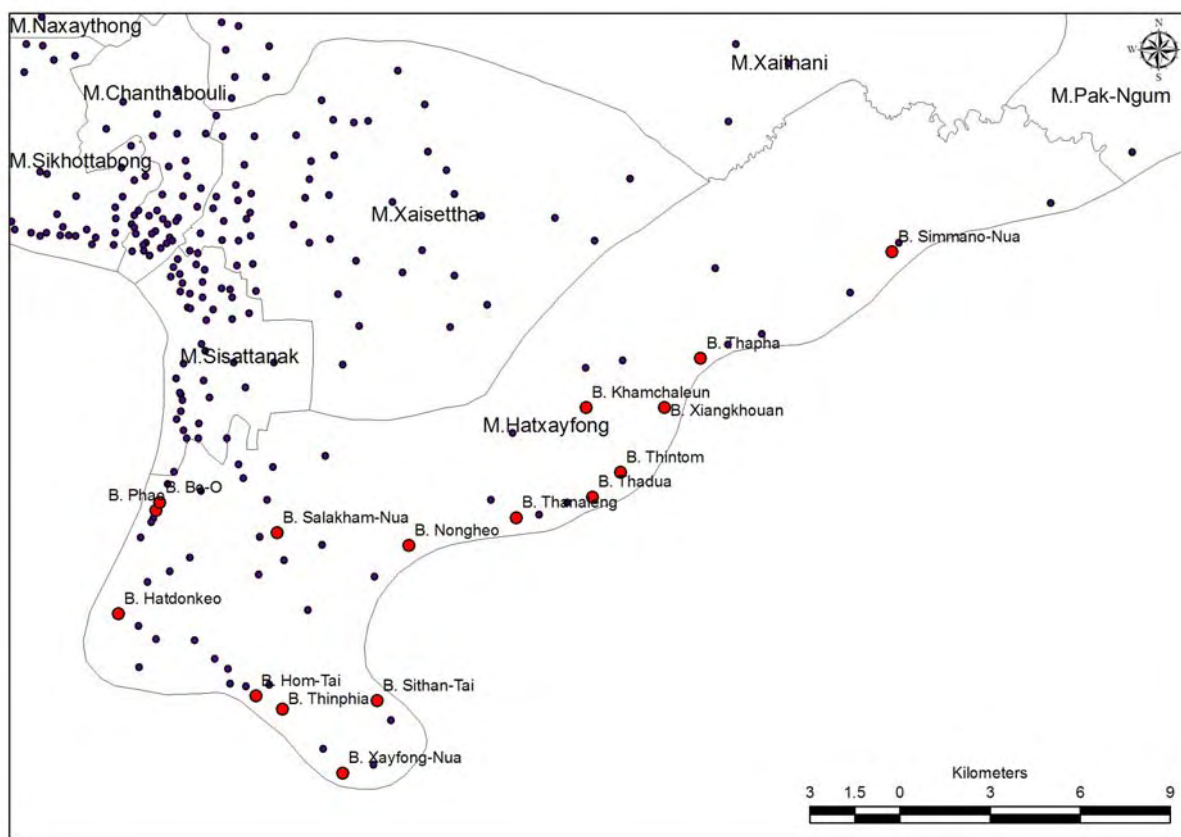


Note: Larger dots are the location of the interviewed villages.

7. Hadxaifong District

In total, there are 60 villages (Census 2005) of which 17 (350 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|-------------|--------|----------------|------|---------|----------------|------------------|---|----|---------------------------|-----------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Hathxayfong | 07 | 2351 | 2370 | 003 | B. Bor O | 20 | | | B.Thana | 1 |
| | | 2371 | 2395 | 004 | B.Pao | 25 | | | B.Thana | 1 |
| | | 2396 | 2405 | 011 | B.Hatdonekeo | | | 10 | B.Homh | 2 |
| | | 2406 | 2415 | 013 | B.Hatkanxa | | | 10 | B.Homh | 2 |
| | | 2416 | 2440 | 020 | B. Hom - Tai | 25 | | | B.Homh | 2 |
| | | 2441 | 2465 | 022 | B.Thinphia | 25 | | | B.Homh | 2 |
| | | 2466 | 2490 | 024 | B.Xayfong-Nua | 25 | | | B.Khokxay | 3 |
| | | 2491 | 2515 | 026 | B.Sithantai | 25 | | | B.Khokxay | 3 |
| | | 2516 | 2540 | 034 | B.Salakhm Neun | 25 | | | B.Slakhm | 4 |
| | | 2541 | 2565 | 038 | B.Nongheo | 25 | | | B.Slakhm | 4 |
| | | 2566 | 2590 | 040 | B. Thanalieng | 25 | | | B.Thadeua | 5 |
| | | 2591 | 2615 | 044 | B. Thadeua | 25 | | | B.Thadeua | 5 |
| | | 2616 | 2630 | 046 | B.Khamchaleun | | | 15 | B.Thadeua | 5 |
| | | 2631 | 2655 | 048 | B.Xiangkhuan | 25 | | | B.Thadeua | 5 |
| | | 2656 | 2670 | 050 | B.Thapha | | | 15 | B.Thapha | 6 |
| | | 2671 | 2685 | 053 | B.Thintom | | | 15 | B.Thadeua | 5 |
| | | 2686 | 2700 | 055 | B.Simano-Nua | | | 15 | B.Simmano | 7 |

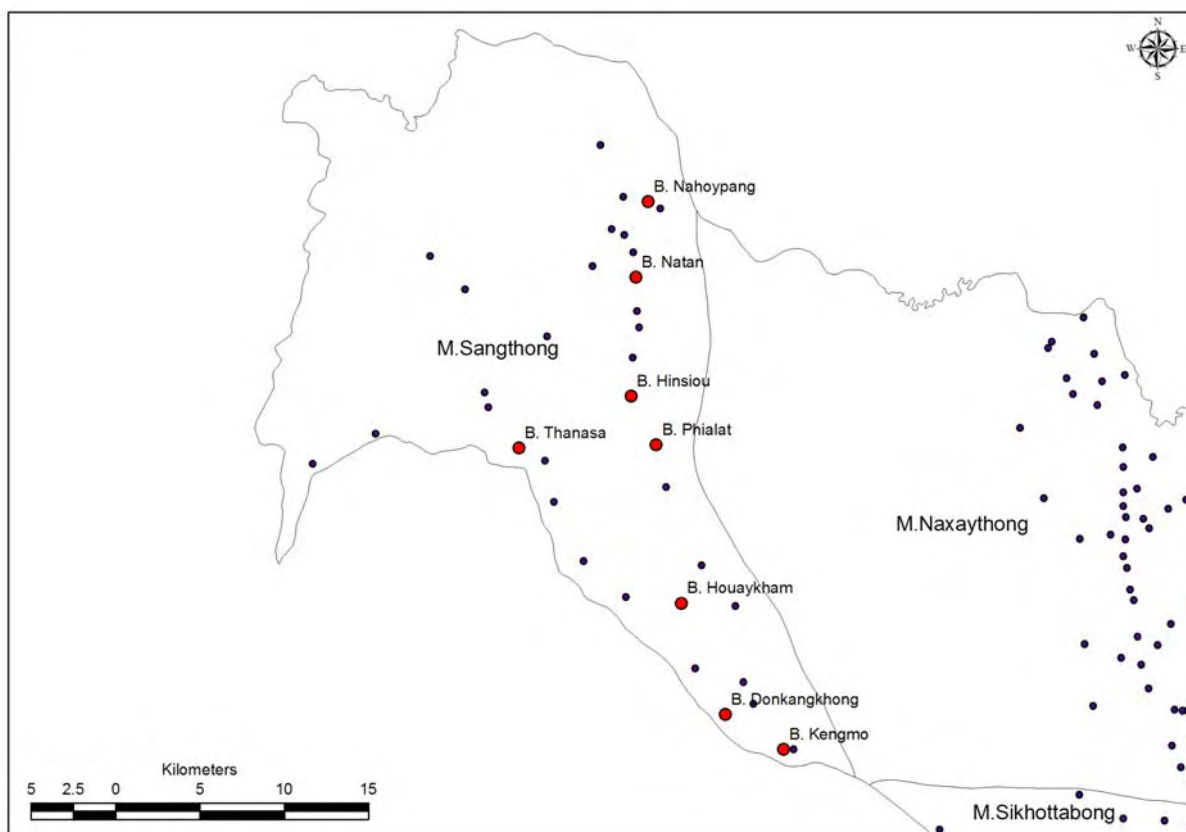


Note: Larger dots are the location of the interviewed villages.

8. Sangthong District

In total, there are 37 villages (Census 2005) of which 8 (100 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|-----------|--------|----------------|------|---------|-----------------|------------------|----|---|---------------------------|-----------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Sangthong | 08 | 2701 | 2723 | 004 | B.Nahoyvang | | 23 | | B.Nalath | 4 |
| | | 2724 | 2745 | 009 | B.Natan | | 22 | | B.Nalath | 4 |
| | | 2746 | 2755 | 013 | B.Hinxiou | | 10 | | B.Phialath | 3 |
| | | 2756 | 2765 | 014 | B.Phialat | 10 | | | B.Phialath | 3 |
| | | 2766 | 2775 | 025 | B.Thanasa | | 10 | | B.Khokhae | 2 |
| | | 2776 | 2785 | 033 | B.Dongkangkhang | | | 5 | B.Khokpheung | 1 |
| | | 2786 | 2790 | 034 | B.Kengmo | | 10 | | B.Khokpheung | 1 |
| | | 2791 | 2800 | 037 | B.Houaykham | | 10 | | B.Khokpheung | 1 |

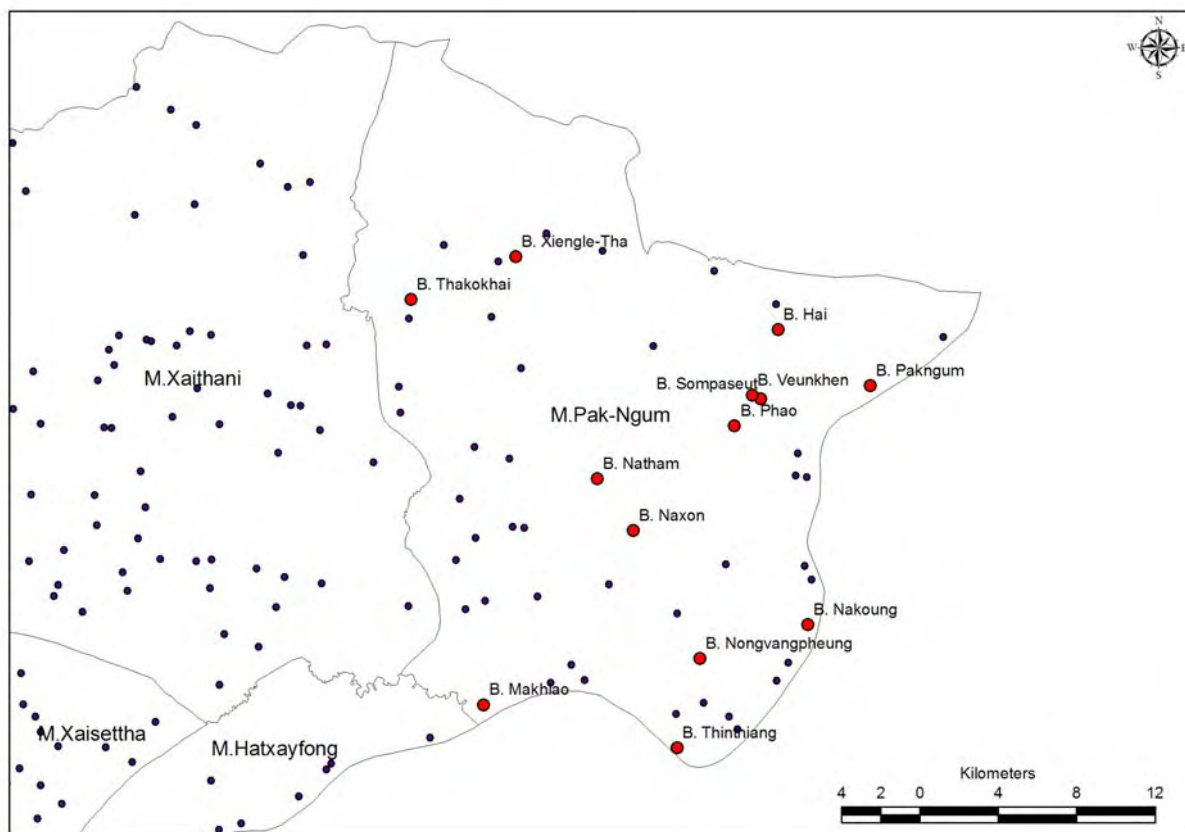


Note: Larger dots are the location of the interviewed villages.

9. Mayparkngum District

In total, there are 53 villages (Census 2005) of which 13 (200 households) were selected and surveyed.

| District | | Survey ID code | | Village | | Village category | | | Village group information | |
|-------------|--------|----------------|------|---------|------------------|------------------|----|---|---------------------------|-----------|
| Name | D.code | From | To | Code | Name | 1 | 2 | 3 | Name | Group No. |
| Maypak Ngum | 09 | 2801 | 2815 | 007 | B.Thakokhai | | 15 | | B.Sinxai | 6 |
| | | 2816 | 2830 | 011 | B. Xiangle - Tha | | 15 | | B.Sinxai | 6 |
| | | 2831 | 2840 | 015 | B. Sompaseuth | 10 | | | B.Pak Ngum | 1 |
| | | 2841 | 2855 | 014 | B.Veumkhen | | 15 | | B.Pak Ngum | 1 |
| | | 2856 | 2865 | 016 | B.Hai | 10 | | | B.Pak Ngum | 1 |
| | | 2866 | 2875 | 020 | B.Phao | 10 | | | B.Naxone | 5 |
| | | 2876 | 2895 | 023 | B.Nakoung | | 20 | | B.Donh | 2 |
| | | 2896 | 2910 | 025 | B.Naxon | | 15 | | B.naxone | 5 |
| | | 2911 | 2925 | 026 | B.Natham | | 15 | | B.naxone | 5 |
| | | 2926 | 2945 | 036 | B.Nongvangpheung | | 20 | | B.Dongkaleum | 3 |
| | | 2946 | 2965 | 042 | B.Thinthiang | | 20 | | B.Dongkaleum | 3 |
| | | 2966 | 2985 | 050 | B.Makhiao | | 20 | | B.Dongkaleum | 3 |
| | | 2986 | 3000 | 052 | B. Pakngum | | 15 | | B.Pak Ngum | 1 |



Note: Larger dots are the location of the interviewed villages.

Attachment 2: Questionnaire for the Household Survey

1. Part A

| | | | | | | | | |
|-------------|--|---|----|--|--|--|--|--|
| A-1 | (1) Sample Number (Serial Number) | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">1</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> | 1 | | | | | |
| 1 | | | | | | | | |
| | (2) Surveyor (FAMILY NAME & Given Name) | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">2</td><td colspan="5"></td></tr></table> | 2 | | | | | |
| 2 | | | | | | | | |
| A-2 | District | | | | | | | |
| | (1) In Number | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">3</td><td colspan="5"></td></tr></table> | 3 | | | | | |
| 3 | | | | | | | | |
| | (2) In Word | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">4</td><td colspan="5"></td></tr></table> | 4 | | | | | |
| 4 | | | | | | | | |
| | 1 Chanthabouly 4 Sisattanak 7 Hadxaifong | | | | | | | |
| | 2 Sikhottabong 5 Naxaithong 8 Sangthong | | | | | | | |
| | 3 Xaysetha 6 Xaythany 9 Mayparkngum | | | | | | | |
| A-3 | Village Name | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">5</td><td colspan="5"></td></tr></table> | 5 | | | | | |
| 5 | | | | | | | | |
| | | Code (3 Digits) <table border="1" style="width: 100%;"><tr><td style="width: 5%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> | | | | | | |
| | | | | | | | | |
| A-4 | "Urban Village" or "Rural Village" | | | | | | | |
| | 1 = Urban 2 = Rural (with Paved Road) 3 = Rural (without Paved Road) | | | | | | | |
| | | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">6</td><td colspan="5"></td></tr></table> | 6 | | | | | |
| 6 | | | | | | | | |
| A-5 | Name of Household's Head | | | | | | | |
| | (1) FAMILY NAME | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">7</td><td colspan="5"></td></tr></table> | 7 | | | | | |
| 7 | | | | | | | | |
| | (2) Given (First) Name | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">8</td><td colspan="5"></td></tr></table> | 8 | | | | | |
| 8 | | | | | | | | |
| A-6 | Ethnic of Household's Head | | | | | | | |
| | 1 Lao 4 Khmu 7 Chinese | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">9</td><td colspan="5"></td></tr></table> | 9 | | | | | |
| 9 | | | | | | | | |
| | 2 Hmong 5 Lu 8 Others >>> To be specified in "10" | | | | | | | |
| | 3 Tai 6 Akha | <table border="1" style="width: 100%;"><tr><td style="width: 5%;">10</td><td colspan="5"></td></tr></table> | 10 | | | | | |
| 10 | | | | | | | | |
| A-7 | Coordinates (of Household) | | | | | | | |
| | (1) Latitude | North <table border="1" style="width: 100%;"><tr><td style="width: 5%;">11</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> | 11 | | | | | |
| 11 | | | | | | | | |
| | (2) Longitude | East <table border="1" style="width: 100%;"><tr><td style="width: 5%;">12</td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td><td style="width: 15%;"></td></tr></table> | 12 | | | | | |
| 12 | | | | | | | | |
| A-8 | How Related to Head? (List all family members living in a house by relation to head.) | | | | | | | |
| | 1 Wife/ Husband 5 Parent in Law 9 Uncle/Aunt:Mother's Side | | | | | | | |
| | 2 Child 6 Grandparent:Father's Side 10 Nephew/Niece | | | | | | | |
| | 3 Grandchild 7 Grandparent:Mother's Side 11 Other Near Relative | | | | | | | |
| | 4 Real Parent 8 Uncle/Aunt:Father's Side 12 Unrelated Person | | | | | | | |
| A-9 | Sex | | | | | | | |
| | 1 = Male 2 = Female | | | | | | | |
| A-10 | Age | | | | | | | |
| | Fill in blanks in Table with correct ages. | | | | | | | |
| A-11 | Educational Background | | | | | | | |
| | 1 No Education 3 Junior Highschool 5 Bachelor | | | | | | | |
| | 2 Primary School 4 Senior Highschool 6 Master or Superior | | | | | | | |
| A-12 | Job (Main job for each shall be clarified.) | | | | | | | |
| | 1 Agriculture (Rice) 9 Hotel/Guesthouse 17 Teacher/Tutor | | | | | | | |
| | 2 Agriculture (Other) 10 Factory Management 18 Doctor/ Dentist | | | | | | | |
| | 3 Stockraising 11 Factory Worker 19 Civil Engineer/ Architect | | | | | | | |
| | 4 Fishery 12 Repairing/ Mechanic 20 Housework Only | | | | | | | |
| | 5 Forestry 13 Company Management (Service) 21 Pupil/Student | | | | | | | |
| | 6 Commercial Business 14 Company Employee (Office Worker: Service) 22 Unemployment | | | | | | | |
| | 7 Retail (Small Scale) 15 Public Worker (National/Capital Level) 23 Retired | | | | | | | |
| | 8 Restaurant/Café/Bar 16 Public Worker (District Level or Inferior) 24 Other | | | | | | | |

Others or Details >>> to be specified in "131-150"

Note: "Commercial Business" = Company leading members who has employees.

Note: "Company Employee" = Bank clerks, Ordinary office workers in service sector.

Note: "Civil Engineer/ Architect" = Those who has technical background and works in a civil eng/ architectural company.

| | A-8 | A-9 | A-10 | A-11 | A-12 | |
|----------|-----|-----|------|------|------|--|
| (1) Head | 32 | 52 | 91 | 111 | 131 | |
| (2) | 33 | 54 | 92 | 112 | 132 | |
| (3) | 34 | 56 | 93 | 113 | 133 | |
| (4) | 35 | 58 | 94 | 114 | 134 | |
| (5) | 36 | 60 | 95 | 115 | 135 | |
| (6) | 37 | 62 | 96 | 116 | 136 | |

| | | | | | | | | | | | | |
|------|----|--|----|--|----|--|-----|--|-----|--|-----|--|
| (7) | 18 | | 38 | | 64 | | 97 | | 117 | | 137 | |
| (8) | 19 | | 39 | | 66 | | 98 | | 118 | | 138 | |
| (9) | 20 | | 40 | | 68 | | 99 | | 119 | | 139 | |
| (10) | 21 | | 41 | | 70 | | 100 | | 120 | | 140 | |
| (11) | 22 | | 42 | | 72 | | 101 | | 121 | | 141 | |
| (12) | 23 | | 43 | | 74 | | 102 | | 122 | | 142 | |
| (13) | 24 | | 44 | | 76 | | 103 | | 123 | | 143 | |
| (14) | 25 | | 45 | | 78 | | 104 | | 124 | | 144 | |
| (15) | 26 | | 46 | | 80 | | 105 | | 125 | | 145 | |
| (16) | 27 | | 47 | | 82 | | 106 | | 126 | | 146 | |
| (17) | 28 | | 48 | | 84 | | 107 | | 127 | | 147 | |
| (18) | 29 | | 49 | | 86 | | 108 | | 128 | | 148 | |
| (19) | 30 | | 50 | | 88 | | 109 | | 129 | | 149 | |
| (20) | 31 | | 51 | | 90 | | 110 | | 130 | | 150 | |

A-13 Daily Movement/Transport

(a) Location of Workplace

- 1 Inside the Same Village
- 2 Inside the Same District
- 3 Outside the District but inside Vientiane Capital >>> District to be specified in "171-190" *Cf. "A-2"
- 4 Outside Vientiane Capital but inside the Lao PDR >>> Province & District to be specified in "191-210"
- 5 Outside the Lao PDR >>> Coutry & City to be specified in "211-230"

(b) Main Transport to Workplace

- 1 On Foot (Only)
- 2 By Private Car
- 3 By Motorcycle
- 4 By Bicycle
- 5 By Bus
- 6 By Tuktuk
- 7 By Taxi
- 8 By Boat
- 9 Other >>> "251-270"

>>> If, the answer is "2" "3" or "4", also answer the question "C-10".

| | A-13 (a) | | | | | | A-13 (b) | | | | | |
|------|----------|--|---------------|--|---------------|--|---------------|--|-----|--|-----|--|
| | | | If Answer "3" | | If Answer "4" | | If Answer "5" | | | | | |
| (1) | 151 | | 171 | | 191 | | 211 | | 231 | | 251 | |
| (2) | 152 | | 172 | | 192 | | 212 | | 232 | | 252 | |
| (3) | 153 | | 173 | | 193 | | 213 | | 233 | | 253 | |
| (4) | 154 | | 174 | | 194 | | 214 | | 234 | | 254 | |
| (5) | 155 | | 175 | | 195 | | 215 | | 235 | | 255 | |
| (6) | 156 | | 176 | | 196 | | 216 | | 236 | | 256 | |
| (7) | 157 | | 177 | | 197 | | 217 | | 237 | | 257 | |
| (8) | 158 | | 178 | | 198 | | 218 | | 238 | | 258 | |
| (9) | 159 | | 179 | | 199 | | 219 | | 239 | | 259 | |
| (10) | 160 | | 180 | | 200 | | 220 | | 240 | | 260 | |
| (11) | 161 | | 181 | | 201 | | 221 | | 241 | | 261 | |
| (12) | 162 | | 182 | | 202 | | 222 | | 242 | | 262 | |
| (13) | 163 | | 183 | | 203 | | 223 | | 243 | | 263 | |
| (14) | 164 | | 184 | | 204 | | 224 | | 244 | | 264 | |
| (15) | 165 | | 185 | | 205 | | 225 | | 245 | | 265 | |
| (16) | 166 | | 186 | | 206 | | 226 | | 246 | | 266 | |
| (17) | 167 | | 187 | | 207 | | 227 | | 247 | | 267 | |
| (18) | 168 | | 188 | | 208 | | 228 | | 248 | | 268 | |
| (19) | 169 | | 189 | | 209 | | 229 | | 249 | | 269 | |
| (20) | 170 | | 190 | | 210 | | 230 | | 250 | | 270 | |

(c) For those living in the 5 districts* in the suburbs only.

* Naxaithong, Xaythany, Hadxaifong, Sangthong, Mayparkngum

How often (How many days a week) do you go to the Vientiane central area**?

** Chanthabouly, Sikhottabong, Xaysetha, Sisattanak

- 1 Everyday (7/7)
- 2 Six (6) days a week
- 3 Five (5) days a week
- 4 Four (4) days a week
- 5 Three (3) days a week
- 6 Two (2) days a week
- 7 One (1) day a week
- 8 Less often than one day a week

- (d) For those living in the 5 districts* in the suburbs only.
What are the main purposes to go to the Vientiane central area? (Max. Two (2) Answers)
- | | | |
|-----------------------------------|---|---------------|
| 1 To go to workplace | 4 To go for amusement | 7 Other |
| 2 To go to school, college, Univ. | 5 To go and sell merchandise | >>> "331-350" |
| 3 To go shopping | 6 To see people (Relatives/ Friends/ etc) | |

| | A-13 (c) | | A-13 (d) | | | |
|------|----------|-----|-------------------------|-----|-------|--|
| | | | Maximum Two (2) Answers | | Other | |
| (1) | 271 | 291 | 311 | 331 | | |
| (2) | 272 | 292 | 312 | 332 | | |
| (3) | 273 | 293 | 313 | 333 | | |
| (4) | 274 | 294 | 314 | 334 | | |
| (5) | 275 | 295 | 315 | 335 | | |
| (6) | 276 | 296 | 316 | 336 | | |
| (7) | 277 | 297 | 317 | 337 | | |
| (8) | 278 | 298 | 318 | 338 | | |
| (9) | 279 | 299 | 319 | 339 | | |
| (10) | 280 | 300 | 320 | 340 | | |
| (11) | 281 | 301 | 321 | 341 | | |
| (12) | 282 | 302 | 322 | 342 | | |
| (13) | 283 | 303 | 323 | 343 | | |
| (14) | 284 | 304 | 324 | 344 | | |
| (15) | 285 | 305 | 325 | 345 | | |
| (16) | 286 | 306 | 326 | 346 | | |
| (17) | 287 | 307 | 327 | 347 | | |
| (18) | 288 | 308 | 328 | 348 | | |
| (19) | 289 | 309 | 329 | 349 | | |
| (20) | 290 | 310 | 330 | 350 | | |

- (e) Where do you buy daily perishable food (Meat, Fish, Vegetables, Fruit, etc)? (A Single Answer)
- | | | |
|---|--|--|
| 1 Inside the Same Village | | |
| 2 Inside the Same District | | |
| 3 Outside the District but inside Vientiane Capital | >>> District to be specified in "352" "A-2" | |
| 4 Outside Vientiane Capital but inside the Lao PDR | >>> Province & District to be specified in "353" | |
| 5 Outside the Lao PDR | >>> Coutry & City to be specified in "354" | |
- (f) Type of place where your household buy daily perishable food (A Single Answer)
- | | | |
|---------------------|----------------------------------|----------------------------------|
| 1 Fresh Food Market | 3 Retail Stores | 5 Get for Free from Acquaintance |
| 2 Super Market | 4 Direct Purchase from Producers | 6 Self Support |
- (g) Main Transport for going to buy daily perishable food (A Single Answer)
- | | | | | |
|------------------|-----------------|-------------|-----------|-------------------|
| 1 On Foot (Only) | 3 By Motorcycle | 5 By Bus | 7 By Taxi | 9 Other >>> "357" |
| 2 By Private Car | 4 By Bicycle | 6 By Tuktuk | 8 By Boat | |
- >>> If, the answer is "2" "3" or "4", also answer the question "C-11".

| A-13 (e) | | | | | |
|----------|--|---------------|----------|---------------|-----|
| | | If Answer "3" | | If Answer "4" | |
| 351 | | 352 | | 353 | 354 |
| A-13 (f) | | | A-13 (g) | | |
| 355 | | 356 | | 357 | |

A-14 Revenue (Regular Income)

- (a) Annual Cash Income (in Kip by Family Member)
 (b) Material Income (By Material Item) <<< These items should be " Not for Sale" and "For Domestic Consumption".
 Note 1 : "379"- "393" Material Items
 Note 2 : "394"- "413" In terms of "Cash Value" = Equivalent to how much in kip?

| A-14 (a) | | | | A-14 (b) | | | | |
|------------------------------|------|-----|----------|------------------------------|------------------|-----|----------|----------|
| Household Total >>> in "378" | | | | Household Total >>> in "414" | | | | |
| (1) | 358 | | kip/year | (1) | Rice | 394 | kip/year | |
| (2) | 359 | | kip/year | (2) | Vegetables | 395 | kip/year | |
| (3) | 360 | | kip/year | (3) | Fruit | 396 | kip/year | |
| (4) | 361 | | kip/year | (4) | Fish | 397 | kip/year | |
| (5) | 362 | | kip/year | (5) | Domestic Animals | 398 | kip/year | |
| (6) | 363 | | kip/year | (6) | Other | 379 | 399 | kip/year |
| (7) | 364 | | kip/year | (7) | Other | 380 | 400 | kip/year |
| (8) | 365 | | kip/year | (8) | Other | 381 | 401 | kip/year |
| (9) | 366 | | kip/year | (9) | Other | 382 | 402 | kip/year |
| (10) | 367 | | kip/year | (10) | Other | 383 | 403 | kip/year |
| (11) | 368 | | kip/year | (11) | Other | 384 | 404 | kip/year |
| (12) | 369 | | kip/year | (12) | Other | 385 | 405 | kip/year |
| (13) | 370 | | kip/year | (13) | Other | 386 | 406 | kip/year |
| (14) | 371 | | kip/year | (14) | Other | 387 | 407 | kip/year |
| (15) | 372 | | kip/year | (15) | Other | 388 | 408 | kip/year |
| (16) | 373 | | kip/year | (16) | Other | 389 | 409 | kip/year |
| (17) | 374 | | kip/year | (17) | Other | 390 | 410 | kip/year |
| (18) | 375 | | kip/year | (18) | Other | 391 | 411 | kip/year |
| (19) | 376 | | kip/year | (19) | Other | 392 | 412 | kip/year |
| (20) | 377 | | kip/year | (20) | Other | 393 | 413 | kip/year |
| Total | (21) | 378 | kip/year | (21) | | | 414 | kip/year |

A-15 Expenditure (Monthly)

| A-14 (a) | | | | |
|------------------------------|------------------------------|-----|-----------|----------|
| Household Total >>> in "371" | | | | |
| (1) | Food | 415 | kip/month | |
| (2) | Clothes/Shoes/Ornaments | 416 | kip/month | |
| (3) | Heating and Lighting | 417 | kip/month | |
| (4) | Drinking Water | 418 | kip/month | |
| (5) | Wastewater Treatment | 419 | kip/month | |
| (6) | Education | 420 | kip/month | |
| (7) | Medical Care/ Medicines | 421 | kip/month | |
| (8) | House Rent | 422 | kip/month | |
| (9) | Transport (Fuel/ Fare/ etc)) | 423 | kip/month | |
| (10) | Amusement | 424 | kip/month | |
| (11) | Payment for Debt | 425 | kip/month | |
| (12) | Others | 426 | kip/month | |
| (13) | Total | 427 | kip/month | |
| | | | 428 | kip/year |

Should be compared carefully. Usually "378" will be larger than "428"

Should be carefully compared with Questions "C-17".

Should be consistent with Questions "C-5" and "C-7".

A-16 Irregular Income

- (a) Total Irregular Income since January 2007
 (b) Main Income Source
 "429" should be total of "430"+"431"+"432".

| | | |
|-------------|-----|-----|
| Total | 429 | kip |
| (1) Land | 430 | kip |
| (2) Lottery | 431 | kip |
| (3) Others | 432 | kip |

A-17 Savings

| | | |
|----------|-----|-----|
| Total | 433 | kip |
| (1) Cash | 434 | kip |
| (2) Bank | 435 | kip |

| A-18 Household Goods | | Goods | | Number (Actual) | | The first one was purchased in Year XXXX. | | | |
|----------------------|-------------------------------|-------|--|-----------------|--|---|--|--|--|
| (1) | Four-wheeled Car (Sedan/ 4WD) | 438 | | 448 | | | | | |
| (2) | Motorcycle | 439 | | 449 | | | | | |
| (3) | Truck/ Dump Truck | 440 | | 450 | | | | | |
| (4) | Bicycle | 441 | | 451 | | | | | |
| (5) | Farm Vehicle (Tractor, etc) | 442 | | 452 | | | | | |
| (6) | Television Set | 443 | | 453 | | | | | |
| (7) | Refrigerator | 444 | | 454 | | | | | |
| (8) | Washing Machine | 445 | | 455 | | | | | |
| (9) | Other ⁴³⁶ | | | 456 | | | | | |
| (10) | Other ⁴³⁷ | | | 457 | | | | | |

| A-19 Heat Sources in the Household | | Heat Use | | Heat Source | |
|------------------------------------|----------------------|----------|--|-------------|--|
| (1) | Cooking/ Drinking | 460 | | 465 | |
| (2) | Room Heating | 461 | | 466 | |
| (3) | Shower/ Bath | 462 | | 467 | |
| (4) | Other ⁴⁵⁸ | | | 468 | |
| (5) | Other ⁴⁵⁹ | | | 469 | |

- 1 Gas (Supplied with Public Pipe)
- 2 Gas (Supplied with Individual Gas Cylinders)
- 3 Electricity
- 4 Charcoal
- 5 Firewood
- 6 Solar Panels
- 7 Other >>> To be specified in "465-469"

2. Part B

B-1 General

- (1) Land Area
(2) of which the area occupied by the building mentioned in (4)
(3) Building to Land Ratio = "2"/ "1"
(4) Type of Buildings in which the household lives

| | | |
|---|--|----|
| 1 | | m2 |
| 2 | | m2 |
| 3 | | % |

- 1 Independent House
2 Group Housing
If "2", what kind of group housing?
1 Public Housing
2 Private: Modern Apartment
3 Private: Traditional (Rather Old) Terrace Houses

| | |
|---|--|
| 4 | |
|---|--|

- (5) What is the total number of floors?

- 1 1 Floor
2 2 Floors
3 3 Floors
4 4 Floors
5 5 Floors
6 6 Floors
7 7 Floors
8 8 Floors
9 9 Floors or More

| | |
|---|--|
| 5 | |
|---|--|

- If "Group Housing", on which floor is your household living?

- 1 1st Floor
2 2nd Floor
3 3rd Floor
4 4th Floor
5 5th Floor
6 6th Floor
7 7th Floor
8 8th Floor
9 9th Floor or Higher

| | |
|---|--|
| 6 | |
|---|--|

- (6) What is the total floor area occupied by the household?

- (7) Floor Area Ratio = "8"/ "1"

- (8) Since which year your household has been living in the present land?

- (9) Since which year your household has been living in the present building?

| | | | | |
|----|--|--|--|----|
| 7 | | | | |
| 8 | | | | m2 |
| 9 | | | | % |
| 10 | | | | |
| 11 | | | | |

B-2 Building Details

- (a) Your dwelling is equipped with the followings? >>> 1 for "Yes", 2 for "No"

- (1) Kitchen (equipped with a sink and a water tap)
(2) Water Tap(s) inside the Building or the Housing Lot
(3) Bathroom
(4) Flush Toilet
(5) Shower
(6) Parking Space (for your own household members)

- 1 Yes 2 No
1 Yes 2 No
1 Yes 2 No
1 Yes 2 No
1 Yes 2 No
1 Yes 2 No

| | |
|----|--|
| 12 | |
| 13 | |
| 14 | |
| 15 | |
| 16 | |
| 17 | |

- >>> If yes in (6), for how many cars?

- of which Inside the housing lot

- Outside the housing lot but in the vicinity (walking distance)

| | |
|----|--|
| 18 | |
| 19 | |
| 20 | |

* ""18" = "19" + "20"

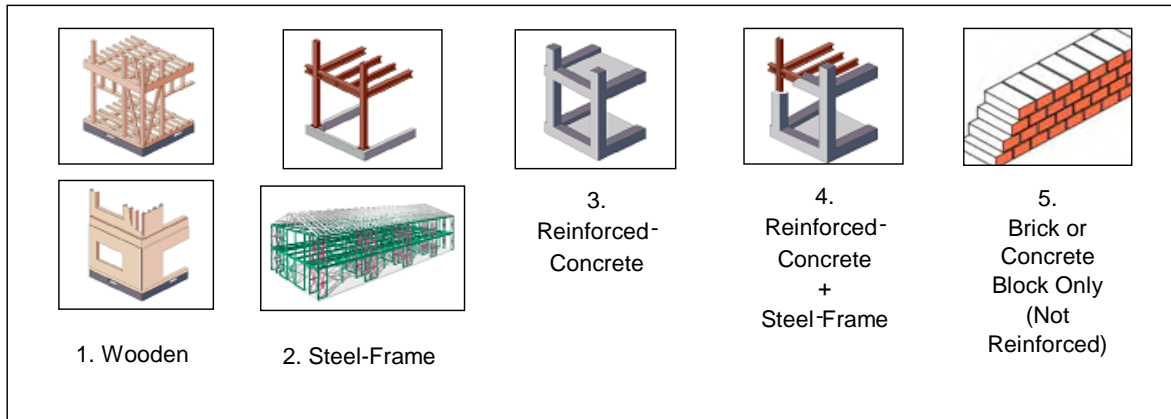
- (7) Greenery (Trees and/or Flowers and/or Vegetables)

- 1 Yes

- 2 No

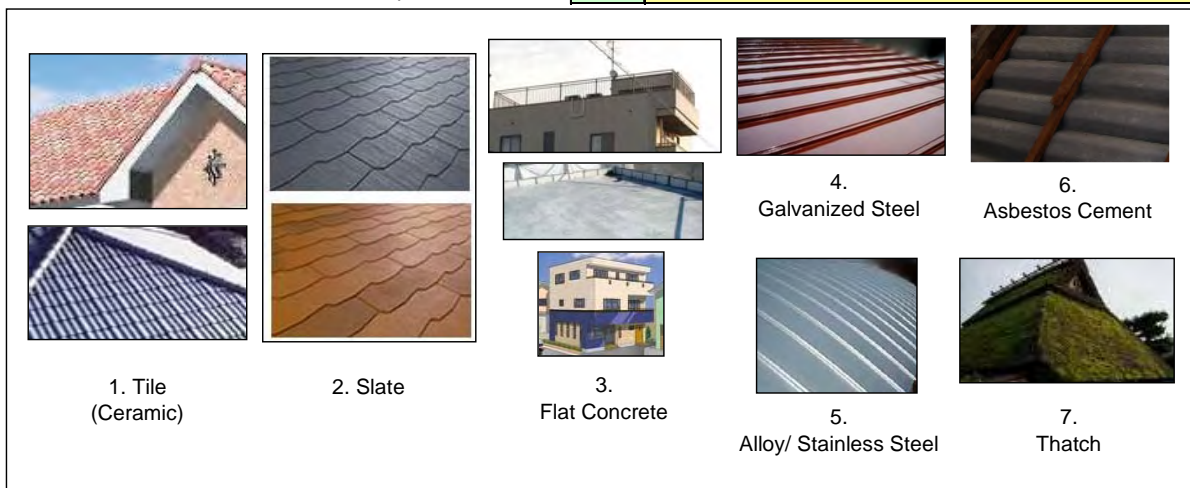
| | |
|----|--|
| 21 | |
|----|--|

















| | | | | | | |
|--------------------------------------|-----|------------------|----|--|----|--|
| (b) Building Structure | (1) | 1 Floor | 22 | | 31 | |
| 1 Wooden | (2) | 2 Floors | 23 | | 32 | |
| 2 Steel-Frame | (3) | 3 Floors | 24 | | 33 | |
| 3 Reinforced-Concrete | (4) | 4 Floors | 25 | | 34 | |
| 4 Reinforced-Concrete + Steel-Frame | (5) | 5 Floors | 26 | | 35 | |
| 5 Brick/ Block Only (Not Reinforced) | (6) | 6 Floors | 27 | | 36 | |
| 6 Other | (7) | 7 Floors | 28 | | 37 | |
| >>> To be specified in "31-39" | (8) | 8 Floors | 29 | | 38 | |
| | (9) | 9 Floors or More | 30 | | 39 | |



- (c) Roof
- (1) Material
- 1 Tile (Ceramic)
 - 2 Slate
 - 3 Flat Concrete
 - 4 Galvanized Steel
 - 5 Alloy/ Stainless Steel
 - 6 Asbestos Cement
 - 7 Thatch
 - 8 Other >>> To be specified

| | | | |
|----|--|----|--|
| 41 | | 40 | |
|----|--|----|--|



- (2) Color
- | | | | | | |
|---------------|---|---------------|--|-----------------|---|
| 1 White |  | 6 Light Green |  | 11 Dark Brown |  |
| 2 Grey/Silver |  | 7 Khaki |  | 12 Light Blue |  |
| 3 Dark Grey |  | 8 Orange |  | 13 Blue |  |
| 4 Cream |  | 9 Dark Red |  | 14 Indigo |  |
| 5 Beige |  | 10 Brown |  | 15 Light Purple |  |
- 17 Other  >>> To be Specified in "43"

| | |
|----|--|
| 42 | |
| 43 | |

(d) External Wall

(1) Material

Non-flammable

- 1 Stone
2 Concrete
3 Asbestos/Slate
4 Brick
5 Mortar/ Non-flammable Plaster
6 Metal Board

Semi-flammable

- 7 Fire Proofing Siding
8 Wood-Cement Board
9 Plaster

Flammable


- 10 Wooden
11 Bamboo
12 Plastic

Others

- 13 Can not be identified
14 Other >>> To be Specified in "53-61"

(2) Color

- | | | | | | |
|---------------|---|---------------|--|-----------------|---|
| 1 White |  | 6 Light Green |  | 11 Dark Brown |  |
| 2 Grey/Silver |  | 7 Khaki |  | 12 Light Blue |  |
| 3 Dark Grey |  | 8 Orange |  | 13 Blue |  |
| 4 Cream |  | 9 Dark Red |  | 14 Indigo |  |
| 5 Beige |  | 10 Brown |  | 15 Light Purple |  |

- 16 Other  >>> To be specified in "71-79"

| | | | | | |
|-----|------------------|----|--|----|--|
| (1) | 1 Floor | 44 | | 53 | |
| (2) | 2 Floors | 45 | | 54 | |
| (3) | 3 Floors | 46 | | 55 | |
| (4) | 4 Floors | 47 | | 56 | |
| (5) | 5 Floors | 48 | | 57 | |
| (6) | 6 Floors | 49 | | 58 | |
| (7) | 7 Floors | 50 | | 59 | |
| (8) | 8 Floors | 51 | | 60 | |
| (9) | 9 Floors or More | 52 | | 61 | |

B-3 Land

(1) Who owns the land use concession?

- 1 Household
2 Landowner (Outside the household)
3 State
4 Other >>> To be specified
5 Not clear >>> Reason to be specified

| | |
|----|--|
| 80 | |
| 81 | |
| 82 | |

| | | | |
|-----|--|----|----|
| (2) | How did you get the concession? | | |
| | 1 Succession | | |
| | 2 Buying | | 83 |
| | 3 Other >>> Specify in "84" | 84 | |
| (3) | Your land is registered at land authorities? | | |
| | 1 Yes | | |
| | 2 No | | |
| | 3 Do not know | | 85 |
| (4) | The neighborhood (within a 100 m radius from your household) has been urbanized since... | | |
| | 1 Since 2005 | | |
| | 2 Since 2000 | | |
| | 3 Since 1995 | | |
| | 4 Since 1990 | | |
| | 5 Since 1985 | | |
| | 6 Since 1980 | | |
| | 7 Since 1970's or before | | |
| | 8 Do not know | | |
| | 9 Generally Rural Area and Not Yet Urbanized | | 86 |

3. Part C

INFRASTRUCTURE - GENERAL -

C-1 What is the main infrastructure which is lacking (or insufficient) for daily life in the vicinity of your household?

Choose three (3) main infrastructure items in serious order.

- | | | |
|---------------------------------|-----------------------|------------------------------|
| 1 Access Roads to the household | 6 Drainage/ Sewerage | 11 Primary Schools |
| 2 Main Roads | 7 Waste Dumping Site | 12 Secondary Schools |
| 3 Bridges | 8 Electricity | 13 High Schools |
| 4 Drinking Water Supply | 9 Telecommunication | 14 Medical Centers (Clinics) |
| 5 Irrigation Water | 10 Parks/ Open Spaces | 15 Hospitals |

Others (Specify >>>) 16

C-2 What is the existing infrastructure you are satisfied with most in the vicinity of your household?

Choose one (1) infrastructure item.

- | | | |
|---------------------------------|-----------------------|------------------------------|
| 1 Access Roads to the household | 6 Drainage/ Sewerage | 11 Primary Schools |
| 2 Main Roads | 7 Waste Dumping Site | 12 Secondary Schools |
| 3 Bridges | 8 Electricity | 13 High Schools |
| 4 Drinking Water Supply | 9 Telecommunication | 14 Medical Centers (Clinics) |
| 5 Irrigation Water | 10 Parks/ Open Spaces | 15 Hospitals |

16 Nothing (Not satisfied with any infrastructure)

17 Others (Specify >>>)

WATER RELATED QUESTIONS

Drinking Water

C-3 Present Drinking Water Supply System

- | | |
|------------------------|------------------------------------|
| 1 Pipe (Treated Water) | 3 River/Pond |
| 2 Well | 4 Other >>> To be specified in "9" |

C-4 Present Water Consumption per Day (Domestic Use for the Whole Household. Commercial Use Not Included.)

| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
|----------------------|--------------------|--------------------|--------------|---------------------|------------|------------|--------------|
| Drinking/ Cooking | Washing Clothes | Bathing/ Shower | Toilet Flush | Domestic Animals | Gardening | Others | Total |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| litres/day | litres/day | litres/day | litres/day | litres/day | litres/day | litres/day | litres/day |
| | | | | | | | 18 |
| | | | | | | | litres/month |

* Surveyors are requested to convert "17" into monthly consumption >>> "18".

Note: "18" = "17" * 30

C-5 Payment for Water Consumption (Commercial Use not Included.)

(1) For Drinking/ Cooking

Do you buy mineral water?

- 1 Yes 2 No

If "Yes" how much do you spend per month for mineral water?

(2) Payment Amount per Month per Household

Note: If "Yes" in Question (1), the payment in "20" should not be included in the payment in "21".

(3) To whom (or to which organization) do you pay for water consumption?

- 1 Nam. Pa. Pa.
2 Private Company
3 Local Water Use Association
4 Individual Water Supplier/ Vendor
5 No Payment
6 Other >>> To be specified in "23"

Wastewater

C-6 Present Wastewater Facilities

(a) Black Water

- | | | |
|--|-------|------|
| (1) Flush Toilet | 1 Yes | 2 No |
| (2) Septic Tank | 1 Yes | 2 No |
| (3) Pit Latrine | 1 Yes | 2 No |
| (4) Other >>> To be specified in "28" if Yes | 1 Yes | 2 No |

| | | | | |
|--|-------|------|----|--|
| (b) Grey Water | | | | |
| (1) Cooking Space with Water Facility | 1 Yes | 2 No | 29 | |
| (2) Washstand (for Hands/ Face) | 1 Yes | 2 No | 30 | |
| (3) Bathroom/ Shower | 1 Yes | 2 No | 31 | |
| (4) Other >>> To be specified in "33" if Yes | 1 Yes | 2 No | 32 | |
| | | | 33 | |

C-7 Payment for Wastewater Treatment Service Charge

| | | | | | |
|--|--|--|----|----|-----------|
| (1) Payment Amount per Month per Household | | | 34 | | kip/month |
| (2) To whom (or to which organization) do you pay for water consumption? | | | | | |
| 1 VUDAA | | | | | |
| 2 Private Company | | | | | |
| 3 Other >>> To be specified in "36" | | | | 35 | |
| 4 No Collection | | | 36 | | |
| (3) Problems (A single answer) | | | | | |
| 1 Frequency | | | | | |
| 2 Bad Smell | | | | | |
| 3 Service Charge | | | | 37 | |
| 4 Other >>> To be specified in "38" | | | 38 | | |

Drainage

C-8 Flooding (from Rivers/ Drainage)

| | Depth | (1) Frequency | (2) Duration |
|-----|---------------|---------------|--------------|
| (1) | 10cm or less | 39 | 45 |
| (2) | 10cm-20cm | 40 | 46 |
| (3) | 20cm-50cm | 41 | 47 |
| (4) | 50cm-100cm | 42 | 48 |
| (5) | 100cm-150cm | 43 | 49 |
| (6) | 150cm or more | 44 | 50 |

| | |
|---------------|----------------------------|
| (1) Frequency | |
| 1 | Seldom |
| 2 | 1 time per every 4-5 years |
| 3 | 1 time per every 2-3 years |
| 4 | 1 time a year |
| 5 | 2 times a year |
| 6 | 3 times a year |
| 7 | 4 times a year |
| 8 | 5 times a year |
| 9 | 6 times or more a year |
| 10 | Never Flooded |

| | |
|--------------|-----------------|
| (2) Duration | |
| 1 | Within 1 day |
| 2 | 2-3 Days |
| 3 | 4-7 Days |
| 4 | 8-14 Days |
| 5 | 15 Days or More |
| 6 | No Flooding |

C-9 Present Drainage Facilities around the Household

| | | | | |
|-------------------------------------|--|--|----|----|
| 1 Ditch (Protected = Concrete, etc) | | | | |
| 2 Ditch (Natural) | | | | |
| 3 No Ditch | | | | 51 |
| 4 Other >>> To be specified in "52" | | | 52 | |

PARKING SPACE RELATED QUESTIONS

C-10 Parking (Workplace)

- (a) Where do you park your car, motorcycle, or bicycle while you work?
- 1 Parking (inside the workplace lot)
 - 2 Parking (outside the workplace lot but belongs to the workplace)
 - 3 Parking (outside the workplace lot and does not belong to the workplace)
 - 4 At a Friend's or Family's House Nearby
 - 5 On a Main Road (Public Road)
 - 6 On an Alleyway (Public Road)
 - 7 Other >>> Specify in "73-92"
- (b) Parking Charge
- 1 Free
 - 2 Less than 50,000 kip/month
 - 3 50,000-99,999 kip/month
 - 4 100,000-149,999 kip/month
 - 5 150,000-199,999 kip/month
 - 6 200,000 kip/month or more
- (c) Who pays?
- 1 Free
 - 2 By Oneself
 - 3 Workplace
 - 4 Other >>> Specify in "133-152"

| | | C-10 | | | | | |
|------|----|------|----|-----|-----|-----|-----|
| | | (a) | | (b) | | (c) | |
| (1) | 53 | | 73 | | 93 | | 113 |
| (2) | 54 | | 74 | | 94 | | 114 |
| (3) | 55 | | 75 | | 95 | | 115 |
| (4) | 56 | | 76 | | 96 | | 116 |
| (5) | 57 | | 77 | | 97 | | 117 |
| (6) | 58 | | 78 | | 98 | | 118 |
| (7) | 59 | | 79 | | 99 | | 119 |
| (8) | 60 | | 80 | | 100 | | 120 |
| (9) | 61 | | 81 | | 101 | | 121 |
| (10) | 62 | | 82 | | 102 | | 122 |
| (11) | 63 | | 83 | | 103 | | 123 |
| (12) | 64 | | 84 | | 104 | | 124 |
| (13) | 65 | | 85 | | 105 | | 125 |
| (14) | 66 | | 86 | | 106 | | 126 |
| (15) | 67 | | 87 | | 107 | | 127 |
| (16) | 68 | | 88 | | 108 | | 128 |
| (17) | 69 | | 89 | | 109 | | 129 |
| (18) | 70 | | 90 | | 110 | | 130 |
| (19) | 71 | | 91 | | 111 | | 131 |
| (20) | 72 | | 92 | | 112 | | 132 |

C-11 Parking (When you go to buy perishable food)

- (a) Where do you park your car, motorcycle, or bicycle while buying your daily food?
- 1 Parking (inside the shopping place)
 - 2 Parking (outside the shopping place but belongs to the shopping place)
 - 3 Parking (outside the shopping place and does not belong to the shopping place)
 - 4 At a Friend's or Family's House Nearby
 - 5 On a Main Road (Public Road)
 - 6 On an Alleyway (Public Road)
 - 7 Other >>> Specify in "154"
- (b) Parking Charge for Each time
- 1 Free
 - 2 Less than 2,000 kip

- 3 2,000-4,999 kip
- 4 5,000-9,999 kip
- 5 10,000-19,999 kip
- 6 20,000 kip or more

| C-11 | | | | | |
|------|--|-----|-----|-----|--|
| (a) | | | (b) | | |
| 153 | | 154 | | 155 | |

C-12 For those who answered "Parking on Public Road"

What are the reasons why you do not park in a parking? (Two Answers)

- 1 No Parking inside or near the Workplace or shopping places
- 2 There are parkings but too expensive
- 3 It takes time/ Think it troublesome
- 4 Simply there are enough space on public roads and no need to look for parkings
- 5 Other

| | | | |
|-----|--|-----|--|
| 156 | | 157 | |
| 158 | | | |

>>> Specify in "158"

PARKS & GREENERY RELATED QUESTIONS

C-13 Are there any public parks near your house? (A Single Answer)

- 1 Yes, within 5 minutes on foot
- 2 Yes, within 10 minutes on foot
- 3 Yes, within 5 minutes by car
- 4 No, there is no park like above choices

| | |
|-----|--|
| 159 | |
|-----|--|

C-14 Where does your child (children) play outdoors after school and weekend? (Choose one main place)

- 1 Garden (Private Space)
- 2 School (Playground)
- 3 Public parks
- 4 Road
- 5 Temple
- 6 Vacant Land
- 7 Agricultural Land
- 8 Other
- 9 Seldom Play Outdoors (Mainly Play Indoors)
- 10 No Child

| | |
|-----|--|
| 160 | |
|-----|--|

C-15 What kind of activities do you want to do in a public park, if one big park is located in the vicinity of your house?
(Choose three main activities)

- 1 Relaxing
- 2 Chatting
- 3 Walking
- 4 Playing sports
- 5 Jogging / Doing other exercises
- 6 Having meal (lunch, etc)
- 7 Let your child (children) play
- 8 Watching flowers or birds, etc
- 9 Other
- 10 Do not use

| | | | | | |
|-----|--|-----|--|-----|--|
| 161 | | 162 | | 163 | |
|-----|--|-----|--|-----|--|

ELECTRICITY (POWER) RELATED QUESTIONS

C-16 Electricity is supplied by the public?

- 1 Yes
- 2 No

| | |
|-----|--|
| 164 | |
|-----|--|

If "Yes", power cut happens how often in your household?

- 1 Every day
- 2 Every 2-3 days
- 3 Once a week or less
- 4 Every 2 weeks or less
- 5 Once a month or less
- 6 Every 3 months or less
- 7 Every 6 months or less
- 8 Very rare (Less than "7")

| | |
|-----|--|
| 165 | |
|-----|--|

If "No", what is your power source?

- 1 Household's personal generator
- 2 Common use generator (shared with neighbors)
- 3 Do not use electricity
- 4 Other >>> Specify in "167"

| | | | |
|-----|--|-----|-----------|
| | | 166 | |
| 167 | | | kip/month |

C-17 Payment for Power Supply (Commercial Use not Included.)

- (1) Payment Amount per Month per Household
- (2) To whom (or to which organization) do you pay for power consumption?
 - 1 Electricité du Laos (EDL)
 - 2 Private Company
 - 3 Individual Power Supplier
 - 4 No Payment
 - 5 Other >>> Specify in "170"

| | | | |
|-----|--|--|-----------|
| | | | |
| 168 | | | kip/month |

| | | | |
|-----|--|-----|--|
| | | 169 | |
| 170 | | | |

4. Part D

D-1 How much solid waste does your household generate a week? (A single answer)

* Surveyors are requested to show the "basket" to the interviewee.

- | | |
|---------------------------------------|---------------------------------------|
| 1 Less than 1/2 basket | 5 Two (2) baskets a week |
| 2 Half (1/2) a basket a week | 6 Two and a half (2.5) baskets a week |
| 3 One (1) basket a week | 7 Three (3) baskets a week |
| 4 One and a half (1.5) baskets a week | 8 More than 3 baskets a week |

If "8", specify the number of baskets

| | |
|---|---------|
| 1 | |
| 2 | baskets |

D-2 What kinds of wastes do you discharge mainly?

- (1) Three (3) main wastes in order of weight
(2) Percentage of (1) each

| | | | | | |
|---|---|---|---|---|---|
| 3 | | 5 | | 7 | |
| 4 | % | 6 | % | 8 | % |

Combustible

- | | | |
|-----------------|-----------|------------------|
| 1 Paper | 3 Textile | 5 Rubber/Leather |
| 2 Kitchen Waste | 4 Plastic | 6 Grass/Wood |

Non-combustible

- | | | |
|---------|----------------|-----------------|
| 7 Metal | 8 Bottle/Glass | 9 Ceramic/Stone |
|---------|----------------|-----------------|

Others (Specify >>>)

| | | | |
|----|--|----|--|
| 10 | | 11 | |
|----|--|----|--|

D-3 Do you use public waste collection service?

- 1 Yes >>> Go to "D-4"
2 No >>> Go to "D-5"

| | |
|----|--|
| 11 | |
|----|--|

D-4 For those who answered "Yes" in Question "D-3".

- (1) What is the ratio for the public collection to the whole waste amount in your household? (A single answer)

* Choose the nearest percentage.

- | | |
|-----------------|-------------------|
| 1 100% | >>> Jump to "(3)" |
| 2 75% or more | |
| 3 50% or more | |
| 4 Less than 50% | |

| | |
|----|--|
| 12 | |
|----|--|

- (2) How do you dispose of the household waste that is not collected by public service? (A single answer)

- | | |
|---------------------------------|--|
| 1 Open Burning | |
| 2 Bury in the Ground | |
| 3 Dump in the Vicinity | |
| 4 Recycling >>> Specify in "14" | |
| 5 Other >>> Specify in "15" | |

| | |
|----|--|
| 13 | |
|----|--|

If "4", choose the recycling item among the followings (A single answer).

Combustible

- | | | |
|-----------------|-----------|------------------|
| 1 Paper | 3 Textile | 5 Rubber/Leather |
| 2 Kitchen Waste | 4 Plastic | 6 Grass/Wood |

Non-combustible

- | | | |
|---------|----------------|-----------------|
| 7 Metal | 8 Bottle/Glass | 9 Ceramic/Stone |
|---------|----------------|-----------------|

If "5", specify.

| | |
|----|-----------|
| 14 | |
| 15 | Kip/month |

- (3) How much do you pay for the public collection service per month?

* "17" = Surveyor is requested to categorize the "16" among the following ranges.

- | | |
|-------------------|-----------|
| 1 0 | Kip/month |
| 2 1-9,999 | Kip/month |
| 3 10,000-19,999 | Kip/month |
| 4 20,000-29,999 | Kip/month |
| 5 30,000-49,999 | Kip/month |
| 6 50,000-99,999 | Kip/month |
| 7 100,000-199,999 | Kip/month |
| 8 200,000 or more | Kip/month |

| | |
|----|-----------|
| 16 | |
| 17 | Kip/month |

- (4) What do you expect for improvement of the public collection service? (A single answer)
- | | | | |
|---|---|----|--|
| 1 | More collection points | | |
| 2 | Expansion of the existing collection point | | |
| 3 | More frequent collection | | |
| 4 | More regular collection (Day and Time) | | |
| 5 | Improvement of quality/quantity of collection vehicles | | |
| 6 | Improvement of quality/quantity of collectors | | |
| 7 | Segregated Disposal | | |
| 8 | No improvement is necessary = Satisfied with the current collection service | 18 | |
| 9 | Other >>> To be specified in "19". | 19 | |

- (5) What is the maximum charge you could pay for the improved waste collection service?
* "21" = Surveyor is requested to categorize the "20" among the following ranges.
- | | | | |
|---|-----------------|-----------|----|
| 1 | 0 | Kip/month | |
| 2 | 1-9,999 | Kip/month | |
| 3 | 10,000-19,999 | Kip/month | |
| 4 | 20,000-29,999 | Kip/month | |
| 5 | 30,000-49,999 | Kip/month | |
| 6 | 50,000-99,999 | Kip/month | |
| 7 | 100,000-199,999 | Kip/month | |
| 8 | 200,000-299,999 | Kip/month | 20 |
| 9 | 300,000 or more | Kip/month | 21 |

D-5 For those who answered "No" in Question "D-3".

- (1) Why you do not use the public waste collection service? (A single answer)
- | | | | |
|---|---|----|--|
| 1 | No public waste collection service which covers the area | | |
| 2 | The collection point(s) is (are) too far from the household. | | |
| 3 | Not enough household income to pay for waste collection service | | |
| 4 | The collection charge is too high for the service quality. | | |
| 5 | Do not generate as much waste as to use the collection service | | |
| 6 | Simply feel that the waste collection service is not necessary. | | |
| 7 | Other >>> To be specified in "23" | 22 | |
| | | 23 | |

- (2) How do you dispose of the household waste without public collection service? (A single answer)
- | | | | |
|---|-------------------------------|----|--|
| 1 | Open Burning | | |
| 2 | Bury in the Ground | | |
| 3 | Dump in the Vicinity | | |
| 4 | Recycling >>> Specify in "25" | | |
| 5 | Other >>> Specify in "26" | 24 | |
- If "4", choose the recycling item among the followings (A single answer).
- | | | |
|-----------------|----------------|------------------|
| Combustible | | |
| 1 Paper | 3 Textile | 5 Rubber/Leather |
| 2 Kitchen Waste | 4 Plastic | 6 Grass/Wood |
| Non-combustible | | |
| 7 Metal | 8 Bottle/Glass | 9 Ceramic/Stone |
| | | 25 |
| | | 26 |

- (3) Do you want to use public waste collection service?
- | | | | |
|---|---------------------|----|--|
| 1 | Yes >>> Go to "(4)" | | |
| 2 | No | 27 | |

- (4) What is the maximum charge you could pay for waste collection service?
* "29" = Surveyor is requested to categorize the "28" among the following ranges.
- | | | | |
|---|-----------------|-----------|----|
| 1 | 0 | Kip/month | |
| 2 | 1-9,999 | Kip/month | |
| 3 | 10,000-19,999 | Kip/month | |
| 4 | 20,000-29,999 | Kip/month | |
| 5 | 30,000-49,999 | Kip/month | |
| 6 | 50,000-99,999 | Kip/month | |
| 7 | 100,000-199,999 | Kip/month | 28 |
| 8 | 200,000 or more | Kip/month | 29 |

D-6 What are the main problems you recognize about daily generated solid waste in and around your residence?

Choose three (3) main problems in serious order among the followings.

- 1 No rules for discharging waste
- 2 Bad manners of citizens at waste collection points
- 3 Littering streets, side ditches, building lots or public places
- 4 Illegal dumping in rivers
- 5 Illegal dumping in open spaces
- 6 Offensive odor from scattered waste
- 7 Soil pollution caused by open burning
- 8 Annoying smoke emission from open burning
- 9 Water pollution caused by inappropriate waste disposal
- 10 Drain overflow from side ditches clogging with rubbish
- 11 Specific diseases (e.g. Lung affection, Conjunctivitis, etc) due to smoke emission from open burning
- 12 Specific diseases (e.g. Skin affection, Dengue, etc) due to water pollution or side ditches clogging with rubbish
- 13 Other >>> To be specified in "33"

| | | | | | |
|----|--|----|--|----|--|
| 30 | | 31 | | 32 | |
| 33 | | | | | |

D-7 What kinds of measures would be necessary to solve the problems?

Choose three (3) measures in important order among the followings.

- 1 Improvement in public collection service (Frequency, Machinery, Vehicles, etc)
- 2 Improvement in public collection service (Increase the number of workers/Improve the human capacity)
- 3 Increase public waste containers on streets and open spaces
- 4 Self-reliant efforts (volunteer) by citizens and communities
- 5 Make or tighten anti-littering/dumping regulations
- 6 Environmental education/ Enhancement of public awareness regarding waste discharge (for ordinary citizens)
- 7 Environmental education regarding waste discharge (for children/ students)
- 8 Expansion of the public collection service coverage area.
- 9 Other >>> To be specified in "37"

| | | | | | |
|----|--|----|--|----|--|
| 34 | | 35 | | 36 | |
| 37 | | | | | |

5. Part E

E-1 Future Vision for your District

(1) What should your district be like by the year 2030? (= What are almost ideal situations?)

Choose two (2) answers in important order.

| | | | |
|---|--|---|--|
| 1 | | 2 | |
|---|--|---|--|

- 1 Economically/ Industrially powerful district
- 2 District with good infrastructure (water, power, sewerage, schools, etc)
- 3 District full of visually beautiful sights
- 4 Environmentally friendly district
- 5 District with good governance
- 6 District with a good educational policy

Others (Specify >>>)

| | |
|---|--|
| 3 | |
|---|--|

| | |
|---|--|
| 4 | |
|---|--|

(2) Who will be the main actor responsible for attaining the vision you chose in (1).

A Single answer.

- 1 Ordinary Citizens including the household in question
- 2 Ordinary Citizens but not including the household in question
- 3 Government of the Lao PDR
- 4 International Community (Donors)
- 5 Other >>> Specify in "6"

| | | |
|---|---|--|
| | 5 | |
| 6 | | |

E-2 Future Vision for the whole Vientiane Capital

(1) What should Vientiane Capital be like by the year 2030? (= What are almost ideal situations?)

Choose two (2) answers in important order.

| | | | |
|---|--|---|--|
| 7 | | 8 | |
|---|--|---|--|

- 1 Economically/ Industrially powerful capital
- 2 Capital with good infrastructure (water, power, sewerage, schools, etc)
- 3 Capital full of visually beautiful sights
- 4 Environmentally friendly capital
- 5 Capital with good governance
- 6 Capital with a good educational policy

Others (Specify >>>)

| | |
|---|--|
| 9 | |
|---|--|

| | |
|----|--|
| 10 | |
|----|--|

(2) Who will be the main actor responsible for attaining the vision you chose in (1).

A Single answer.

- 1 Ordinary Citizens including the household in question
- 2 Ordinary Citizens but not including the household in question
- 3 Government of the Lao PDR
- 4 International Community (Donors)
- 5 Other >>> Specify in "12"

| | | |
|----|----|--|
| | 11 | |
| 12 | | |

E-3 What kinds of urban planning policies do you think important for Vientiane Capital's good future?

Especially 1-4 are the items that may restrict personal vested interests, but might be important for urban planning.

What do you think?

Choose two (2) answers in important order.

| | | | |
|----|--|----|--|
| 13 | | 14 | |
|----|--|----|--|

- 1 General Zoning (Land Use Restrictions)
- 2 General Architectural Restrictions
- 3 Restrictions on Large-Scale Urban Developments
- 4 Restrictions on Personal Vehicles (No Driving Day/ No Car Area/ etc)
- 5 Tree-Planting Campaign

Others (Specify >>>)

| | |
|----|--|
| 15 | |
|----|--|

| | |
|----|--|
| 16 | |
|----|--|

8 Too difficult question to answer.

E-4 Do you voluntarily want to take part in the activities to realize the ideal Vientiane Capital in the future (2030)?

*Suppose, there is an area which is a problem from viewpoint of urban planning,
and you are one of the stakeholders.

1 Yes >>> Go to (1) 2 No >>> Go to (2)

3 Do not know >>> Stop here

| | |
|----|--|
| 17 | |
|----|--|

(1) What do you think you can do in the activities regarding the future planning for Vientiane Capital?

Choose two (2) answers in important order.

| | | | |
|----|--|----|--|
| 18 | | 19 | |
|----|--|----|--|

- 1 Participate in workshops as an ordinary member and exchange opinions
- 2 Support the legalization of urban planning regulations (zoning/ architectural control/ etc)
- 3 Mediation between more than one opposing opinion
- 4 Give expert knowledge and contribute to a good solution
- 5 Do as much as possible for the public benefit even if a part of the vested interests is infringed

Others (Specify >>>)

| | |
|----|--|
| 20 | |
|----|--|

| | |
|----|--|
| 21 | |
|----|--|

(2) Why you do not want to take part in the activities regarding the future planning for Vientiane Capital?

A single answer.

- 1 It is none of my business. Only public workers are responsible for that.
- 2 I am interested in planning for improving in different urban functions, but no time.
- 3 I am interested in planning for improving in different urban functions,
but feel ashamed to get involved in due to lack of professional knowledge.
- 4 I don't want to get my vested interests infringed by improving the urban planning system.
- 5 I don't think that urban planning should be important for future Vientiane Capital.
- 6 No special reason. Just annoying or boring.

| | |
|----|--|
| 22 | |
|----|--|

Attachment 3: Questionnaire for the Key Informant Survey

GENERAL

A-1 (1) Sample Number (Serial Number) 1

1 District Office
2 Women's Union
3 **To be specified**
4 **To be specified**
5 **To be specified**
6 **To be specified**
7 **To be specified**

If the interviewee belongs to a "District Office" and he (she) is the first person as District worker, the numbering should be 1-01. If women's union and the third interviewee, 2-03.

(2) Surveyor (FAMILY NAME & Given Name) 2

A-2 District where the organization is located

(1) In Number 3

(2) In Word 4

1 Chanthabouly 4 Sisattanak 7 Hadxaifong
2 Sikhottabong 5 Naxaithong 8 Sangthong
3 Xaysetha 6 Xaythany 9 Mayparkngum

A-3 Village Name where the organization is located 5

Code (3 Digits)

A-4 "Urban Village" or "Rural Village"

1 = Urban 2 = Rural (with Paved Road) 3 = Rural (without Paved Road)

6

A-5 Name of Interviewee

(1) FAMILY NAME 7

(2) Given (First) Name 8

(3) Sex 1 = Male 2 = Female 9

(4) Age 10

A-6 Organization to which the interviewee belongs and his (her) Title

(1) In Number 11

1 District Office
2 Women's Union
3 **To be specified**
4 **To be specified**
5 **To be specified**
6 **To be specified**
7 **To be specified**

(2) In Word (as detailed as possible) 12

(3) Department (as detailed as possible) 13

(4) Title (Explain his or her position as detailed as possible) 14

(5) Working for the present organization since Year XXXX 15

INFRASTRUCTURE

B-1 What is the main infrastructure which you consider very important but is lacking (or insufficient) for Vientiane Capital?

Choose three (3) main infrastructure items in serious order. 1 2 3

1 Small Access Roads 6 Drainage/ Sewerage 11 Primary Schools
2 Main Roads 7 Waste Dumping Site 12 Secondary Schools
3 Bridges 8 Electricity 13 High Schools
4 Drinking Water Supply 9 Telecommunication 14 Medical Centers (Clinics)
5 Irrigation Water 10 Parks/ Open Spaces 15 Hospitals

Others (Specify >>>) 16 17

B-2 What is the existing infrastructure you think the most satisfactory in Vientiane Capital?

Choose three (3) main infrastructure items in satisfactory order. 6 7 8

1 Small Access Roads 6 Drainage/ Sewerage 11 Primary Schools
2 Main Roads 7 Waste Dumping Site 12 Secondary Schools
3 Bridges 8 Electricity 13 High Schools
4 Drinking Water Supply 9 Telecommunication 14 Medical Centers (Clinics)
5 Irrigation Water 10 Parks/ Open Spaces 15 Hospitals

Others (Specify >>>) 16 17

18 Nothing (Not satisfied with any infrastructure)

PROBLEMS

C-1 What are the main problems about actual urban planning system that Vientiane Capital is confronted with?

Choose three (3) main problems in serious order.

- 1 Public workers' urban planning skills are not good enough.
- 2 Public workers in charge are not really committed for urban planning.
- 3 The division of responsibilities among the organizations concerned is not appropriate or unclear.
- 4 Urban planning method is not appropriately standardized or unclear or impractical.
- 5 Legal force is lacking and urban planning may turn out to be nothing but pie in the sky.
- 6 Budget and/or equipment are(is) not enough for conducting a good survey on urban planning
- 7 Activities for improving of public awareness are not enough.
- 8 Public involvement is not enough.
- 9 Ordinary citizens are not cooperative for urban planning

10 Others (Specify >>>)

11 Others (Specify >>>)

12 Others (Specify >>>)

| | | | | | |
|---|--|---|--|---|--|
| 1 | | 2 | | 3 | |
| 4 | | | | | |
| 5 | | | | | |
| 6 | | | | | |

C-2 What will be a good solution for each of the problems you mentioned in C-1? Please describe your opinion one by one.

And who will be the main actors responsible for realizing each of the solutions. Choose two parties for each.

| Solutions for Problems (Pls describe briefly) | | Main Actors | | | |
|---|------------------------|-------------|--|----|--|
| 7 | Solution for Problem 1 | 10 | | 13 | |
| 8 | Solution for Problem 2 | 11 | | 14 | |
| 9 | Solution for Problem 3 | 12 | | 15 | |

Choices for "Main Actors"

- 1 Government of the Lao PDR especially organizations responsible for urban planning and related sectors
- 2 Government of the Lao PDR as a whole
- 3 Vientiane Capital/ VUDAA
- 4 District Office
- 5 Ordinary citizens
- 6 Private corporations
- 7 Educational institutions
- 8 International Donors
- 9 NGO/ NPO
- 10 Other >>> Specify

| | |
|----|--|
| 16 | |
|----|--|

FUTURE VISIONS

D-1 Future Vision for your District

(1) What should your district be like by the year 2030? (= What are almost ideal situations?)

Choose two (2) answers in important order.

| | | | |
|---|--|---|--|
| 1 | | 2 | |
|---|--|---|--|

- 1 Economically/ Industrially powerful district
- 2 District with good infrastructure (water, power, sewerage, schools, etc)
- 3 District full of visually beautiful sights
- 4 Environmentally friendly district
- 5 District with good governance
- 6 District with a good educational policy

Others (Specify >>>)

7

| | |
|---|--|
| 3 | |
|---|--|

8

| | |
|---|--|
| 4 | |
|---|--|

(2) Who will be the main actors responsible for attaining the vision you chose in (1).

Choose two (2) answers in important order.

- 1 Government of the Lao PDR especially organizations responsible for urban planning and related sectors
- 2 Government of the Lao PDR as a whole
- 3 Vientiane Capital/ VUDAA
- 4 District Office
- 5 Ordinary citizens
- 6 Private corporations
- 7 Educational institutions
- 8 International Donors
- 9 NGO/ NPO
- 10 Other >>> Specify

| | | | |
|---|---|--|---|
| | 5 | | 6 |
| 7 | | | |

D-2 Future Vision for the whole Vientiane Capital

(1) What should Vientiane Capital be like by the year 2030? (= What are almost ideal situations?)

Choose two (2) answers in important order.

| | | | |
|---|--|---|--|
| 8 | | 9 | |
|---|--|---|--|

- 1 Economically/ Industrially powerful capital
- 2 Capital with good infrastructure (water, power, sewerage, schools, etc)
- 3 Capital full of visually beautiful sights
- 4 Environmentally friendly capital
- 5 Capital with good governance
- 6 Capital with a good educational policy

Others (Specify >>>)

7

| | |
|----|--|
| 10 | |
|----|--|

8

| | |
|----|--|
| 11 | |
|----|--|

(2) Who will be the main actors responsible for attaining the vision you chose in (1).

Choose two (2) answers in important order.

- 1 Government of the Lao PDR especially organizations responsible for urban planning and related sectors
- 2 Government of the Lao PDR as a whole
- 3 Vientiane Capital/ VUDAA
- 4 District Office
- 5 Ordinary citizens
- 6 Private corporations
- 7 Educational institutions
- 8 International Donors
- 9 NGO/ NPO
- 10 Other >>> Specify

| | | | |
|----|----|--|----|
| | 12 | | 13 |
| 14 | | | |

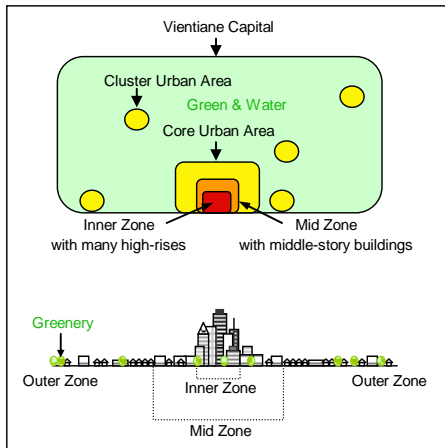
D-3 Spatial Development Vision toward 2030

- (1) Which one will be the most ideal spatial development orientation from the viewpoint that Vientiane Capital should be comfortable, visibly and invisibly attractive, and economically competitive in the long run? Choose the image which is the most similar to your idea among the 4 alternatives shown below.

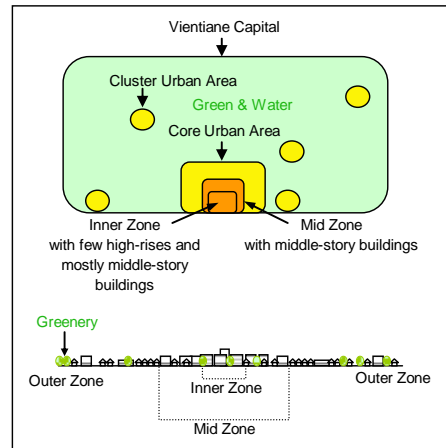
A Single answer.

| | |
|----|--|
| 15 | |
|----|--|

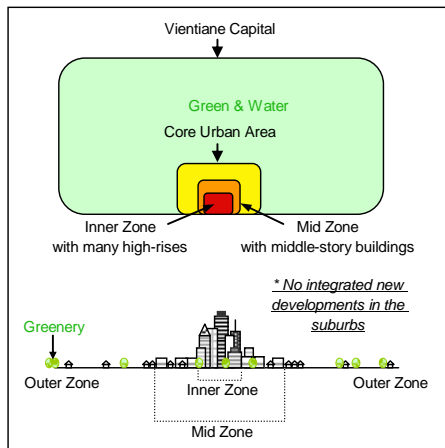
- 1 High-rise city with cluster urban areas
- 2 Middle-rise city with cluster urban areas
- 3 High-rise city without cluster urban areas
- 4 Middle-rise city without cluster urban areas
- 5 No idea (Too difficult question to answer).



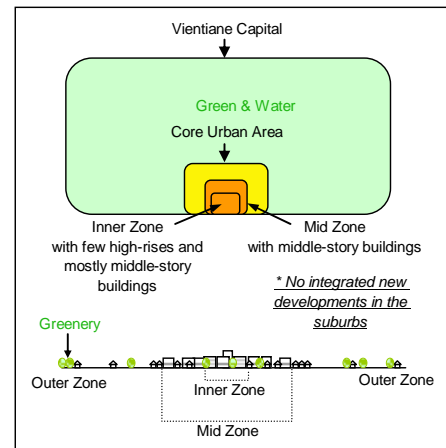
1. High-rise city with cluster urban areas



2. Middle-rise city with cluster urban areas



3. High-rise city without cluster urban areas



4. Middle-rise city without cluster urban areas

- (2) The reason why you choose the answer in (1). Describe briefly.

| | | |
|----|--|--|
| 16 | | |
|----|--|--|

D-4 What kinds of urban planning policies do you think important for Vientiane Capital's good future?

Especially 1-4 are the items that may legally restrict personal vested interests, but might be important for urban planning.

What do you think?

Choose two (2) answers in important order.

| | | | |
|----|--|----|--|
| 17 | | 18 | |
|----|--|----|--|

- 1 General Zoning (Land Use Restrictions)
- 2 General Architectural Restrictions
- 3 Restrictions on Large-Scale Urban Developments
- 4 Restrictions on Personal Vehicles (No Driving Day/ No Car Area/ etc)
- 5 Tree-Planting Campaign

Others (Specify >>>)

| | | |
|---|----|--|
| 6 | 19 | |
|---|----|--|

| | | |
|---|----|--|
| 7 | 20 | |
|---|----|--|

- 8 No idea (Too difficult question to answer).

D-5 Your Contribution to Urban Planning

(1) What do you think your organization can do in the activities regarding the urban planning for future Vientiane Capital?

Choose two (2) answers in important order.

| | | | |
|----|--|----|--|
| 21 | | 22 | |
|----|--|----|--|

- 1 Organize workshops and/or seminars for stakeholders to exchange their opinions
- 2 Support the legalization of urban planning regulations (zoning/ architectural control/ etc)
- 3 Mediation between more than one opposing opinion
- 4 Give expert knowledge and contribute to a good solution of different urban problems
- 5 Enhance public awareness/ outreach

Others (Specify >>>)

| | | | |
|------|--|------|--|
| 6 23 | | 7 24 | |
|------|--|------|--|

(2) Your detailed opinion about the future vision for the whole Vientiane Capital, if any.

| | |
|----|--|
| 25 | |
|----|--|

(3) Your detailed opinion about the actual problems related to urban planning method or process, if any.

| | |
|----|--|
| 26 | |
|----|--|

(4) Your opinion to solve the actual problems related to urban planning method or process you mention in (3).

| | |
|----|--|
| 27 | |
|----|--|

(5) Other comments, if any.

| | |
|----|--|
| 28 | |
|----|--|

This is the end of the " Key Informant Survey".



Appendix 3

Environmental and Social Consideration

APPENDIX 3: ENVIRONMENTAL AND SOCIAL CONSIDERATION

3.1 Outline of Environmental and Social Considerations

In this Study, the Strategic Environmental Assessment (SEA) was adopted according to the JICA Guidelines for Environmental and Social Consideration 2010. The guideline describes that the SEA is an environmental assessment at an earlier study stage prior to the EIA at project level. Thus the SEA is normally conducted at the policy making level or planning and programming level before the project level.

On this definition, JST adopted the following basic policies for the SEA.

- Assessment of environmental impacts at an earlier study stage, namely in the policy making level, with:
 - ✓ Comparison and evaluation of alternatives and
 - ✓ Involvement of stakeholders.

Specifically, JST took the following steps.

- i) Study of the current social and environmental conditions
- ii) Involvement of stakeholders in the working group meetings and a stakeholder meeting
- iii) Spatial SWOT analysis for item iv) based on the SWOT analysis conducted in item ii) with the results of item i) and findings about the present condition presented in Chapter 2
- iv) Comparison and evaluation of alternative of the urban structures: with likely impacts on social and natural environments and pollution with item ii)
- v) Outline of Environmental Management Plan for the Multi-core system concluded in item iv) and item ii).

3.2 Institutions and Legislation

3.2.1 Institutional Framework

(1) Water Resources and Environment Administration (WREA)

WREA takes the central role in the environmental and water resource sectors in Lao PDR. They formulate environmental policies and prepare laws and regulations. In WREA, two departments perform significant tasks in the environmental sector. Department of Environment (DOE) is responsible for formulating the environmental standards for the nation. Environment and Social Impact Assessment Department (ESIAD) has a major responsibility on environmental impact assessment of development projects and issuing Environmental Compliance Certificate (ECC).

ESIAD assesses a proposal document describing a development project, IEE and EIA submitted by project owner with Development Projects Responsible Agency (DPRA). After ESIAD approves those reports, ESIAD issues the project owner ECC so that they start the project. ESIAD also monitors the project activities based on Environmental Management Plan included in EIA reports.

(2) Environmental Division of Department of Industry, Ministry of Industry and Commerce

MOIC has the Industrial Environment Division in the Department of Industry in order to manage environmental and social considerations for the projects in the industrial and commercial sector. The division reviews and approves IEE reports and issues ECCs to project owners. They also monitor the project activities based on Environmental Management Plan included in IEE reports. Regarding EIA reports, WREA reviews and approves them, and issues ECCs to project owners for MOIC.

(3) Ministry of Agriculture and Forest (MAF)

MAF is responsible for management of agricultural and forest resources for sustainable use and preservation of them through conducting surveys, planning and formulating regulations. MAF also manages national protected areas. The protected areas of provincial and district levels are managed by its provincial department, DAF, or Office of Agriculture and Forestry in district governments.

(4) Land Management Authority (LMA)

LMAs are responsible for the land management in Lao PDR. LMAs consist of the national, provincial and district levels, and Land Units at the village level. At the national level, the National Land Management Authority (NLMA) formulates legislations on land management, conducts land surveys and studies land use plans across the country. Meanwhile, the local LAMs at the provincial and district levels and Land Units at the village level manage land use rights (registration, transfer, lease and concession), land registers, land valuation and others within their administrative areas.

3.2.2 Legal Framework

(1) Laws and Regulations

Table 3.2.1 shows major legislations on environmental and social considerations in Lao PDR. WREA has promulgated the Decree on Environment Impact Assessment in March 2010 which is revised from the Regulation on Environmental Assessment in Lao PDR 2000 based on the Environmental

Protection Law 1999. The decree stipulates the procedure of environment assessment. WREA also formulated the screening criteria for requiring IEE or EIA although the former regulation required IEE before EIA to any nonexempt projects.

Table 3.2.1: List of Legislations on Environmental and Social Considerations in Lao PDR

| Category | Title | Enacted Year | Authority |
|-----------------------------------|--|--------------|-----------|
| General Law | Environmental Protection Law | 1999 | STEA* |
| | Forestry Law | 2008 | NA |
| | Law on Aquatic Life and Wild Animal | 2008 | NA |
| Environmental Standard | Regulations on the Monitoring and Control of Wastewater Discharge | 1998 | STEA* |
| | Decision on the Management of Quality Standards for Drinking Water and Household Water Supply | 2005 | MOH |
| | Provision on Discharge of Domestic Sewage and Wastewater from Industrial Factories | 2005 | IH |
| Water Resource | Water and Water Resource Law | 1996 | WRCC |
| | Decree on Implementation of the Water and Water Resources Law | 2001 | WRCC |
| | Drinking Water quality criteria for Rural Water Supply | 2003 | MOH |
| | Standard of Drinking and Domestic Water Quality | 2005 | MOH |
| Environmental Impact Assessment | Regulation on Environmental Assessment in Lao PDR | 2000 | STEA* |
| | Regulation of Environmental Impact Assessment for Road Projects | 2003 | MCTPC |
| | Decision on the Environmental Impact Assessment for Industries and Handicrafts Processing in Lao PDR | 2005 | IH |
| | Decree on Environment Impact Assessment, No. 112/PM | 2010 | PM |
| | Decision on Project Types (Screening Criteria) for IEE and EIA | 2010 | WREA |
| | Technical Guidelines on Public Involvement | 2010 | WREA |
| Land Acquisition and Resettlement | Land Law | 2003 | NA |
| | Decree on Compensation and Resettlement of People Affected by Development Projects | 2005 | PM |
| | Regulation for Implementing Decree on Compensation and Resettlement of People Affected by Development Projects | 2006 | STEA* |
| | Technical Guidelines of Compensation and Resettlement in Development Projects | 2005 | STEA* |
| | Technical Guidelines on Compensation and Resettlement of People Affected by Development Projects | 2010 | WREA |

Note: * STEA was reorganized to WREA in 2007

Source: JST

(2) EIA Procedure

1) Screening

In the former regulation, a screening was required for deciding whether an environmental assessment (EA) was required or not for a proposed project. First a project developer had to submit a proposal document describing a project to the Development Projects Responsible Agency (DPRA) for screening the project. DPRA assembles an ad-hoc project review team to assess if the project needs no further EA (exempt project) or require further EA project (nonexempt project). DPRA submits to WREA the result of screening and WREA instructs DPRA to reconsider the result or accept it. For those projects found by screening to be exempt of further EA, WREA issues an environmental compliance certificate with or without conditions. Those projects determined to be nonexempt of EA must proceed to conduct an IEE and the requirement of an EIA was concluded in the IEE.

However, “Decree on Environment Impact Assessment No. 112/PM” was promulgated in February 2010. The decree stipulates that the proposed project is categorized as two types as follows.

- Category 1: small scale investment projects with minor environmental and social impacts, for which initial environmental examination is required
- Category 2: large scale investment projects which are complicated or create significant environmental and social impacts, for which environmental impact assessment is required

Additionally, WREA formulated new screening criteria to evaluate the proposed project for the requirement of either IEE (Category 1) or EIA (Category 2) in “Decision on Project Types for IEE and EIA March 2010”, which are mainly depending on scale of the proposed project by sector. The main difference of the old and new procedures is that the new one requires either IEE or EIA for the proposed project while the old one did IEE before EIA for the nonexempt project of EA. WREA shall screen the proposed project and inform the project developer the requirement of IEE, EIA or no EA.

2) Initial Environmental Examination (IEE)

The project owner conducts an IEE study and prepares an IEE report based on the result of screening. The contents of report have to include the following items.

- Project description
- Description of the environment in the project area (baseline data)
- Environmental impacts
- Environmental Management Plan to prevent and reduce environmental impacts
- Description of public involvement activities during IEE

3) Environmental Impact Assessment (EIA)

The project owner conducts an EIA study and prepares an EIA report based on the result of screening. The contents of the report have to include the following items.

- Description of the environment in the project area (baseline data)
- Identification and evaluation of reasonable alternatives for achieving the project purposes
- Direct and indirect significant environmental impacts including cumulative impacts for each of the alternatives
- Summary on public involvement activities during the preparation of an EIA report
- Identification of the chosen alternative and reasons for choosing
- Detailed description of the chosen alternative
- Environmental Management Plan to prevent and reduce environmental impacts

4) Environmental Management Plan (EMP) and Monitoring & Evaluation (M&E)

An Environmental Management Plan (EMP) is required in the IEE and EIA. The EMP includes: i) measures to prevent and minimize environmental impacts, ii) programs for environmental control and monitoring, and iii) responsibilities, organization, schedule and budget for implementation of the EMP and other issues. Moreover, the project owner is directly responsible for the Monitoring and Evaluation (M&E) of the project activities and those impacts on the environment during the implementation of the EMP.

(3) Compensation and resettlement

WREA has prepared a new guideline, Technical Guidelines on Compensation and Resettlement of People Affected by Development Projects, in March 2010, which endorses and promulgates the previous guidelines issued in 2005. The guidelines have a specific objective to provide detailed guidance for the project owners, private and public sectors, as well as all concerned in addressing social issues in development projects especially in planning and implementation of resettlement plans, and ethnic minority development plans. The guidelines also provide guidance for conducting social assessment in projects.

The guidelines explain necessary resettlement activities and outputs according to a typical project process as Table 3.2.2 summarizes.

Table 3.2.2: Project Process and Resettlement Outputs

| No. | Stages in a Typical Project | Resettlement Activities/Outputs |
|-----|-----------------------------|---|
| 1 | Project Identification | <ul style="list-style-type: none"> • Conduct Initial Social Assessment (ISA) • Prepare TOR for Resettlement Plan (RP)/ Ethnic Minority Development Plan (EMDP)/ Social Assessment (SA) as necessary |
| 2 | Pre-feasibility | <ul style="list-style-type: none"> • Conduct field surveys (inventories, socio-economic status) • Prepare RP/EMDP/SA as necessary |
| 3 | Feasibility | |
| 4 | Project Approval | <ul style="list-style-type: none"> • RP and other documents are approved by the relevant line agencies and WREA |
| 5 | Detail Technical Design | <ul style="list-style-type: none"> • Adjustment (finalization) of RP and other documents following detailed design with specific project boundaries, if necessary |
| 6 | Implementation | <ul style="list-style-type: none"> • Implementation arrangement for RP/EMDP/SA • Monitoring and supervision |

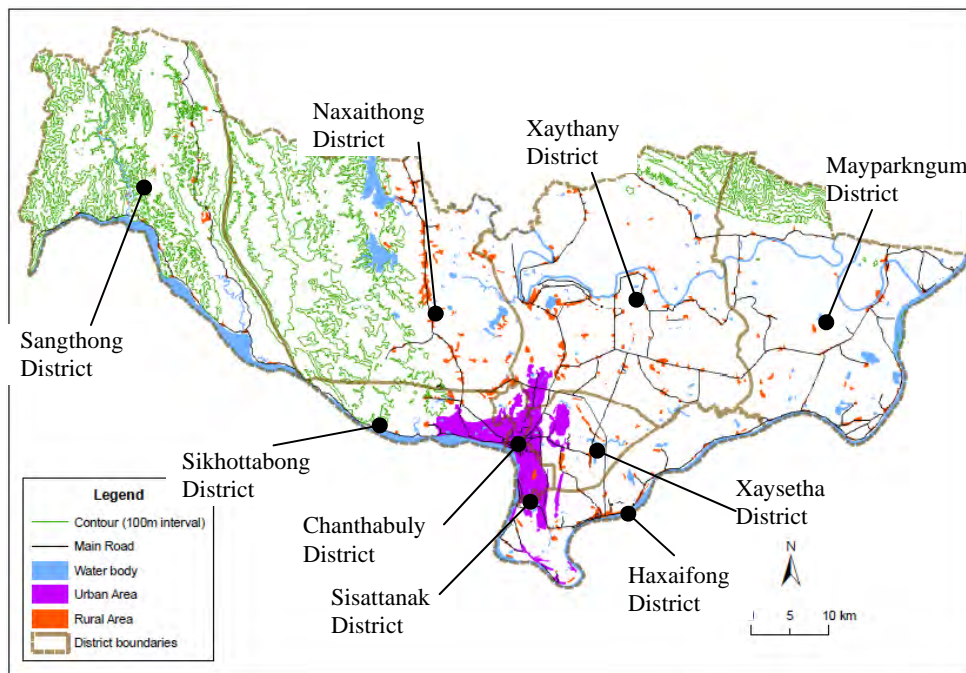
Source: Technical Guidelines on Compensation and Resettlement of People Affected by Development Projects, WREA 2010

3.3 Current Social and Environmental Conditions

3.3.1 Natural Environment

(1) Geography and Topography

Vientiane Capital is located on the left bank of the Mekong River. The urbanized areas are mainly part of Chanthabouly, Sisattanak, Sikhottabong and Xaysetha Districts. The urbanized area is located on the natural plain formed by the Mekong River at an altitude of 160m – 180m. The flat alluvial land dominates the eastern area of Vientiane Capital except the north-eastern end of the capital. Xaysetha, Hadxaifong, Xaythany and Mayparkngum districts are located in the eastern area. The alluvial flat land geologically consists of two layers. The first layers contains of sand, gravel, shingle, clay and peat, while the other layer contains of gravel, shingle, sandy, kaolinite and laterite. However, the western area from the National Road No.13 North is a mountainous land especially the area of Sangthong, Naxaithong and Sikhottabong districts. In general, these districts have hardly any flat land except next to rivers.



Source: National Geographic Office, JST compilation

Figure 3.3.1: Geography

(2) Climate

Vientiane Capital has a tropical monsoon climate which is divided into two seasons: the rainy season from May to October and the dry season from November to April. The hottest season is in April, the season for Pee Mai Lao (Lao New Year). Over the last decade except in the year 1999 and 2008 when the annual rainfall was approximately 2,200 mm, the annual rainfalls have fluctuated between 1,500 - 2,000 mm.

Table 3.3.1: Meteorology in Vientiane Capital 2007

| Item | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual |
|---------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|
| Mean maximum temperature (C) | 28.3 | 30.4 | 33.0 | 34.3 | 32.9 | 31.8 | 31.3 | 30.9 | 30.9 | 30.8 | 29.8 | 28.1 | 31.0 |
| Mean minimum temperature (C) | 16.3 | 18.5 | 21.5 | 23.8 | 24.6 | 24.9 | 24.8 | 24.6 | 24.1 | 22.9 | 19.9 | 16.5 | 21.9 |
| Mean temperature (C) | 22.3 | 24.5 | 27.2 | 29.0 | 28.7 | 28.4 | 28.1 | 27.8 | 27.5 | 26.9 | 24.8 | 22.3 | 26.5 |
| Total rainfall (mm) | 7.2 | 13.1 | 33.6 | 85.3 | 245.3 | 279.2 | 275.1 | 330.5 | 306.7 | 77.5 | 11.2 | 2.8 | 1,667.5 |
| Total sunshine duration (hours) | 254.4 | 218.3 | 223.4 | 229.7 | 206.8 | 147.7 | 140.8 | 137.2 | 167.1 | 222.2 | 236.7 | 256.7 | 2,440.9 |

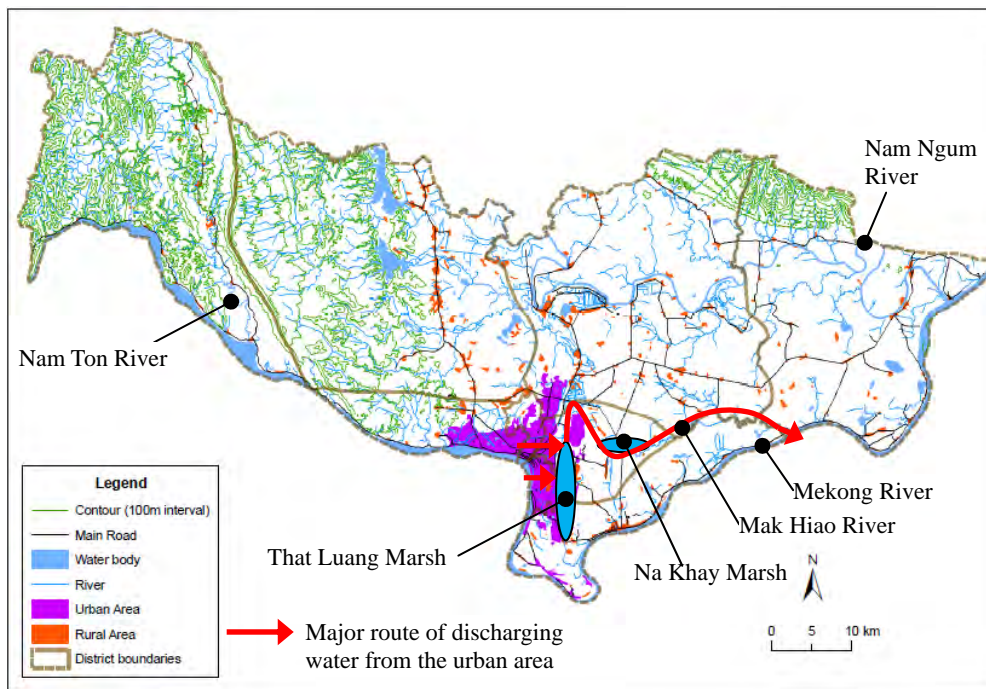
Source: Department of Meteorology and Hydrology, WREA

(3) Hydrology

There are three major rivers in Vientiane Capital. The largest river, the Mekong River, runs at the east side of Vientiane Capital on the border of Thailand. The water level on an average changes about ten meters between the dry season and the rainy season. The second largest river, the Nam Ngum River, passes east and west straddling Xaythany District and Mayparkngum District toward the Mekong

River in the eastern area. In the western area, the Nam Ton River runs north and south on the border of Sangthong District and Naxaithong District.

For the drainage system, discharged water from the urban area first runs through the That Luang Marsh which is located at the east edge of the urban area, and then to the main drainages. The drained water flows eastward through the Mak Hiao River to the Mekong River. Thus, Luang Marsh and the Na Khay Marsh have an extremely valuable role of storing drained water prior to before discharging it to the Mekong River.



Source: National Geographic Office, JST compilation

Figure 3.3.2: Riverine System

(4) Flora, Fauna and Biodiversity

1) Protected areas

The most significant flora and fauna exists especially in the protected areas in Vientiane Capital for which few data and studies are available. There are two national protected areas and four provincial protected areas in Vientiane Capital as shown in Figure 3.3.3. The formers are Phou Khao Khoay National Protected Area and Phou Phanang National Protected Area which are located in mountainous land. Meanwhile, the provincial protected areas are located in the flat lands at the east of Vientiane Capital. Some of the protected areas are in danger considering the immense pressure of land requirements for industrial developments.

Houy Dong Banxai Conservation Forest located at the south of NR No. 13 South is maintained well. The size of this forest has reduced as the part of the area was included in economic development plans and specified for activities including the industrial development zone.

Dong Phosy Protected Area was also involved in socio-economic activities and industrial development plans. There are some settlements and cultivated lands without official land use rights in the area. As above, the mixed deciduous forests are also reducing and industrial developments and other plans have been rapidly pursued in the area. Meanwhile, a legal status to convert the protected area to other purposes is unclear. Several authorities along with the governor of Vientiane Capital are still coordinating for the conversion.

Houy Gngang Protected Area is conserved best among the provincial protected areas of Vientiane Capital. This protected area was funded by SIDA in 1988 to investigate biology and study the conservation plan in cooperation with World Conservation Union (called IUCN: the International Union for Conservation of Nature at present). The site office which belongs to Conservation Forestry Division, Agriculture and Forestry Provincial Office, was established in 1990. Now this office actually manages all protected areas in Vientiane Capital in coordination and working with the military, district and village offices. Houy Gngang Protected Area has dry evergreen forest and are typified by “Sindora Siamensis”. The office investigated 250 species of vegetation in the forest.

The other provincial protected area, Done Xang Fay Protected Area, location is unclear in Pak Ngum district. Some special pine trees (local name is “TON PACK”) which usually grow in mountainous land scarcely grow at low altitudes in the protected area.

2) That Luang Marsh

That Luang Marsh which covers about 20 km² of area is the largest remaining wetland in Vientiane Capital. The marsh is not only precious natural resource but also provides the local people with economic benefits: aquatic resources and products, drainage system, flood protection and purification of wastewater from the surrounding urban area. Over 3,000 households around the marsh collect the aquatic products including fish (catfish, carp, eel, etc.), flogs, snails, freshwater shrimps and water beetles.

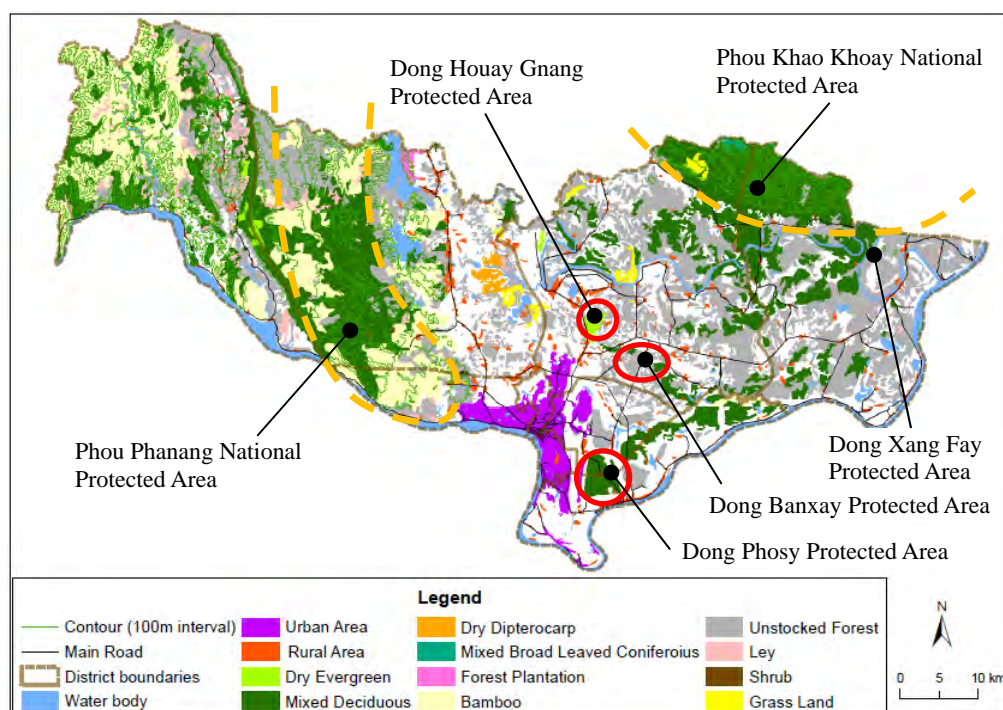
However, a large part of the marsh land has been converted to rice paddy and as a result the aquatic species have decreased. In addition, That Luang Marsh is under increasing threat of loss and deterioration especially at the western side where inhabitants are reclaiming land for residential, commercial and other construction proposes along with discharging waste water.

Table 3.3.2: Protected Areas in Vientiane Capital

| No | Items | Total Area (ha) | Area Covered by Vientiane Capital (ha) | District Location | Function |
|----|-------------------|-----------------|--|--|-----------------------------------|
| 1 | Phou Khao Khoay | 200,000 | 33,400 | Xaythany and Mayparkngum districts | National Protected Area |
| 2 | Phou Phanang | 70,000 | 46,000 | Sikhottabong, Naxaithong and Sangthong districts | National Protected Area |
| 3 | Dong Phosy | 1,793.25 | 1,793.25 | Xaysetha district | Provincial/Capital Protected Area |
| 4 | Dong Houay Gngang | 808 | 808 | Xaythany district | Provincial/Capital Protected Area |
| 5 | Dong Banxay | 788.75 | 788.75 | Xaythany district | Provincial/Capital Protected Area |
| 6 | Done Xang Fay | 48,548* | 48,548* | Mayparkngum district | Provincial/Capital Protected Area |

Note: * The size is amended with an interview to Conservation Forestry Division, Agriculture and Forestry Provincial Office

Source: The Study of Comprehensive Study on Logistics System in Lao PDR, JICA 2009



Note: Location of Done Xang Fay Protected Area is unclear.

Source: National Geographic Office, JST compilation

Figure 3.3.3: Vegetation and Locations of Protected Areas

3.3.2 Social Environment

(1) Administration

Vientiane Capital has an area of 3,920 km² in the administrative boundary with 9 districts and total 491 villages under the districts as shown in Table 3.3.3.

Table 3.3.3: Administration

| No. | Name of District | No. of village | Area (km ²) |
|-----|------------------|----------------|-------------------------|
| 1 | Chanthabouly | 32 | 29 |
| 2 | Sikhottabong | 60 | 140 |
| 3 | Xaysetha | 52 | 147 |
| 4 | Sisattanak | 37 | 31 |
| 5 | Naxaithong | 56 | 1,131 |
| 6 | Xaythany | 104 | 916 |
| 7 | Hadxaifong | 60 | 258 |
| 8 | Sangthong | 37 | 622 |
| 9 | Mayparkngum | 53 | 646 |
| | Total | 491 | 3,920 |

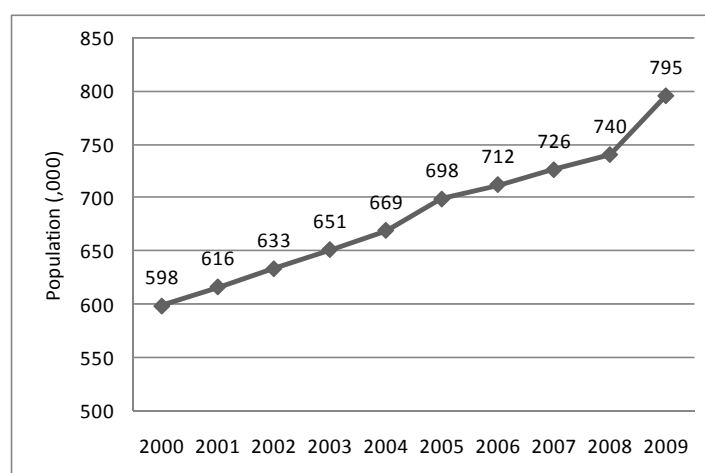
Source: Basic Statistics Data on Socio-Economic Development 2008/2009 of Vientiane Capital

(2) Demography

The population of Vientiane Capital since 2000, has increased at about an annual growth rate of 2 – 3 %. The population in 2009 has been estimated to 795,160. This is based on the available data from 9 districts. Other years data was estimated based on the Population and Housing Census, which is

conducted every 10 years. The latest census was conducted in 2005. A reason for sharp rise (7.4%) in 2009 population might be due to the use of different data sources for estimation. Chanthabouly and Sisattanak districts which were initially urbanized have extraordinarily high density.

According to the results of Population and Housing Census 2005, Lao PDR had about categorized 50 ethnic groups. In the Lao PDR, ethnic group, Lao, had the largest number of population and the percentage is about 55%, followed by Khmou and Mon at 11% and 8% respectively. In Vientiane Capital, ethnic group Lao dominates with about 93% of the total population. Buddhism is the predominant religion in the country. About 67% of the population are Buddhists. Small numbers of Christians population is also lives in Vientiane Capital.



Source: Population and Housing Census 2005, Statistical Year Book, Basic Statistics Data on Socio-Economic Development 2008/2009 of Vientiane Capital (Population estimation 2009 from 9 districts)

Figure 3.3.4: Demographic Change

Table 3.3.4: Demography 2009

| No. | Name of District | No. of village | Area (km ²) | Population | | | Household | Person/household | Density Person/km ² |
|-----|---------------------------|----------------|-------------------------|----------------|----------------|----------------|----------------|------------------|--------------------------------|
| | | | | Total | Female | Male | | | |
| 1 | Chanthabouly | 32 | 29 | 78,407 | 40,693 | 37,714 | 11,897 | 6.6 | 2,703 |
| 2 | Sikhottabong | 60 | 140 | 113,763 | 56,882 | 56,882 | 18,894 | 6.0 | 813 |
| 3 | Xaysetha | 52 | 147 | 111,037 | 55,519 | 55,519 | 18,717 | 5.9 | 755 |
| 4 | Sisattanak | 37 | 31 | 78,211 | 41,374 | 36,838 | 11,168 | 7.0 | 2,523 |
| 5 | Naxaithong | 56 | 1,131 | 66,462 | 33,298 | 33,165 | 11,472 | 5.7 | 59 |
| 6 | Xaythany | 104 | 916 | 171,705 | 83,449 | 88,256 | 27,741 | 6.2 | 187 |
| 7 | Hadxaifong | 60 | 258 | 89,202 | 45,136 | 44,066 | 16,589 | 5.4 | 346 |
| 8 | Sangthong | 37 | 622 | 27,573 | 13,566 | 14,007 | 5,484 | 5.0 | 44 |
| 9 | Mayparkngum | 53 | 646 | 51,287 | 25,387 | 25,900 | 8,508 | 6.0 | 79 |
| | Other communal households | | | 7,512 | 2,704 | 4,808 | | | |
| | Total | 491 | 3,920 | 795,160 | 398,007 | 397,153 | 130,470 | 6.1 | 203 |

Source: Basic Statistics Data on Socio-Economic Development 2008/2009 of Vientiane Capital (Population estimation 2009 from 9 districts), JST compilation

(3) Land Use

Government, business and commercial buildings exist in the old urbanized area along the Mekong River, Lane Xang Avenue, Setthathilat Road and Samsenthai Road. The other surrounding built-up area is mostly residential district up to Kampheng Meuong Road (on That Luang Marsh) in the

east, and Asean Road in the north and the Wattay Airport in the west. The urbanization is rapidly growing eastward around That Luan Marsh and northward on NR No.13 South between That Luang Temple and Don Nean Three-Forked road.

The western area is mostly used for forest and shrub in the mountainous land. Little flat land is used as rice paddy field. On the other hand, cultivated land typified by rice paddy dominates the eastern flat land and wet land. Forest and shrub lands also exist in the east. However, as the pressure of urban and industrial developments is increasing, it threatens the losing of conversion of forest and wet lands.

For more detailed land use conditions refer to Section 2.3.3.

(4) Labor force

Unemployment rates in Vientiane Capital and the country is very low with a figure of 5.0% and 1.4% respectively. This is mainly due to the nature of employment. Most of the employed workers and their families are either self-employed or engaged in their owned agriculture activities. As per statistics, self-employed workers are 1,149,906 and own account workers are 1,260,671. These two employments makes approximately 88% of the total employment in the country.

Table 3.3.5: Unemployment Rates 2005

| Item | Population 10 years and above | Economically active population | Employed | Unemployed | Unemployment rate |
|-------------------|-------------------------------|--------------------------------|-----------|------------|-------------------|
| Vientiane Capital | 577,507 | 342,656 | 326,395 | 16,261 | 5.0% |
| Lao PDR | 4,171,199 | 2,776,712 | 2,738,893 | 37,820 | 1.4% |

Source: Population and Housing Census 2005

(5) Economic Activities

The existence and description of economic activities for the employed population in Vientiane Capital and the country are in contrast to each other. Non-firm activity which includes commercial, business, industry and government sectors is the major economic sector in the capital while farming is the major sector in the country. In terms of occupancy by economic activity 64.3% of the population are engaged in farming or say as farmers and 21.5% are engaged in non-farming activities in the entire country. In the capital, these figures swap with each other and are 64.7% for non-farming activities while 25.4% are engaged in farming activities.

Table 3.3.6: Distribution of Economic Activities 2005

| Item | Employed population | Farmer | Fisherman | Livestock farmer mainly | Mixed farmer | Non-farm activity | Total % |
|-------------------|---------------------|--------|-----------|-------------------------|--------------|-------------------|---------|
| Vientiane Capital | 326,395 | 25.4% | 0.1% | 0.3% | 9.5% | 64.7% | 100% |
| Lao PDR | 2,738,893 | 64.3% | 0.1% | 0.2% | 14.0% | 21.5% | 100% |

Source: Population and Housing Census 2005

(6) Social infrastructures and services

1) Water supply

The Vientiane Water Supply Company (Nam Papa Vientiane Capital City: NPVC) covers Vientiane Capital for water supply. There are 5 water treatment plants namely Chinaimo, Kaolieo, Thangone, Dongdok and Thadeua. According to the results of Population and

Housing Census 2005, 42.5% of households were supplied water by pipe. The well/borehole is also a major water sources for the households. Approx. 53.3% of households are dependent on protected or unprotected well/borehole as a water source. Other water sources such as river/stream/dam and mountain are replaced by the piped water across the country.

Table 3.3.7: Distribution of Water Sources for Drinking and Cooling 2005

| Item | Number of households | Piped water in/out side | Well/Borehole protected | Well/Borehole unprotected | River, stream or dam | Mountain source | Rain water from tank | Others | Not stated | Total (%) |
|-------------------|----------------------|-------------------------|-------------------------|---------------------------|----------------------|-----------------|----------------------|--------|------------|-----------|
| Vientiane Capital | 125,625 | 42.5% | 28.8% | 24.5% | 1.5% | 0.2% | 0.0% | 0.5% | 2.1% | 100.0% |
| Lao PDR | 952,386 | 12.9% | 22.0% | 23.8% | 20.5% | 19.1% | 0.1% | 0.6% | 0.9% | 100.0% |

Source: Population and Housing Census 2005

2) Power supply

Over 90% households are served electricity by public network in Vientiane Capital. However, 41.2% households had no electricity across the country. As per statistics, wood and charcoal is the main source of energy for cooking. In the capital 84.7% and in the country 79.1% of the households still use wood or charcoal as major energy source for cooking.

Table 3.3.8: Distribution of Electricity Use 2005

| Item | Number of households | Public net/ own meter | Public net/ share meter | Own generator | Car battery | Not electrified | Not stated | Total (%) |
|-------------------|----------------------|-----------------------|-------------------------|---------------|-------------|-----------------|------------|-----------|
| Vientiane Capital | 125,625 | 74.2% | 20.6% | 0.3% | 0.7% | 2.1% | 2.1% | 100.0% |
| Lao PDR | 952,386 | 38.9% | 10.8% | 1.0% | 6.5% | 41.2% | 1.6% | 100.0% |

Source: Population and Housing Census 2005

Table 3.3.9: Distribution of Main Energy Sources for Cooking 2005

| Item | Number of households | Electricity | Paraff in | Wood | Coal | Charcoal | Saw-dust | Gas | Others | Not stated | Total (%) |
|-------------------|----------------------|-------------|-----------|-------|------|----------|----------|------|--------|------------|-----------|
| Vientiane Capital | 125,625 | 6.6% | 0.0% | 42.4% | 0.9% | 42.3% | 0.4% | 4.0% | 0.2% | 3.2% | 100.0% |
| Lao PDR | 952,386 | 1.1% | 0.1% | 79.1% | 0.3% | 14.9% | 0.1% | 0.9% | 0.1% | 3.4% | 100.0% |

Source: Population and Housing Census 2005

3) Sanitation

(a) Lavatory

About 74% of the households had normal toilets using water (without flush) in Vientiane Capital, while modern toilets with flush water are only 9.2%. However in the country, about 50% of the households do not have an access to toilet/ lavatories. Normal toilets are common with the usage ratio of 38.5% in the nation.

Table 3.3.10: Distribution of Toilet Types 2005

| Item | Number of households | Modern toilet | Normal toilet | Other | None | Not stated | Total (%) |
|-------------------|----------------------|---------------|---------------|-------|-------|------------|-----------|
| Vientiane Capital | 125,625 | 9.2% | 73.6% | 3.5% | 11.3% | 2.3% | 100.0% |
| Lao PDR | 952,386 | 1.8% | 38.5% | 9.0% | 49.0% | 1.7% | 100.0% |

Source: Population and Housing Census 2005

(b) *Solid waste management*

Vientiane Solid Waste Collection Service in Vientiane Capital is managed and operates by 5 private companies. These covers the 6 district especially the urbanized area and have a contract with 23,505 household subscribers and the other institutions. However, the coverage rate of solid waste collection service is still low and is only 37%. The uncollected solid waste is disposed by burning, burying or dumping.

The collected wastes are transported to KM32 landfill site which is under operation since 2008 after the closure of KM18 landfill site. Amount of solid waste disposal at KM18 and KM32 landfill sites has sharply increased during the last few years. In 2009, approximately 127,095 tons of waste was disposed in KM32 landfill site.

Table 3.3.11: Subscribers of Solid Waste Collection Service in Vientiane Capital

| Item | Household | | Institutional Subscriber | | | | | | |
|-----------------------|-----------------|------------|--------------------------|---------|--------|---------|--------|----------|-------------------|
| | Total (Village) | Subscriber | Market | Embassy | Office | Factory | School | Hospital | Hotel/Guest House |
| Number of Subscribers | 63,312 | 23,505 | 38 | 25 | 211 | 64 | 63 | 10 | 118 |

Source: VUDAA Environment Section

Table 3.3.12: Coverage Rates of Solid Waste Collection Service by District

| Name of District | Chantabouly | Sikhottabong | Sisattanak | Xaythany | Hadxaifong | Xaysetha | Total |
|------------------------------|-------------|--------------|------------|----------|------------|----------|--------|
| Total Subscribers | 6,792 | 4,282 | 4,771 | 1,536 | 289 | 5,835 | 23,505 |
| Total Households of Villages | 12,433 | 15,472 | 10,194 | 10,526 | 1,879 | 12,808 | 63,312 |
| Coverage rate | 54.63% | 27.68% | 46.8% | 14.59% | 15.38% | 45.56% | 37.13% |

Source: VUDAA Environment Section

Table 3.3.13: Solid Waste Disposal of KM18 and KM32 Landfill Sites

| Year | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Volume (ton) | 41,489 | 47,474 | 47,067 | 49,427 | 46,575 | 50,400 | 58,839 | 57,033 | 68,089 |

Source: VUDAA Environment Section

4) Health

Vientiane Capital has 9 district hospitals, 41 dispensaries, 108 clinics and 445 pharmacies. Sikhottabong District has the most communicable disease OPD cases, with 4,932 cases followed by Xaythany District with 4,785 cases. The communicable diseases include diarrhea, common cold, pneumo-bronchitis, malaria, dengue fever and other infections. The most cases were common cold followed by diarrhea, pneumo-bronchitis and helminthes parasites. As far as dengue fever is concerned, approximately half of the cases (362) of the total in capital were reported from Sikhottabong District. Among all districts, the three districts from the western area, Sikhottabong, Naxaithong and Sangthong districts have a higher patient rate i.e. between 40% to 50%, for the children who are under 5 years of age.

Table 3.3.14: Outpatient Department (OPD) Cases of Diseases by District 2007/2008

| Name of District | Chantabouly | Sikhottabong | Xaysetha | Sisattanak | Naxaiithong | Xaythany | Hadxaifong | Sangthong | Mayparkngum | Total |
|-----------------------------|-------------|--------------|----------|------------|-------------|----------|------------|-----------|-------------|---------|
| Communicable diseases total | 2,008 | 4,932 | 2,373 | 1,276 | 1,404 | 4,785 | 1,605 | 1,391 | 1,901 | 21,675 |
| (Under age 5) | 547 | 2,137 | 664 | 114 | 700 | 1,909 | 579 | 608 | 658 | 7,916 |
| (Rate of under age 5) | 27.2% | 43.3% | 27.9% | 8.9% | 49.8% | 39.9% | 36.0% | 43.7% | 34.6% | 36.5% |
| Other pathologies | 8,179 | 25,837 | 12,487 | 8,608 | 10,462 | 17,422 | 31,280 | 6,118 | 6,660 | 129,061 |
| (Under age 5) | 768 | 3,002 | 1,632 | 258 | 895 | 2,147 | 4,540 | 540 | 352 | 14,134 |
| (Rate of under age 5) | 9.4% | 11.6% | 13.1% | 3.0% | 8.6% | 12.3% | 14.5% | 8.8% | 5.3% | 11.0% |
| Other OPD services | 9,551 | 14,715 | 2,324 | 3,403 | 811 | 1,730 | 1,467 | 1,113 | 533 | 35,647 |
| Total OPD visits | 19,738 | 40,552 | 14,811 | 12,011 | 11,273 | 19,152 | 32,747 | 7,231 | 7,193 | 164,708 |

Source: Department of Public Health, Vientiane Capital

5) Education

Literacy rate of Vientiane Capital was 92% in 2005, which was higher than the national rate of 73%. Male were more literate than female at both capital as well as at national level although the difference between male and female reduced since 1995. It is to be noted that overall literacy rates have increased since 1995 from 85.5% to 91.7% in the capital and 60.2% to 72.7% in the country.

Table 3.3.15: Literacy Rates 1995/2005

| Year | 1995 | | | 2005 | | |
|-------------------|--------|-------|-------|--------|-------|-------|
| | Female | Male | Total | Female | Male | Total |
| Vientiane Capital | 78.9% | 92.2% | 85.5% | 88.1% | 95.3% | 91.7% |
| Lao PDR | 47.9% | 73.5% | 60.2% | 63.2% | 82.5% | 72.7% |

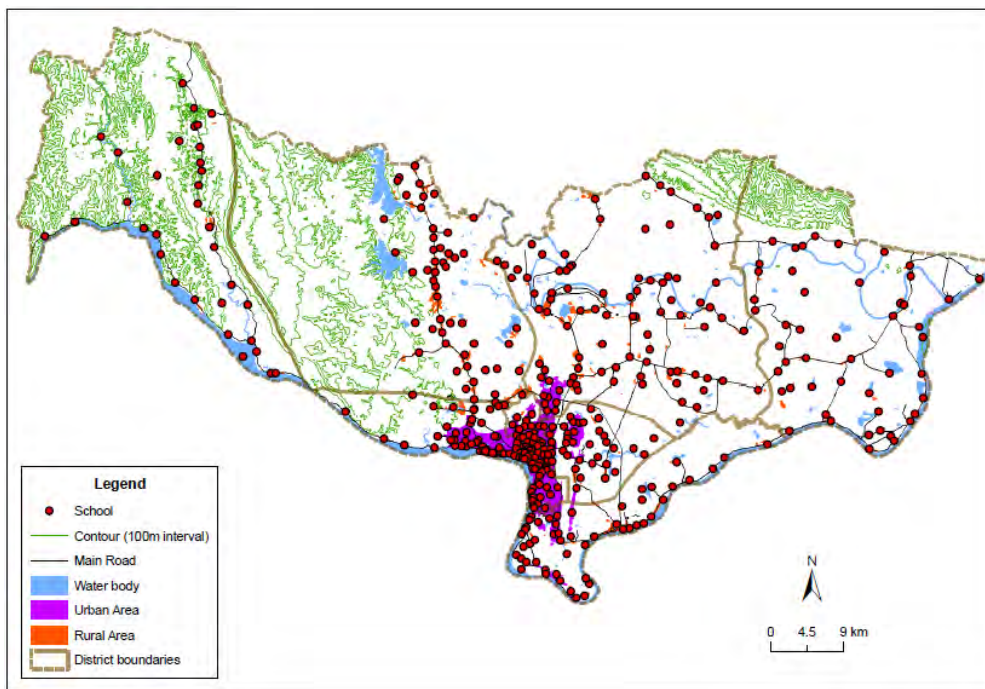
Source: Population and Housing Census 1995/ 2005

From the age of 6 years and above, education is compulsory in Lao PDR. Unfortunately, the result is not 100%. Approximately 26.4% and 8.9% of the persons aged 6 years and above didn't have any basic education in the country and capital respectively. As per Census 2005 statistics, for higher education, such as 'Upper Secondary' level, the successful completion rate widens between the capital and country.

Table 3.3.16: Education Completed 2005 (Aged 6 years and above)

| Year | Basic education | | | Lower secondary | | Upper secondary | |
|-------------------|-----------------|-----------|---------------|-----------------|---------------|-----------------|---------------|
| | None | Primary | | Completed | Not completed | Completed | Not completed |
| | | Completed | Not completed | | | | |
| Vientiane Capital | 8.9% | 15.4% | 20.1% | 10.3% | 10.2% | 15.1% | 5.3% |
| Lao PDR | 26.4% | 15.5% | 30.8% | 6.1% | 7.6% | 5.1% | 3.1% |

Source: Population and Housing Census 2005



Source: National Geographic Office, JST compilation

Figure 3.3.5: Distribution of Schools

(7) Cultural heritage

The Decree on the Preservation of Cultural, Historical and Natural Heritage¹ stipulates three classifications, immovable national heritage, movable heritage and natural heritage, but the criteria of designation are very general. The decree also mentions the inventory works to record the national heritages after every 5 years but few inventory works were done. Considering the conditions of national heritage designations, it is very difficult to investigate and record the local cultural heritages. Vientiane Capital has not done the inventory works yet and has no designated heritages.

According to the No. 174/PM (Prime Minister) of Decree on National Cultural, Historic and Natural Inheritance, there are 15 national heritages designated in Lao PDR. Vientiane Capital has 7 national heritages as follows.

1) National heritages in Vientiane Capital

- i) Thatlouang stupa, ii) Thatlouang temple and surrounding area, iii) Sisaket temple, iv) Hophakeo temple, v) Ongtue temple, vi) Inpeng temple, and vii) Simouang temple

2) National heritages in the other regions

- viii) Louangprabang and Viengsay District
- ix) Champasack ancient temple (Watphou Champasack) with surrounding area
- x) Stone jar and stone jar field area
- xi) Sikottabong stupa with surrounding area
- xii) Inghang stupa with surrounding area

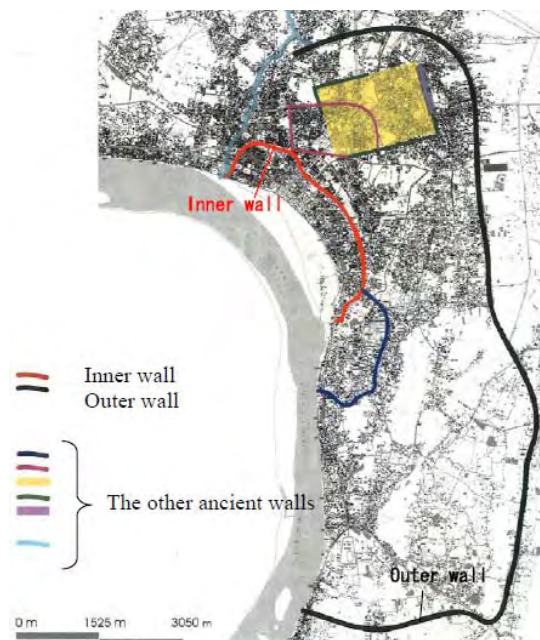
¹ Decree of the President of the Lao People's Democratic Republic on the Preservation of Preservation of Cultural, Historical and Natural Heritage 1997

- xiii) Asa mountain temple (Watphou Asa), Patoomphone District, Champasack Province with surrounding area
- xiv) Stone tunnel (Oubmoung Hin) at Tomo Village, Patoomphone District, Champasack Province with surrounding area
- xv) Thamting Cave (Louangprabang District) with surrounding area

Other important historic heritages are ancient walls which have the inner walls and the outer wall. The first inner wall was constructed around the old city and now has been replaced by roads. The other inner wall constructed at the south of first wall has already been demolished. . Most outer wall are also replaced by roads, however some parts of them are still left.

In addition, Patousai is another cultural monument forming the urban landscape of Vientiane Capital. Patousai was constructed in 1958 for a war memorial and design is a mixture of the Arc de Triomphe and Lao traditional architecture. In the old city, there are many buildings designed using Lao traditional and Colonial styles especially on Setthathirath Road. Those buildings form characteristic urban landscape of Vientiane Capital.

For more detailed cultural heritage refer to Chapter 2.



Source: The Study of Master Plan on Comprehensive Urban Transport in Vientiane, The Project of Inventory Architecture Heritage, Urban and Landscape in Vientiane City (PTI in cooperation with French government) 1999-2003, JST compilation

Figure 3.3.6: The Ancient Walls

3.3.3 Pollution

(1) Air pollution

Air pollution has not been prominent in Vientiane Capital as shown in Table 3.3.17. However, with the number of rapidly increasing vehicles, traffic and congestions, emission of exhaust gas may increase and will be visible in the urbanized area. The air is dusty especially in a dry season as there are many unpaved roads even in the urbanized area. The condition is worse in suburban area. In addition, the

recent increase in economic development activities and constructions can generate more dust. The dust can have a negative impact and can cause respiratory diseases to the local people.

Table 3.3.17: Ambient Air Quality in Vientiane Capital Sep. 2002 – Feb. 2003

| Pollutants | Unit | Range of results | Average of results | Ranges for international standards |
|--------------------------------------|-------------------|------------------|--------------------|------------------------------------|
| TSP: Total suspended particulates | mg/m ³ | 0.082 – 0.296 | 0.165 | 0.33 |
| PM ₁₀ : Particulate mater | mg/m ³ | 0.040 – 0.089 | 0.068 | 0.12 – 0.15 |
| SO ₂ : Sulfur dioxide | mg/m ³ | 0.025 – 0.276 | 0.108 | 0.32 – 0.36 |
| NO ₂ : Nitrogen dioxide | mg/m ³ | < 0.001 – 0.057 | 0.014 | 0.30 |

Source: Lao PDR Environment Monitor 2005, World Bank

(2) Water Pollution

Wastewater quality has not been regularly monitored in Vientiane Capital. Last time in 2002, the samples and data were collected from 15 monitoring stations. The results showed that average of parameters were within the acceptable standards of wastewater discharge. However, some samples exceeded the standards.

As per the JICA study on Improvement of Water Environment in Vientiane City in 2009, the water quality monitoring was conducted and result showed that BOD ranges from about 10 mg/l to less than 30 mg/l even in the dry season (November and December) in the main drainage canals, Hong Ke and Hong Xeng connecting That Luang Marsh. The results were lower than expected considering that those streams were dominated by domestic and commercial wastewaters containing coli form bacterium and fecal coli forms.

Table 3.3.18: Wastewater Quality in Vientiane Capital Jan. – Dec. 2000

| Parameters | Unit | Range of results | Average of results | Standard for Class A* |
|------------------|-------|------------------|--------------------|-----------------------|
| pH | | 6.38 – 8.44 | 7.34 | 6 – 9.5 |
| Conductivity | us/cm | 110 – 782 | 362.62 | |
| Alkalinity | mg/l | 57 – 250 | 175.56 | |
| BOD ₅ | mg/l | 5 – 35 | 14.09 | < 20 |
| COD | mg/l | 70 – 200 | 115.93 | < 120 |
| Temperature | °C | 12.2 – 30 | 24.42 | |

Note: * Standard for wastewater discharge 1998, WREA

Source: Lao PDR Environment Monitor 2005, World Bank

3.4 Involvement of Stakeholders

3.4.1 Working Group Meetings

As mentioned in Chapter 2.8, the working group (W/G) was set up mainly to discuss the topics of urban planning in VC. W/G consists of representatives of PTI, DPWT, DHUP, VC and VUDAA as the core members. There are also members participating from OPWT, WREA, NLMA, DIC, DOIC and DAF.

As the Study proceeded JST studied and proposed alternatives for urban structure plans. At that time, the alternatives of urban structures were presented with likely impacts, compared and discussed in the 5th W/G meeting as described below. For the comparison and evaluation, a spatial SWOT matrix was arranged based on the SWOT matrix discussed in the 2nd W/G meeting. Then the outline of environmental management plan of MP (the Multi-Core System) was discussed in the 7th W/G meeting as mentioned below.

The following main topics were presented and discussed in the W/G meetings.

- 1st meeting: 1) Development Visions, 2) Socioeconomic Framework
- 2nd meeting: 1) Development Visions, 2) Framework of Urban Scenery, 3) SWOT
- 3rd meeting: 1) Development Visions, 2) Framework of Urban Landscape Improvement
- 4th meeting: 1) Development Framework, 2) Urban Structure, 3) Land Use Policy
- 5th meeting: 1) Land Use Plan, 2) Evaluation of Alternatives of Urban Structures
- 6th meeting: 1) Methods for Urban Development
- 7th meeting: 1) Urban Landscape Improvement Guideline for Vientiane Capital, 2) Outline of Environmental Management Plan of MP

3.4.2 Stakeholder Meeting

The 1st stakeholder meeting was held on 12 July 2010 chaired by the Vice Mayor of VC. The meeting was attended by representatives from different organizations such as Vientiane Capital, MPWT (PTI, DHUP, Science and Technology Assembly), VUDAA, DPWT, NLMA, other Departments concerned of VC, District offices, Unions, Associations, Public Service Companies, Lao National University, NGOs, International Donors, Police and Students, etc.

JST explained the Progress Report of the Study, and presented the outline results of the social survey and the feedback to the proposed visions drafted in the Progress Report. The alternatives of the urban structures were compared with likely impacts for social and environmental considerations.

The attendants basically agreed on the development visions, the socioeconomic framework, the basic policy for land use and the urban structure, namely the multi-core structure, which were proposed by JST and the Lao Counterpart. The proposed direction of main urbanization toward Naxaithong District and Xaythany District which will be developed as sub-centers and suburban residential area is suitable for the urban development of VC and the infrastructure development in these urbanizing areas is necessary.

Regarding the social and environmental considerations, the followings were pointed out in the meeting. These opinions were considered in the Master Plan Study.

- In the short term, it is important to control and manage new urban developments and building constructions because the current urbanization in VC seems to be accelerating
- Public parks and green spaces in VC seem to be too small in comparison with other capital cities of the neighboring countries
- The economic growth and the urban development should be consistent with the basic policies of social and environmental considerations. Green areas, water resources, marshes and ponds should be utilized with proper regulations.
- Agricultural activities are also important for VC, therefore it will be necessary to consider how to maintain agricultural areas in the future
- For attracting tourists, it is necessary to control building height, design, color, style and to preserve the existing historic and cultural buildings with specific regulations, especially in the central urban area.

3.5 Comparison and Evaluation of Alternatives of Urban Structures

3.5.1 Recognition of the Current Conditions with Spatial SWOT

JST conducted the SWOT analysis in the 2nd working group meeting as mentioned in Chapter 2.8. Table 3.5.1 is arranged for a spatial SWOT matrix based on the SWOT matrix in Chapter 2.8 with the current conditions in Chapter 2. The spatial SWOT matrix summarizes the spatial aspects of each area to make clear images for comparing urban structure plans.

The points of comparison and evaluation are which alternative can:

- Use (enhancing) the strengths,
- Overcome the weaknesses,
- Seize the opportunities, and
- Mitigate the threats.

Table 3.5.1: Spatial SWOT Matrix



| Item | Historic Conservation Zone Inner Urban Zone | Outer Urban Zone Outskirts Zone | Other Area |
|-----------------------|--|---|---|
| S trengths | <ul style="list-style-type: none"> Better public services & infrastructure Many tourism resources (cultural/historical buildings and landscape) | <ul style="list-style-type: none"> Large available land Proximity to the current urbanized area Lower land rent | <ul style="list-style-type: none"> Large available land Existing urban agglomeration at district centers Lower land rent Productive agricultural land |
| | <ul style="list-style-type: none"> Drainage water is still not much chemically contaminated (almost domestic effluent) Wetland (Dong Chang marsh) performing for open space, landscape, natural drainage system, retarding basin and wastewater purification | <ul style="list-style-type: none"> That Luang Marsh with biodiversity, aquatic products, and as same performances as wetland mentioned at the left column | <ul style="list-style-type: none"> Beauties of nature Wetlands Paddy fields with productivity and as same performances as wetland mentioned at the left column |
| W eaknesses | <ul style="list-style-type: none"> Limited land availability Higher land rent | <ul style="list-style-type: none"> Urban sprawl along the main roads Insufficient public services | <ul style="list-style-type: none"> Insufficient public services |
| | <ul style="list-style-type: none"> Lack of public parks with small scale Little open spaces for public facilities and buildings Lack of roadside plantation Dust spreading | <ul style="list-style-type: none"> Few public parks Dust spreading due to construction works | <ul style="list-style-type: none"> Few public parks |
| O pportunities | <ul style="list-style-type: none"> Growing service industry investment (office/commercial buildings, hotels) Growing number of visitors | <ul style="list-style-type: none"> Increasing demand for manufacturing & logistics related services Demographic growth | <ul style="list-style-type: none"> Surrounded by nature and productive land Increase in demand of agricultural products especially for fresh vegetables and fruit |
| T hreats | <ul style="list-style-type: none"> Land speculation Living environment degradation Increasing traffic congestion & accidents Disappearance of valuable buildings and landscape due to growing rebuilding activities | <ul style="list-style-type: none"> Spreading urban sprawl Living environment degradation Limited international attractiveness of industrial zone for foreign investors | <ul style="list-style-type: none"> Urban sprawl Land speculation Living environment degradation Disappearance of pastoral landscapes |
| | <ul style="list-style-type: none"> Decreasing wetlands (as natural drainage system, retarding basin and wastewater purification) Wastewater pollution due to population and economic growth | <ul style="list-style-type: none"> Deforestation Groundwater pollution (for wells) Increasing development pressures to That Luang Marsh (loss of wetlands as mentioned at left column) | <ul style="list-style-type: none"> Deforestation Decrease of wetlands as mentioned at left column |

Source: JST

3.5.2 Comparison of Alternatives

Two alternatives of urban structures, Multi-core structure and Single-core structure, are proposed and explained in Chapter 4.1. Table 3.5.2, 3.5.3 and 3.5.4 explain likely positive and negative impacts on social and natural environments and pollution in the alternatives and the without case.

Table 3.5.2: Comparison of Urban Structure Alternatives (Social Environment)

| Likely Impacts | Alt-1: Multi-core Structure | Alt-2: Single-core Structure | Without case |
|----------------------|--|---|--|
| Structure |  |  | <p>The without case, no M/P and visions, can cause low population and economic growths, and the weaknesses and threats can be left unsolved.</p> |
| Land Use and Economy | <p>+Positive Impacts</p> <ul style="list-style-type: none"> • Effective land use and spatial use (potential developments of large-scale projects, re-development projects) • Promotion of urban redevelopment projects (relocations of the government buildings from the urban center, promotion of redevelopment investments) • Increase of job opportunities and income generation • Enhancement of agricultural productivities • Enhancement of commercial & tourism attractiveness with conserved historic buildings & townscape | <p>+Positive Impacts</p> <p>The followings are expected to a certain extent.</p> <ul style="list-style-type: none"> • Promotion of urban development projects: private-sector-driven plans and projects • Increase of job opportunities and income generation <p>-Negative impacts</p> <p>The existing mixed land use in the urban center can raise:</p> <ul style="list-style-type: none"> • Inefficient land use • Limitation of re-development • Land speculation and urban development without providing proper infrastructure • Degradation of attractive commercial district and tourist site. • Deteriorations of urban landscape | <p>-Negative impacts</p> <p>The alternative can further the same impacts as on the left and</p> <ul style="list-style-type: none"> • Stagnation of economic growth and infrastructure development. |

| | | | |
|--------------------|--|---|--|
| Living Environment | <p>+Positive Impacts</p> <ol style="list-style-type: none"> 1) Traffic in the urban areas <ul style="list-style-type: none"> • Multi-cores can disperse traffic and it can reduce the congestion in the urban areas (urban center, sub-centers and urban clusters) • The sub-centers can shorten the travel time in commuting, to take commercial and social services for peoples living around them 2) Water supply/Waste water systems <ul style="list-style-type: none"> • Easier planning to develop the systems • Extensive development in the multi-cores can enhance effective water supply and waste water treatment 3) Solid waste management <ul style="list-style-type: none"> • Easier planning for the collection service and final disposal (target areas are clear) 4) Others <ul style="list-style-type: none"> • Conservation of urban landscape and historical buildings • Effective disaster prevention measures in the land use zoning | <p>-Negative impacts</p> <p>Degradation of living environment</p> <ol style="list-style-type: none"> 1) Traffic in the urban areas <ul style="list-style-type: none"> • The mixed land use can increase traffic congestion in the urban center 2) Social infrastructure <ul style="list-style-type: none"> • Social infrastructure cannot be developed effectively in disordered urban development areas (sprawl areas). 3) Others <ul style="list-style-type: none"> • Difficulties for disaster prevention measures in the mixed land use | <p>-Negative impacts</p> <p>The alternative can further the same impacts as on the left due to inappropriate local infrastructure development.</p> |
| Resettlement | <p>-Negative impacts</p> <p>Redevelopment and new development projects can raise:</p> <ul style="list-style-type: none"> • Involuntary resettlement • Community division • Misdistribution of benefit and damage • Local conflict of interests • Degradation of household economies of poor, indigenous and ethnic people • Land use and utilization of local resources • Social infrastructure • Cultural heritage • Traffic Congestion • Sanitation | <p>-Negative impacts</p> <p>The ongoing development projects can raise:</p> <ul style="list-style-type: none"> • Involuntary resettlement • Community division • Degradation of household economies of poor, indigenous and ethnic people | <p>-Negative impacts</p> <p>The alternative cannot appropriately handle:</p> <ul style="list-style-type: none"> • Involuntary resettlement • Community division • Degradation of household economies of poor, indigenous and ethnic people |
| Investment Cost | <p>-Negative impacts</p> <p>The alternative requires large amount of initial public investment cost.</p> | <p>+Positive Impacts</p> <p>The alternative requires smaller amount of initial public investment cost.</p> | <p>+Positive Impacts</p> <p>The alternative requires the smallest amount of public investment cost.</p> |

Source: JST

Table 3.5.3: Comparison of Urban Structure Alternatives (Natural Environment and Pollution)

| Likely Impacts | Alt-1: Multi-core Structure | Alt-2: Single-core Structure | Without case |
|---------------------|--|--|---|
| Natural Environment | <p>+Positive Impacts Disordered developments are controlled to reduce pressure on the natural environment and it can raise conservation level. 1) Conserved forests can further conservations of: <ul style="list-style-type: none"> • Flora, fauna and biodiversity • Wild products 2) Conservation of marsh/swamp area can contribute conservations of: <ul style="list-style-type: none"> • Flora, fauna and biodiversity • Aquatic resources and products for the local people • Natural drainage system, flood protection and purification of wastewater 3) Conservation of paddy fields can maintain higher-productivity & natural flood control basin</p> | <p>-Negative impacts The existing threats due to disordered industrial and urban development pressures are still left. Several Conservation areas are included in the CBD. Potential loss of natural environment is still left due to urban development pressure.</p> | <p>-Negative impacts Conservation areas can be deteriorated and decreased by disordered industrial and urban developments.</p> |
| | <p>-Negative impacts Industrial and urban developments can raise adverse impacts on: <ul style="list-style-type: none"> • Flora, fauna and biodiversity • Climate change but less than the Alt-2 because development is controlled in limited area and conservation is promoted </p> | <p>-Negative impacts This alternative can further: <ul style="list-style-type: none"> • Loss or degradation of flora, fauna and biodiversity • Deforestation • Loss of marshes/wetlands • Inundation • Climate change </p> | <p>-Negative impacts The alternative can gradually further the same impacts as on the left.</p> |
| Pollution | <p>+Positive Impacts In the long term, waste water quality can be improved due to improvement of public infrastructure with intensive development.</p> | <p>-Negative impacts The Alt. can further water pollution due to population and industrial growths without appropriate treatment.</p> | <p>-Negative impacts The Alt. can further water pollution due to gradual population and industrial growth without appropriate treatment.</p> |
| | <p>-Negative impacts In the short term, several pollutions are temporally expected especially in construction period. <ul style="list-style-type: none"> • Air pollution • Water pollution • Noise and vibration • Offensive odor </p> | <p>-Negative impacts Same impacts can be expected as on the left.</p> | <p>-Negative impacts Same impacts can be expected as on the left but less.</p> |

Source: JST

3.5.3 Evaluation of Alternatives

The alternatives were evaluated through comparison, and the Multi-core structure was proposed for the urban structure of MP. The evaluation is described in Table 3.5.4.

The Multi-core structure gives clear role allotments for the urban center, the sub-centers and urban clusters and controls development activities in the designated urban areas and promotes effective land use, and consequently conserves historic area, nature and agricultural areas. Population density is also controlled to be appropriate with the building control regulations in these urban areas. Therefore, the Multi-core structure is evaluated for the appropriate urban structure of the MP.

Table 3.5.4: Evaluation of Urban Structure Alternatives

| Item | Alt-1: Multi-core Structure | Alt-2: Single-core Structure | Without case |
|---------------------|--|---|--|
| Evaluation | <p>The Multi-core structure gives clear role allotments for the urban center, the sub-centers and urban clusters in order to control development activities in the designated urban areas and promote effective land use, consequently to conserve historical area, nature and agricultural areas. Appropriate density is also controlled with the building control regulations in these urban areas. The alternative will provide positive impacts on both socio-economy and natural environment with mitigation measures over the negative impacts. Therefore, this is evaluated for the appropriate option of the urban structure aiming to the development visions*.</p> | <p>This alternative has only advantage in the smaller initial public investment cost. However, negative impacts in social and natural environments are expected more than the Alt-1. Urban sprawl areas can grow without development control. Public services cannot be provided properly for the urban sprawl areas. Besides, more costs will be required for recovering both natural and social environments. This alternative has inefficient mixed land uses, which allows large-scale developments, in the urban center which is too large to be managed and controlled properly. Private-sector-driven development activities have difficulty to conserve environments. Therefore, this is not recommended.</p> | <p>The without case has only advantage in the smallest initial public investment cost. However, negative impacts in social and natural environments are expected to a certain extent without development control and the recovery cost will be high.</p> |
| | Recommended Alt. for the urban structure | Un-recommended Alt. | Inappropriate |
| Mitigation Measures | <ul style="list-style-type: none"> ■ Construction costs of sub-centers and urban clusters should be reduced with well-conceived planning (effective phasing and implementation). ■ Land acquisition and resettlement plans should be properly designed, implemented, and those activities are monitored and evaluated. ■ Industrial and urban developments should be controlled under the land use zoning and regulations, and evaluated with EIA procedure. ■ Potential pollutions during construction period should be reduced by construction management, monitoring and evaluation. | | |

Note: Vision 1: Regional Hub in the GMS, Vision 2: Center of the Nation, Vision 3: Comfortably Livable and Beloved Hometown
Source: JST

3.6 Outline of Environmental Management Plan (EMP)

Tables 3.6.1, 3.6.2 and 3.6.3 outline the Environmental Management Plan (EMP) for the Multi-core structure proposed for the MP. The EMP of the Multi-core structure covers many types of urban development in VC. JST assumed anticipated projects to build the Multi-core structure in VC such as follows.

- Infrastructure developments: constructions of roads, railways, facilities of water/power supply, wastewater treatment, drainage, solid waste management
- Relocation of the Government buildings
- Regulation on new construction of large-scale factories within the urban center
- Commercial and office building constructions
- Tourism developments
- Industrial developments (factory constructions) within Sub-center area
- Housing developments
- Parks, open spaces and greenery developments

There are three phases; before implementation (design phase), implementation (construction phase) and after implementation (operation phase), and basic policies of the EMP are proposed for each phase to counter the expected negative impacts. Before implementation (design phase), any projects are planned to avoid negative impacts both on natural and social environments. If some negative impacts are expected, efforts are considered to minimize those as much as possible by project proponents and relevant governments. In implementation (construction phase), construction activities are managed and monitored by contractors and relevant governments or authorities. After implementation (operation phase), all operation activities of both public and private sectors are monitored and instructed by internal and external organizations.

Table 3.6.1: Before Implementation (Design Phase)

| Negative Impacts | Management Plan |
|--|---|
| <ul style="list-style-type: none"> ■ Involuntary Resettlement ■ Degradation of household economies of poor, indigenous and ethnic people | <ul style="list-style-type: none"> □ Follow the resettlement technical guideline with decrees of No. 192/PM and 112/PM □ Any projects are designed to avoid and minimize the land acquisition and involuntary resettlement □ Public consultations are organized to explain land acquisition and resettlement activities for the PAPs □ Initial Social Impact Assessment (ISA) or Social Assessment (SA)/Resettlement Plan (RP), Ethnic Minority Development Plan (EMDP) are prepared as necessity |
| <ul style="list-style-type: none"> ■ Land use and utilization of local resources | <ul style="list-style-type: none"> □ Projects follow the Land Use Zoning of Master Plan, legislations, and are assessed with EIA procedure to be properly controlled |
| <ul style="list-style-type: none"> ■ Misdistribution of benefit and damage ■ Local conflict of interests ■ Community Division | <ul style="list-style-type: none"> □ Public consultations and discloser of information are held since early design phase to facilitate understandings of stakeholders about the project benefits and negative impacts |
| <ul style="list-style-type: none"> ■ Social infrastructure | <ul style="list-style-type: none"> □ Relocation plans are designed for the public facilities and utilities affected by the project through coordination with relevant institutions and utility companies |
| <ul style="list-style-type: none"> ■ Cultural heritage | <ul style="list-style-type: none"> □ Follow the guideline of Urban Landscape in the MP □ If cultural heritages are found in project sites, the plans are designed to avoid and minimize the impacts |
| <ul style="list-style-type: none"> ■ Flora, fauna and biodiversity | <ul style="list-style-type: none"> □ Plan to build public parks, open spaces and greenery according to the MP □ Plan to build green spaces and |

Source: JST

Table 3.6.2: Before Implementation (Construction Phase)

| Negative Impacts | Management Plan |
|--|---|
| ■ Misdistribution of benefit | <ul style="list-style-type: none"> <input type="checkbox"/> Give job opportunities whether directly or indirectly especially to local communities in project sites as much as possible |
| <ul style="list-style-type: none"> ■ Social infrastructure ■ Cultural heritage | <ul style="list-style-type: none"> <input type="checkbox"/> Construction methods are designed to minimize impacts on the structures and users of public facilities and cultural heritages, which are due to noise and vibration from heavy construction machineries and vehicles |
| ■ Traffic Congestion | <ul style="list-style-type: none"> <input type="checkbox"/> Sufficient traffic management staff are provided to control traffic and they coordinate with local government and police offices to minimize the traffic congestion <input type="checkbox"/> Mobilization/demobilization routes of construction vehicles are planned and scheduled to avoid busy traffic hours <input type="checkbox"/> Temporary signs can be installed for the traffic control |
| ■ Flora, fauna and biodiversity | <ul style="list-style-type: none"> <input type="checkbox"/> Felling of trees due to the construction activities are basically re-planted in order to maintain in urban greenery landscape |
| ■ Sanitation | <ul style="list-style-type: none"> <input type="checkbox"/> Dust, waste water and garbages from the construction sites are managed by the measures mentioned below |
| <ul style="list-style-type: none"> ■ Air pollution ■ Offensive odor | <ul style="list-style-type: none"> <input type="checkbox"/> Construction materials are not piled up for a long time <input type="checkbox"/> Installation of temporary cover over bulk materials and fences at the surroundings of construction yards <input type="checkbox"/> Periodical watering and cleansing in the construction yards <input type="checkbox"/> Cover transportation trucks carrying the bulk materials to reduce dust spread to the exterior |
| ■ Water pollution | <ul style="list-style-type: none"> <input type="checkbox"/> Wastewater produced by the construction activities meets the water quality standards before discharging <input type="checkbox"/> Collect residue/lubrication oils and chemical liquid in a drum, and send those to authorized agencies for waste treatment <input type="checkbox"/> Storage those at adequate location which can be protected from rain and inundation |
| ■ Waste | <ul style="list-style-type: none"> <input type="checkbox"/> Install trash cans and instruction signboards for the labors <input type="checkbox"/> Prepare temporary dumping sites of the surplus soil and demolished waste to be properly settled in the construction sites and properly discharged to the designated sites |
| ■ Noise & Vibration | <ul style="list-style-type: none"> <input type="checkbox"/> Construction equipment with lower noise & vibration emission are used as much as possible <input type="checkbox"/> Routine maintenance of vehicles and heavy equipments <input type="checkbox"/> Consideration of the operation route, time and driving speed of construction vehicles. <input type="checkbox"/> Installation of temporary fences at the construction yards |

Source: JST

Table 3.6.3: After Implementation (Operation Phase)

| Negative Impacts | Management Plan |
|---|---|
| <ul style="list-style-type: none"> ■ Sanitation (waste) | <ul style="list-style-type: none"> □ Expanded solid waste collection service and the sanitary landfills can maintain sanitation |
| <ul style="list-style-type: none"> ■ Flora, fauna and biodiversity ■ Climate change | <ul style="list-style-type: none"> □ Well-maintained urban parks, open spaces, greenery, wetlands and conservation areas can minimize adverse impacts due to the urbanization |
| <ul style="list-style-type: none"> ■ Water Pollution | <ul style="list-style-type: none"> □ In the short term, installations of Community Based Wastewater Treatment Systems , septic tanks and well-maintained wetlands will contribute minimizing water pollution □ In the long term, centralized wastewater treatment plants will minimize water pollution together with them noted above □ Wastewater produced by industry is treated before discharging and monitored according to the water quality standards |

Source: JST



Appendix 4

Urban Landscape Improvement

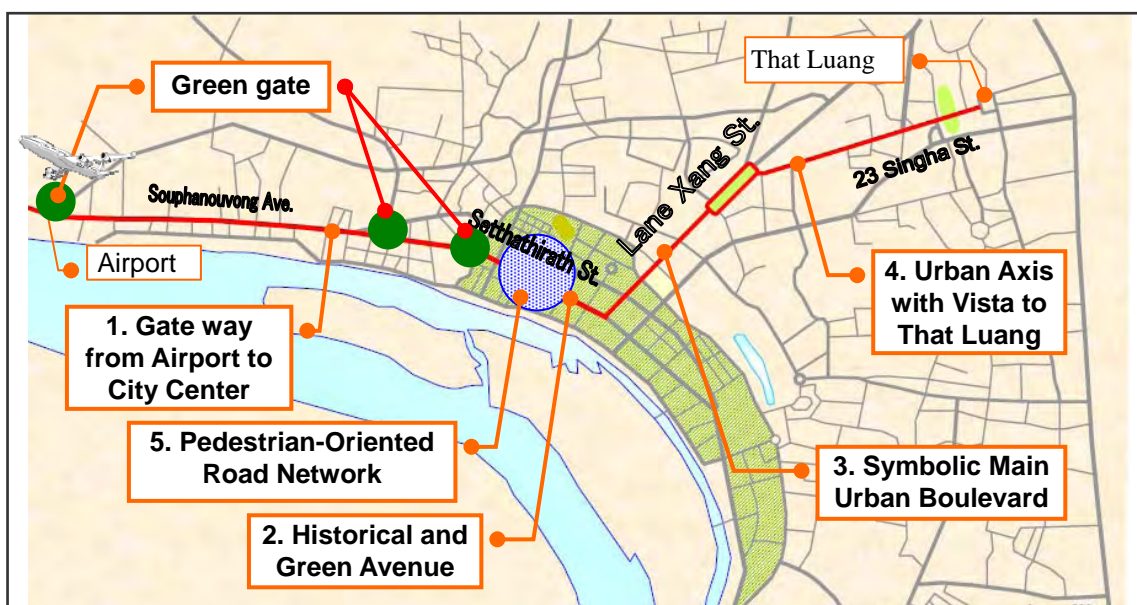
APPENDIX 4: URBAN LANDSCAPE IMPROVEMENT

4.1 Urban Landscape Design Concept for Model Streets

In this section, urban landscape design concept for model streets and area is described below which used for the Visual Presentation which displayed during the seminar on sustainable urban development for Vientiane 450th anniversary celebration.

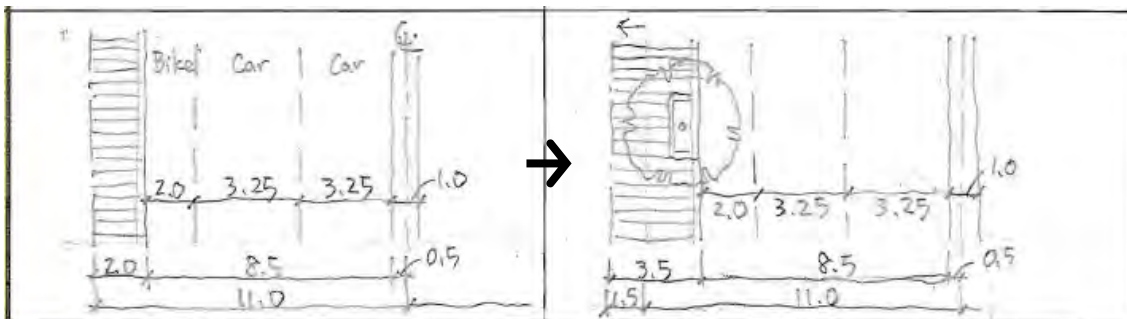
4.1.1 Urban Landscape Design Concept for Model Streets

| Street / Area | Design concept |
|---|--|
| 1. Souphanouvong Ave. (Luang Prabang Rd.) | Gate way from the Airport to the City Center To create “Sense of Arrival” with green gates at the Airport, Fa Ngum Square and Wat Impeng corner. |
| 2. Xethatthirath St. | Historical and Green Avenue To protect historic and traditional urban landscape along the street. |
| 3. Lane Xang Ave. | Symbolic Main Urban Boulevard To create symbolic and dignified boulevard |
| 4. 23 Singha St. | Urban Axis with Vista to That Luang To create symbolic vista to the That Luang |
| 5. Guest house area | Pedestrian-Oriented Road Network To create safe, comfortable and bustle pedestrian-oriented road network |



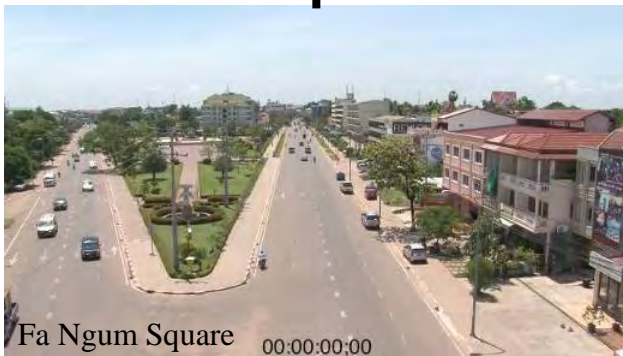
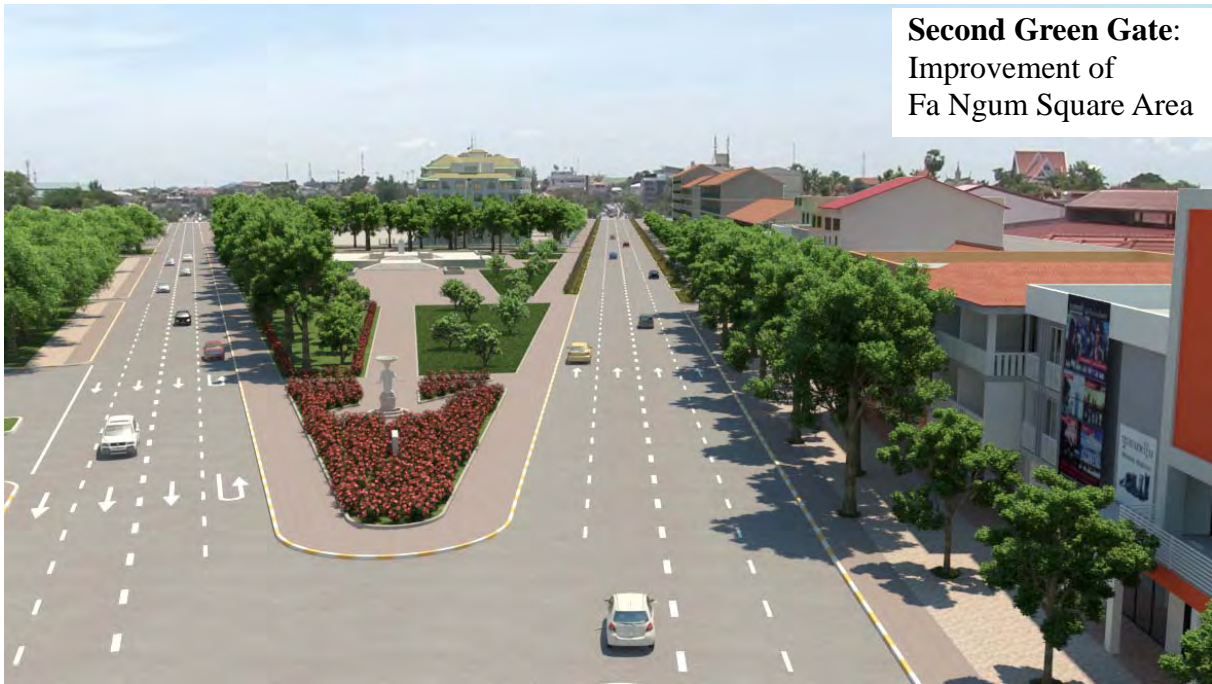
4.1.2 Image of the model streets and area

| 1) Souphanouvong Ave. (Luang Prabang Rd.) | |
|---|---|
| Basic Concept | Gate way from the Airport to the City Center To create "Sense of Arrival" with green gates at the Airport, Fa Ngum Square and Wat Impeng corner. |
| Image | - Create Green City Gate - Widen sidewalk to |
| Lane | No change (Vehicle *4, Bike*2) |
| Side walk | Widen 2m x 2 >> 3.5m x 2 (Widen into setback area) |
| Plant | Gate Park: Big size trees to create green gate for city center |
| Utility Pole | Move to Road Boundary |
| Building Guideline | Height and Setback line |



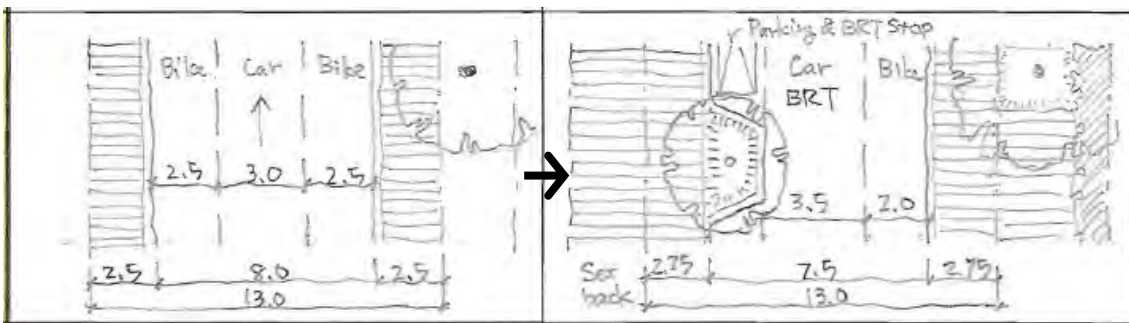
First Green Gate:
Improvement of
the landscape of the Airport

**Second Green Gate:
Improvement of
Fa Ngum Square Area**



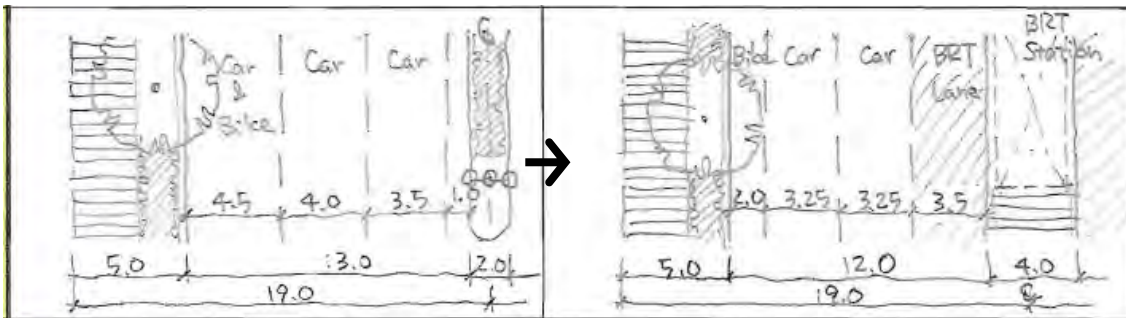
**Third Green Gate:
Improvement of
Wat Impeng Intersection**

| 2) Xethatthirath St. | |
|----------------------|---|
| Basic Concept | Historical and Green Avenue To protect historic and traditional urban landscape along the street. |
| Image | Widen northern side walk to plant Trees and set parking space BRT lane will be defined. |
| Lane | Vehicle *1, Bike *2 >> Vehicle & BRT *1, Bike *1, Plant, Parking & BRT bus stop *1 |
| Side walk | Existing (2.5m*2) |
| Plant | Plant medium size trees in northern side walk |
| Utility Pole | North side: Distribute from backyard, South side: Distribute from side |
| Building Guideline | Historical urban landscape design control Setback space design |



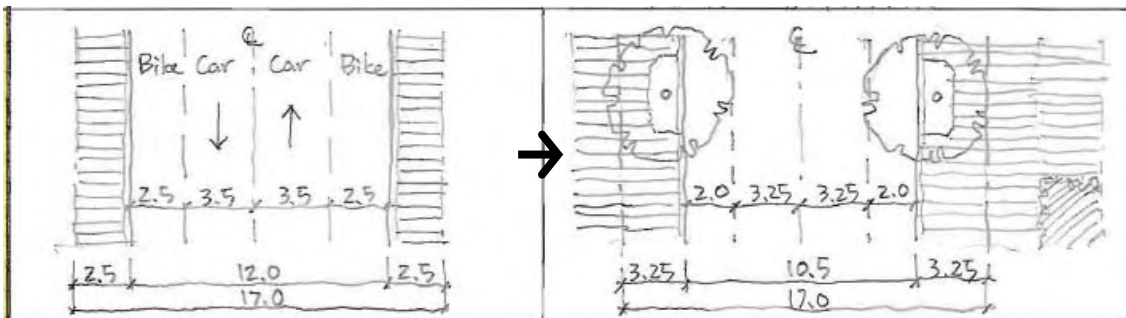
3) Lane Xang Ave.

| | |
|----------------------|--|
| Basic Concept | Symbolic Main Urban Boulevard To create symbolic and dignified boulevard |
| Image | BRT Lane Installation |
| Lane | Vehicle*6 to Vehicle *4 Bus *0 >> BRT *2. Bus station 3m |
| Side walk | Existing (5m*2) |
| Plant | Replant higher trees |
| Utility Pole | Distribute from backyard |
| Building Guideline | ZPPUa: Conservation, Ua: Height & Setback |



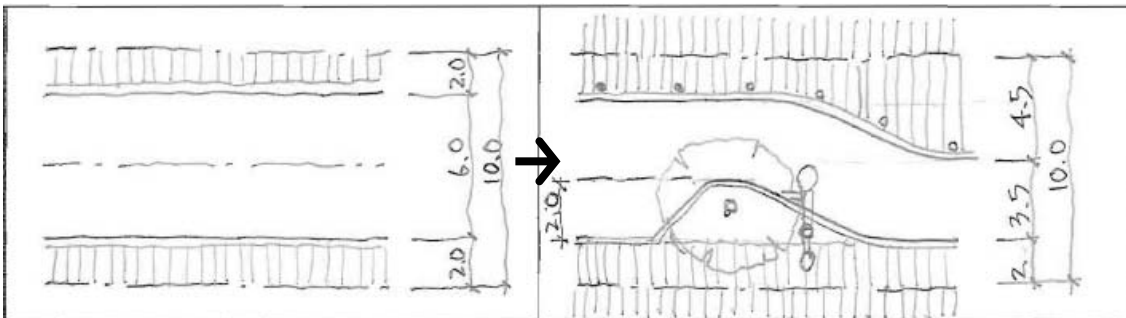
4) 23 Singha St.

| | |
|----------------------|--|
| Basic Concept | Urban Axis with Vista to That Luang To create symbolic vista to the That Luang |
| Image | Widen side walk to plant trees to provide leafy shade |
| Lane | Width of Bike reduce 3m to 2m |
| Side walk | Widen 2.5m*2 to 3.5m*2 |
| Plant | Plant shrub along side walk edge |
| Utility Pole | Underground line or move to road boundary |
| Building Guideline | Setback line Setback space design |



5) Guest house area (Francois Nginn St.)

| | |
|----------------------|--|
| Basic Concept | Pedestrian-Oriented Road Network To create safe, comfortable and bustle pedestrian-oriented road network |
| Image | Widen pedestrian space and plant trees for shade |
| Lane | Vehicle *2 >> Vehicle *1, Add Parking and Plant Space |
| Side walk | Widen 2m*2 >> 2.5m*2 |
| Plant | Plant medium size trees |
| Utility Pole | Underground line or distribution from backyard |
| Building Guideline | Historical urban landscape design control Setback space design |




NIPPON KOEI CO., LTD.
INTERNATIONAL DEVELOPMENT CENTER OF JAPAN.
PACET CORP.
ORIENTAL CONSULTANTS CO., LTD.

4.2 Urban Landscape Guideline for ZPP-Ua

4.2.1 Comparison between Luang Prabang and Vientiane Capital Guideline

Table 4.2.1: Comparison between Luang Prabang and Vientiane Capital Guideline

| The Heritage Preservation And Development Master Plan (P.S.M.V) | | | Existing Building Regulation in Vientiane Capital | |
|--|--|--|---|---|
| Article | Outline of contents | | Article | Outline or comment |
| TITLE 1 Graphic Documents of the ZPP-Ua | | | | |
| SECTION1 Scope of prescriptions of the legend of the Graphic Document | | | | |
| Article 1 | Zoning of the Area | | | |
| Article 2 | General prescriptions concerning zones of the Area | | | |
| Article 3 | Scope of prescriptions on buildings | 1. Buildings included in the inventory of P.S.M.V. (1) Buildings of the Inventory constitutive of the dossier of presentation of the site of Luang Prabang City to the World Heritage of U.N.E.S.C.O. (in black in the plan) (2) Buildings to be preserved and restored (in red in the plan) 2. Buildings not included in the inventory of P.S.M.V. (1) Buildings worth to be preserved and restored (2) Buildings which can be replaced (3) Buildings perturbing urban landscape 3. Archeological vestiges | No Graphic Document | Same kind of prescription is necessary for UPP-Ua in Vientiane Capital. Though there should be additional research to determine these prescription. |
| Article 4 | Scope of prescription on public domain | Road system: Public equipment: Plantations: Plantations should respect principles mentioned in the "Fascicle no 5: Fences & Vegetation" | No article | |
| Article 5 | Scope of prescriptions on spaces not approved for development | Those spaces, which can not be approved for development marked on Graphic Documents, will be by nature preserved in original state. Existing buildings: Constructions, works or warehouses: Vegetation: Archeological explorations: | No article | Same kind of prescription is necessary for UPP-Ua in Vientiane Capital. Though there should be additional research to determine these prescription. |
| Article 6 | Drainage | | | |
| Article 7 | Conditions for a building Land (authorized land for construction) | | No article | |
| Article 8 | Perimeter protection of and prospect | A zone of protection is established around the enclosure of monasteries. This protection zone will be composed of:  | No article | Same kind of protection measure for historical and cultural heritage is necessary for Vientiane Capital. |
| Section 2 | List of particular architectural prescriptions and content of prescriptions | | No article | |
| | Detailed prescriptions are written in this section. | | | Detailed prescriptions for particular architecture should be studied in separate study. |
| Section 3 | List of spaces submitted to Particular Prescriptions and content of prescriptions | | No article | |
| | Pavement of the land is designated on the Master Plan Map and detail is describes in the "Fascicle no 6: Road" | | | |
| Section 4 | List of Reserved locations | | No article | |
| | Location of Parking and Markets are designated on the Master Plan Map | | | |
| Section 5 | List of plantations to be implemented | | No article | |

| | | | |
|--|---|--|---|
| | | | Greenery master plan is described in section 4.3.6. |
| TITLE II Regulation of the ZPP-Ua | | | |
| SECTION 1 Characteristics of activities of the ZPP-Ua | | | |
| Article 1 | Activities admitted | <ul style="list-style-type: none"> - Individual residence, collective residence with three apartments at maximum - Hospitality business: small hotels and guesthouses; - Commercial activities (including trades and open-air markets); - Handicraft activities; - Service activities; - Public services. | Article 2 Permitted Activities <ul style="list-style-type: none"> • Single house, communal house, row house, hotel and restaurant. • Public building such as: school, hospital, cultural center, government office, religion building, sport center, commercial building. • Transport station, public parking, service activities and others. • Clean and un-treat small scale handicraft activities have area less than 300 square meters. |
| Article 2 | Activities prohibited | <ul style="list-style-type: none"> - Noisy or polluting activities (Vehicles repair shops, discotheques, fuel stations); - Big hotels (existing hotels are not concerned by this prohibition); - Manufacturing facilities; - Workshops with more than 100 m2; - Shops with an area of more than 100 m2 and warehouses with an area of more than 100 m2; - Professional production of poultry and swine (poultry raising for no more than 20 heads for family consumption is tolerated). - Traffic prohibited for trucks of more than 3.5 tons, buses and public transport vehicles with a capacity more than fourteen seats. In order to allow deliveries, road service to a port and construction yards, traffic of trucks more than 3.5 tons could be authorized by exemption upon the conditions defined by the administration. - Parking in public domain (from eight a.m. to seven p.m.) outside zones reserved for this purpose of all motorized vehicles, except bicycles and “tuk-tuks”; - Parking in private land of trucks, buses and public transport vehicles with capacity more than fourteen seats. - Installation of advertisement boards, banners and other installations are prohibited. (This prohibition does not concern those public information boards and temporary installations for less than seven days. | Article 1 Prohibited Activities <ul style="list-style-type: none"> • All three categories of factory industrial activities, warehouse and storage have area more than 100 square meters and prohibit for extension the existing. • All polluted and treated activities that create disaster in town such as: Vehicle repairing, gas storage, chemical storage, workshop, polluted factories, and unused iron dumping and other. • Taxi and public transport over 25 seats, parking for heavy truck is prohibited. |
| SECTION 2 Characteristics of activities of the ZPP-Ua | | | |
| Article 3 | Access and roads | 3-1. A plot of land is allowed for construction if it is: <ul style="list-style-type: none"> - Connected to a public road; - Linked to a public road by an existing private passage, which can be used by duly established rights. 3-2- all enclosed plots are not allowed for construction 3-3- All private passage created in order to make a plot not enclosed, will be 3 m large if the width of the roadway of the public road to be connected is more than 3 m. | Article 3 Road and Access Road 3-1, 3-2 are the same. 3-3 Lane’s wide must be at least 4 meters. In case of cut de sac lane, its lengths must less than 50 meters. Access road must follow to detail plan, and it must be approved by Urban Management Authority. |
| Article 4 | Service by networks (Infrastructure networks) | 4-1- To be allowed for construction a plot should be able to be connected to networks under responsibility of competent authorities. Those networks are: <ul style="list-style-type: none"> - Water supply network; - Electricity network; - Network for evacuation of rain waters (stream and roof water); - Network for evacuation of waste water. 4-2- Conditions for connections: | Article 4 Infrastructure networks |
| Article 5 | Characteristic s of plots | 5-1- All plots situated on a band of 15 m in depth against the limit of the highest waters (annual flood) of Nam Khan or Mekong rivers can not be constructed. 5-2- Flooded plot can not be constructed. 5-3- Embankment works for more than 1.5 m thick are | Article 5 Shape of Plot |

| | | | | |
|--|--|--|------------|---|
| | | prohibited. 5-4- To be allowed for construction, a plot must not be indicated as can not be constructed on the graphic document of P.S.M.V.. 5-5- To be allowed for construction, a not built plot must have a minimal width of 8 m and a minimal area of 150 m ² . | | |
| Article 6 | Settlement of buildings against roads | | Article 6 | Building Line Compare to Road, Right of Way (R.O.W.) and Drainage System. |
| Article 7 | Settlement of buildings Against separating limits | | Article 7 | Set back and Margin |
| Article 8 | Settlement of constructions one with regard to the other on the same plot. | | Article 8 | Buildings in One Plot |
| Article 9 | Coverage on the ground | | Article 9 | Ground Coverage |
| Article 10 | Maximum height | | Article 10 | Building High and Ground Surface Level |
| Article 11 | External aspect | Any new building will be constructed by respecting the characteristics of one of those architectural models listed in the” Fascicle no 1: Architectural types”, 11-1- Volumetric 11-2 Shutters 11-3 Materials Covers: Walls: Carpentry: 11-4- Colors 11-5- Protrusions 11-6- Panels and Sign Boards 11-7- Lighting 11-8- Fences and Portals | Article 11 | Appearance of a Building Detail is described only design of fence in this article. Other items are not described in detail. It is necessary to describe |
| Article 12 | Parking | Reserved locations shown in graphic documents of the Master Plan. | Article 12 | Car Parking: Regulation of Number of car parking is described by activities. But it should be revised to meet existing situation. |
| Article 13 | Open spaces and plantations | | Article 13 | Open Space and Tree Planting: Same regulation |
| SECTION 3 Condition of occupation of the soil | | | | |
| Article 14 | Land Occupation Coefficient | | Article 14 | Plot Ratio (COS) |
| Article 15 | Exceeding of Land Occupation Coefficient | | Article 14 | Plot Ratio (COS) |

Source: Luang Prabang Heritage Preservation and Development Master Plan, JST

4.2.2 Items to be added into and controlled in the existing Guideline

Based on the above comparison, regulation of certain items should be added into the existing Guideline for Vientiane Capital and controlled to make landscape more beautiful and attractive. The items be summarized as bellow;

- Building design (including the design of roofs, window roofs, protrusions, shutters, exterior materials, color, fences and portal)
- Setback area design (including pavement, plants and street furniture)

- Signboard design (Size, material, color and design)
- Nightscape design (Lighting design at night)

4.2.3 Proposed Urban Landscape Improvement Guideline in ZPP-Ua

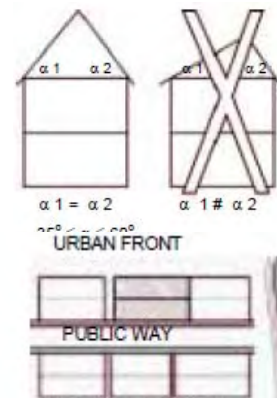
In this section, regulation of additional items for Landscape Improvement Guideline for ZPP-Ua is described.

(1) Building design

Detailed building design guidelines are necessary to conserve and improve the urban landscape in Vientiane Capital.

(a) Roof

Slope of roofing of new buildings will be regulated in order to respect usual slopes (between 35 and 60 degrees) of the traditional architectural . Slopes of principal roofing of new construction must be basically symmetric.



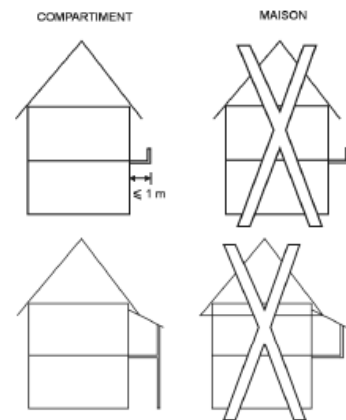
The ridge of a roof of building should be in parallel with the road, and in parallel with the course of the Mekong and elsewhere except in case of impossibility due to the shape of the plot. “Roof Terrace” should not be allowed.

(b) Protrusions

Protrusions of a new building will be drawn in due respect to the characteristics of the historical architecture.

i) Balcony

For buildings with mixed usage (commercial and habitation) of compartment in row-house type or semi-detached house type (terrace house), wooden balcony is recommendable with a maximal protrusion of 1 m.



ii) Veranda

For buildings with habitation usage only, verandas will be permissible on condition that the support structure goes from the ground floor.

Verandas without support structure are prohibited.



iii) Loggia

For commercial buildings, loggias are allowed if their support structure goes from the ground floor.

Overhang loggias will be prohibited.

iv) Baluster or guardrail

The design of balusters and guardrails must correspond to historical architectural design.

Guardrails and balusters of loggia, balcony and verandas will be either wooden or of masonry.

The precast concrete or glazed earthenware of balusters and guardrails will be prohibited.

v) TV antenna

TV Antennas (rake and parabola) must be installed in a manner to be out of sight from public areas.

iv) Air Condition Apparatus

Air conditioning apparatus must be installed in manner to be out of sight from public spaces.

They must be at least 1.5 m away from the windows of buildings in adjoining plots.

v) Pipes

The laying of pipes of water supply and/or wastewater (including blue PVC pipes) and wiring of power on the façade of buildings will be strictly prohibited. Notwithstanding metal pipes for storm drainage could be put on.

(c) Eave or Window roof

For a middle rise building of more than 3 stories have to install eave or window roofs to keep the traditional urban landscape of old Vientiane Capital.



(d) Shutter

The openings (windows and doors) of a new building will be designed in accordance with the proportions and details of historical architecture model chosen.

In general shutters must be higher than width and be in rectangular form.

(e) Walls

All construction material (except wood and bamboo) for walls should be covered by plaster or other lusterless material. Mirror-glass for walls should be prohibited to conserve historical landscape.

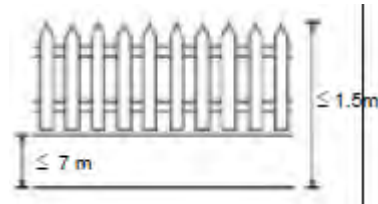
(f) Materials

Traditional materials, manufactured locally or imported, must be used with a priority. Different construction materials will be produced in conformity with traditional methods. The use of materials such as concrete, stone and/or steel may be accepted on condition that they are not too conspicuous.

(g) Fences & Portal

The maximum height of the fence will be 1.5 meters. Height limit of the basement should be less than 0.7 m.

Fences and portals will be made in respect for traditional design. Authorized materials will be wood, bamboo, natural vegetal elements (braiding, caning), coated masonry. The prohibited materials will be metallic fence, lattice or grill, iron sheets, readymade concrete elements, grills and barbed wire.



(h) Color

Colors of exterior mortar and plaster part will be chosen among those laid on the palette of traditional colors or natural colors shown in Table 4.4.3.

The roof will meet the following requirements:

- For the clay tile, natural color without varnish or glossy finish.
- For other materials: natural color without varnish or paint.

The external woodwork will be painted with colors chosen from those on the palette of traditional colors or natural colors. They can also be wood natural color. The external woodwork shall in no case be varnished.

The use of bright color and gold will be prohibited except for religious buildings.

The paintings and plaster of protected buildings will be renewed in conformity with their original color and provisions.

Table 4.2.2: Sample of the Palette of traditional colors or natural colors

| Painting and plaster | | | | | |
|----------------------|--|--|--|--|--|
| | | | | | |
| Carpentry | | | | | |
| | | | | | |

Source: Fascicule No 4 : Couleurs, Plan De Sauvegarde Et De Mise En Valeur, Luang Prabang

(2) Setback area design

To revitalize liveliness of streets, the following setback area design will be applied.

(a) Activities

The setback area should be utilized for a kind of business activities such as open café, wagon sales, to expand business activities to the street

Parking use in the setback area must be prohibited.

(b) *Planting*

Planting symbolic trees in the setback area is recommendable to give sunshade to pedestrians and to increase green volume in the area.

Flowering windows or balcony and setback area also preferable arrangement to beautify the shop front and urban landscape in the area.

(c) *Pavement*

Level of the pavement in setback area should be adjusted to the level of side walk to expand pedestrian space. And the material of the pavement should be the same or fit with the pavement of side walk.



Source: JST

Figure 4.2.1: Cases of setback area design in Luang Prabang

(3) *Signboard design*

Signboard is a board displaying the name or logo of a business and is displayed outside a shop/store, hotel etc..

(a) *In the plan of the facade:*

Their area must not exceed 3% of facade's area* and not exceed 1.0 m².

Their height should be 0.50 m maximum*.

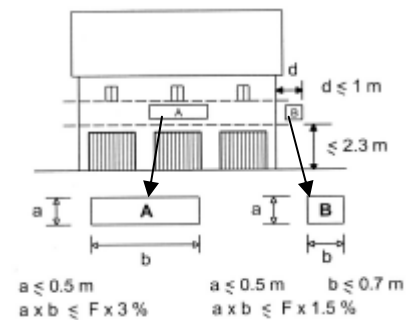
(*: These guidelines are the same guideline of Luang Prabang.)

(b) *Perpendicular to facade:*

Their height should be 0.50 m maximum.

Their width should be 0.70 m maximum.

Their maximal clutter will be 1 m (the panel will be detached maximum 30cm from the facade).



Signboards will be installed at 2.30m minimum from the ground of the sidewalk and should not exceed shutters sills of the first floor.

(c) *Material and color*

Panels and signs must be produced in painted wood or painted metal. Glossy or metallic finish of signboard is not matching to historical and cultural landscape area.

Use of golden painting should be prohibited. Golden painting can be used only for religious purpose.

A signboard with neon or internal illumination should be prohibited to reduce glare in the historical landscape.

(4) Nightscape design

To make the streets lively and safe for people to walk at night, creating night landscape is an important part of urban landscape improvement.

(a) *Illuminate streets by interior lighting and façade lighting*

Shop façade lighting makes a good and warm impression of the landscape at night. Also it can cater to the improved safety of people at night in the street.

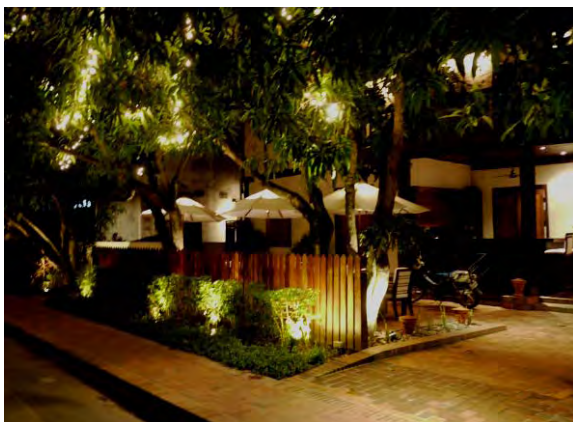
Induce visitors to come into.

(b) *Type of light “Use warm color light”*

To reduce glare of lighting, sources of light for interior and for signboard should not be directly visible. The direction of light should be downward except low brightness light and for a light-up purpose.

To use warm color light, color temperature should be between from 2,500 to 3,100 Kelvin. Fluorescent lighting (with white and blue color) and neon tubes on facade is not preferable.

It is tolerated in the case of indirect masked lighting (when neon tube is not visible from the road).



Source: JST

Figure 4.2.2: Cases of nightscape design in Luang Prabang

(5) Parking space

Guideline of parking spaces is regulated in existing regulation of zoning control. Some commercial and business land use should have certain number of car parking.

However, concerning the existing situation in the ZPP-Ua, the guideline for the car parking is not observed and is not fitting current situation.

A possibility of common parking per block should be considered among the community and local government.

4.3 Lesson learnt from the Cases of Historical Urban Landscape Conservation in Japan

In this section, some cases of historical landscape conservation project in Japan are introduced for sharing experience and ideas for concerning urban landscape guideline for center of Vientiane city. These cases are selected from the view point of tourism development.

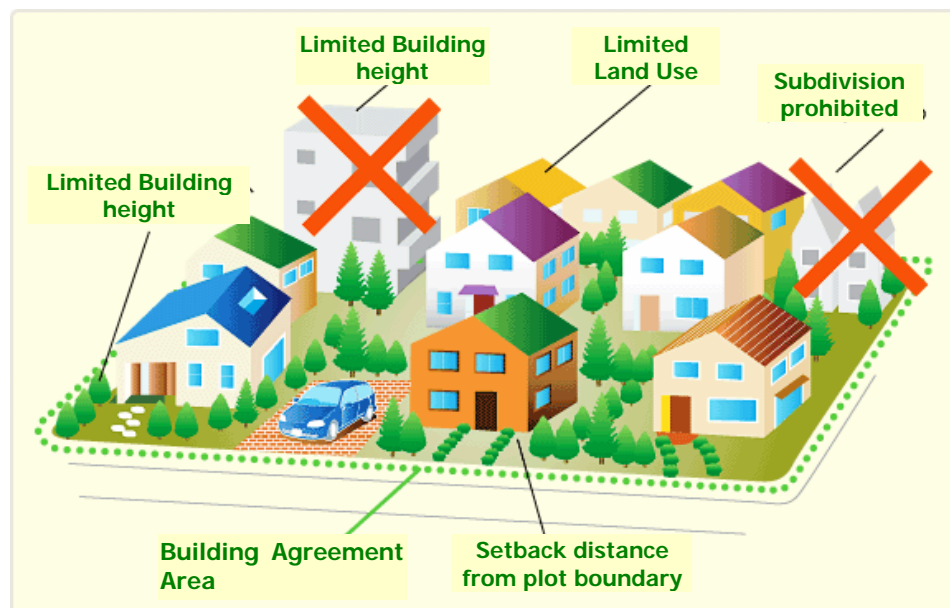
4.3.1 History on landscape control in Japan

(1) Basic law and regulation for city planning after World War II

- Building Standards Law (1950)
 - Original law enforced in 1919 which designated basic building function standard (site, facilities, structure, land use).
 - District plan, Building agreement was introduced in the law.
- City Planning Law (1968)
 - Ordinance for city area improvement of Tokyo (1888) focused infrastructure master plan. Then applied to the big cities.
 - Land use zoning introduced in the act (1919).
 - The act included land use zoning

(2) Landscape related law and regulation

- Building agreement regulation (1950)
 - This regulation is designated in Article 69 of the Building Standard Law.

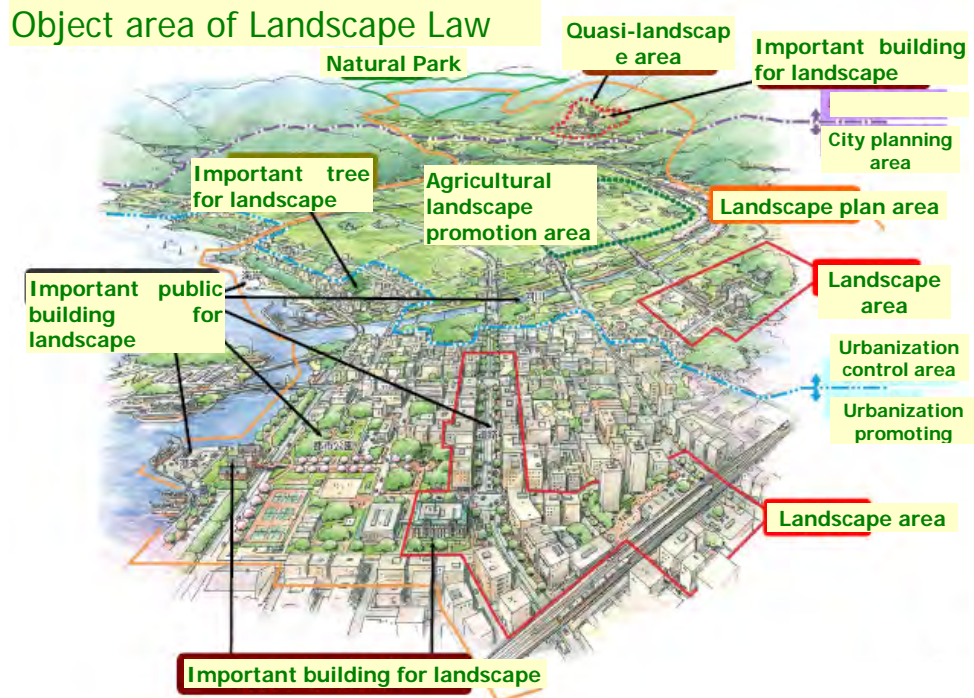


Source: Ministry of Infrastructure, Land and Transport, Japan

Figure 4.3.1: Items the agreement can be covered

- It may provide by ordinances that landowners and those who have superficies or leases may specify a certain area on the land concerned and make an agreement on criteria for the site, location, construction, use, form, design or building equipment of buildings within the area. (Building Standard Law, Article 69)
- Ancient City Conservation Law (1966)
 - During rapid growth era, ancient cities were suffered from development pressure.
 - It was criticized as “Country of freedom for architecture” which means any shape and design of buildings can be constructed within our rules and regulations.
 - 10 historical cities registered including Kyoto, Nara, Kamakura to preserve historical landscape from development.
- Regulation on Preservation Districts for Groups of Historic Buildings (1970)
 - Revision of The Law for the Protection of Cultural Properties (1950)
- District Plan Regulation (1980)
 - Local government can decide detailed guideline for certain area.
 - District Plan System aims at stipulating in detail the plan for building and neighboring public facilities such as access roads, etc. in specified areas.
 - This plan is designated by local government.
 - Subject Area for Planning: The space of daily living which cannot be regulated within the general City Planning framework e.g. land use control on Land Use Zones, plans of public facilities, etc.
 - Objectives: Formation and maintenance of high quality living environment including aesthetic urban landscaping.
- Landscape Ordinances & Plans
 - Lots of conflicts happened in terms of high rise residential buildings in relaxing environment.
 - Approx. 500 local governments enacted Landscape Ordinances, but those ordinances did not have enforceability.
- Landscape Law (2004)
 - The act covers not only urban landscape but rural and natural landscape.
 - Indigenous character can be concerned.
 - Participation of citizen and NPO’ s is regulated.

- “Landscape Agreement”, “Area designation”, “Landscape improvement organization”
- “Consultative committee” can be established to judge development plans.



Source: Ministry of Infrastructure, Land and Transport, Japan

Figure 4.3.2: Object area of Landscape Law

- Historical Scenic Preservation and Improvement Law (2008)
 - Draw up “Historical Scenic Conservation and Improvement Plan” for Gov’t subsidy.
 - Historical and cultural activities are also defined in the plan for conservation.

4.3.2 Cases of Historical Urban Landscape Conservation in Japan

(1) Oharaimachi Street, Ise City

Ise City is home to *Ise Jingu* (*Ise Grand Shrine*), the most sacred Shinto Shrine in Japan, and is thus has been a very popular destination for tourists since 17th Century. It was said that *Ise Jingu* was the place to visit once in a lifetime.

Oharai-machi Street is a 800m long access street to the main sanctuary of *Ise Grand Shrine*. During Edo Period (17th to 19th century), 2 to 4 million people are said to have visited this street per year.



Figure 4.3.3: Main sanctuary of Ise Grand Shrine

In 1970's, the number of visitors to *Ise Jingu* was 5 million per year, but visitors to this street was only 0.2 million. Most of the visitors did not make a stopover in this street. At that time, a number of old traditional style buildings were demolished or modified to a modern style ones.

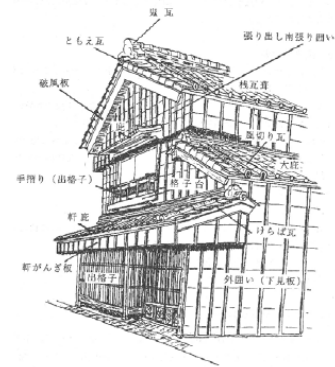


Source: Ministry of Infrastructure, Land and Transport, Japan

Figure 4.3.4: Before and after of Oharai-machi street

Following measures were taken for the urban landscape;

- The community started landscape renovation activity in 1970's to conserve the traditional building styles for boost their economical development.
- Ordinance for Conservation of Urban Landscape in *Ise City* was promulgated in 1989. And "Urban Landscape Conservation Fund" was established at the same time to provide a loan for building renovation work.
- Landscape improvement project for *Oharai-machi* street conducted by city government with the support of prefecture government. (Utility poles were removed from the street in 1992, and pavement was changed to stone in 1993.)
- Area Re-development Conference was established in 1980. Landscape design guideline was established in 1989. These movements were initiated by a business leader of this area.



Number of Visitors: 0.35 mil. (1992) => 3.0 mil. (2002)

(2) Kawagoe Ichibangai, Kawagoe City

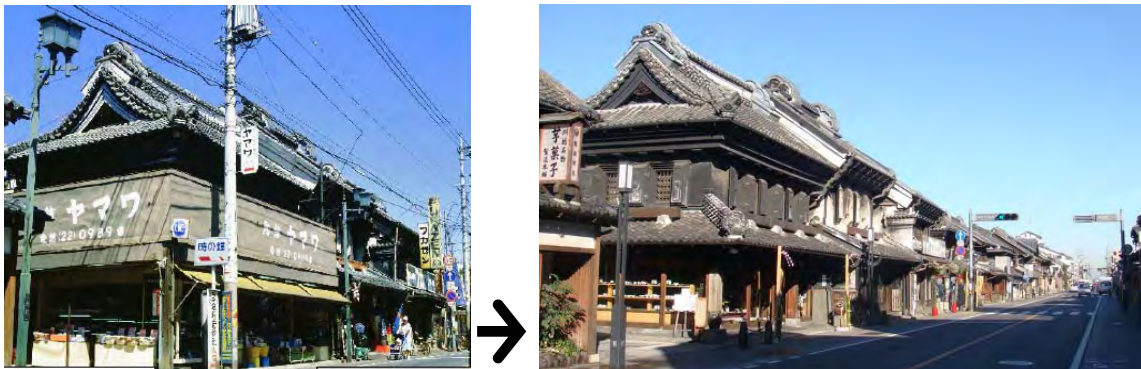
Kawagoe is a city located north-west of Tokyo and about a 30-minute train ride.

First *Kawagoe* Castle was built in 1457. Some of its streets preserve the old castle town atmosphere of the Edo Period (17th to 19th century.). This city repeatedly suffered massive fire and people tried to build fire-resistant buildings known as "*Kura-dukuri* (warehouse style)".

During the rapid economic growth period in 1960's, the commercial function of Kawagoe moved to a newly developed area, and this old town area was left declining.

In 1971, when the oldest house in this area was designated as a “National Important Cultural Property”, this type of buildings started attracting a wide range of attention. At that time, a movement of conservation for historical urban landscape was initiated. Architectural Institute of Japan conducted a competition of ideas for the conservation of historical buildings.

A movement took the way for the application for “Important Preservation District for Groups of Traditional Buildings” by “Law for the Protection of Cultural Properties” in 1975. But most of the people living or doing business here were afraid of the inconvenience in renovation by strict regulation if designated.



Source: Ministry of Infrastructure, Land and Transport, Japan

Figure 4.3.5: Before and after of Kawagoe Ichibangai street

Following measures were taken for the urban landscape;

- A NPO was established in 1983 to activate this old street for shopping, and conserve historical landscape. In 1987, “Norm of Town Development” was formulated by “Urban Landscape Committee” under the neighborhood store association, supported by university professor and architects.
- The Committee checked renovation plans in terms of adaptability to the Norm, and then gave advice to building owner, planner and constructor. The Committee consisted of member of landowners, academics, representatives of local government.
- Local government supported this movement. They enacted “Ordinance for Urban Landscape in Kawagoe City” and implemented road environment improvement project and utility pole removal project.
- During the bubble economy in Japan, big apartment development plan popped up in this area. To protect the area from development pressure, the community realized to apply for “Important Preservation District for Groups of Traditional Buildings” is the best way. Then, in 1999, the area was designated by “Law for the Protection of Cultural Property”.
- This movement is spreading to other area in Kawagoe City.

Number of Visitors: 0.90 mil. (1988) => 1.6 mil. (2002) => 4.0 mil. (2009)

4.3.3 Lesson learnt from the Cases in Japan

(1) Law and Regulation

- Regal support ensure landscape conservation. These areas are designated by “Important Preservation District for Groups of Traditional Buildings (1975)” by “Law for the Protection of Cultural Properties (1950)”, or “Law on Landscape (2004)”.
- A detailed landscape guideline is also necessary to conserve and to create urban landscape.

(2) Institutional Reformation

- Unified building permission and inspection procedure is necessary. A reception of building permission is the only one place at the local government office.
- Landscape Consultative Board check development plans. A Landscape Consultative Board is usually established as an independent organization which consists of representative of community, academics, specialists and government officials to check or to give advices for development plans before applying building permission.

(3) Stakeholders’ Participation

- Landscape Improvement Projects of Public Space (Road pavement, Utility pole removal, etc.) were led by public sector. Public space improvement projects are important factors to change landscape image drastically.
- Community’s participation and strong commitment is required. Without community’s participation and commitment, a landscape improvement cannot be succeeding. Community’s understanding and initiative are essential issues for urban landscape improvement.

Collaboration of public and private sector is also crucial. Continuous collaboration of public and private sector for area development especially tourism development encourages local economy as well as urban landscape improvement.