



CHAPTER 3

*Development Visions and a Structure Plan
for Vientiane Capital*

CHAPTER 3: DEVELOPMENT VISIONS AND A STRUCTURE PLAN FOR VIENTIANE CAPITAL

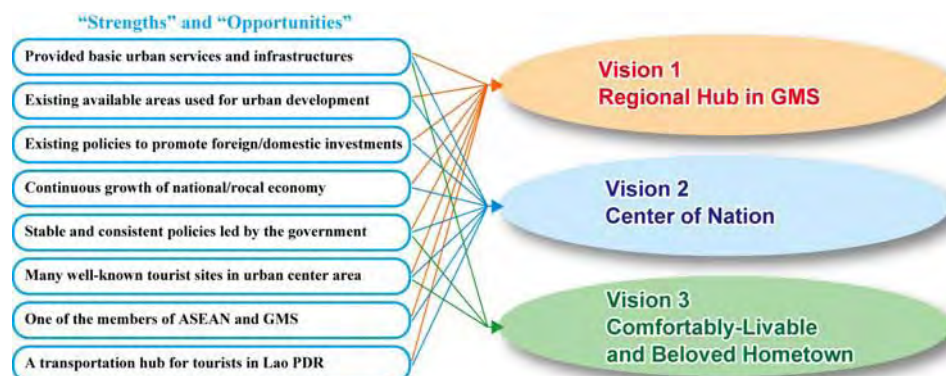
3.1 Development Visions

3.1.1 Necessity of Development visions

A development vision is an ideal future image of a city to be materialized based on the citizens' needs and foresight of the stakeholders and experts regarding urban planning. Without clear development visions, it would be difficult to implement an integrated urban plan efficiently and the administration would come to a deadlock, as there are a number of actors concerned who plays an important role in building and improving the city. In this context, development visions for Vientiane Capital are formulated through JICA study members' discussions with main governmental organization members during working group meetings, focusing on the result of the social survey and sharing/discussing the common concept for the formulation of future urban development vision and policies.

3.1.2 Direction of Development Visions

The “Strengths” and the “Opportunities” for Vientiane Capital are mentioned in the SWOT analysis will be the basis for the future development visions. According to the SWOT analysis, the “Strengths” and “Opportunities” are mainly accrue from the advantages of being the capital of the nation. Vientiane Capital is the political center of Lao PDR that keeps good and steady relationships with foreign countries. The capital has an area of 3,960 km² that consists of an urbanized area and other areas such as vacant lots, agricultural land, hills and mountains, which could be the source for strengthening the capital's attractiveness. Located on an active economic corridor, the capital has the potential to be developed as a gateway or a crossroads of tourists and commodities. Figure 3.1.1 shows the direction of development visions based on the SWOT analysis.



Source: JST and the Working Group Meetings

Figure 3.1.1: Three (3) Development Visions Based on the “Strengths” and the “Opportunities”

3.1.3 Development Visions of Vientiane Capital for 2030

Based on the direction of development visions, the three (3) visions are detailed as below;

Vision 1: Regional Hub in the GMS

- Receiver of Industrial Relocation under Horizontal Division of Labor in GMS
- Regional Center of Global Business
- Regional Commercial and Economic Center

Lao PDR used to be denoted as a “land-locked” country before, but it is now considered to be a “land-linked” country in a positive way. Several GMS Economic Corridors are set in Lao PDR, which are promoted in the recent years to enhance the connection between Thailand, Vietnam, Cambodia and part of PRC. Especially the GMS Central Economic Corridor which runs through Vientiane Capital will facilitate further development and accumulation of industry and commerce in Lao PDR and in Vientiane Capital. While the initiatives to lower border barriers among these countries are in progress, such as AFTA, it will be a chance for Lao PDR in promoting economic development, and Vientiane Capital might compete with other cities in GMS in accordance with the economic integration. When the goods and people movement becomes freer, an international gateway function for exports/imports and exchange of knowledge will be improved, thereby leading to accelerated and sustainable economic development.

In the future, Vientiane Capital should be “Regional Hub in GMS” with attractive and competitive urban function which can gather more people and companies (business) from surrounding areas. Being a capital city, it will play a role of regional commercial and industrial center in the rapidly developing Lao PDR.

Vision 2: Center of the Nation

- Center of Administration and Politics
- Center of Economy (Service, Trade and Distribution)
- Center of Cultural, National Defense and Security
- Center of Absorbing Population and Non-Agricultural Employment
- International Gateway for Goods and People

Vientiane Capital has been, and is expected to enhance the central functions of administration, politics and economy (service, trade and distribution). This means that Vientiane Capital will further accommodate urbanization and modernization with increasing population and employments as the capital city of Lao PDR. Developing the industrial and commerce sectors shall need a labor force shift basically from the agricultural sector to the manufacturing and services sectors in the future.

As mentioned above, Vientiane Capital also should be an international gateway to the country for the foreign visitors visiting the nation for tourism and/or business purpose. In a sense, Vientiane Capital

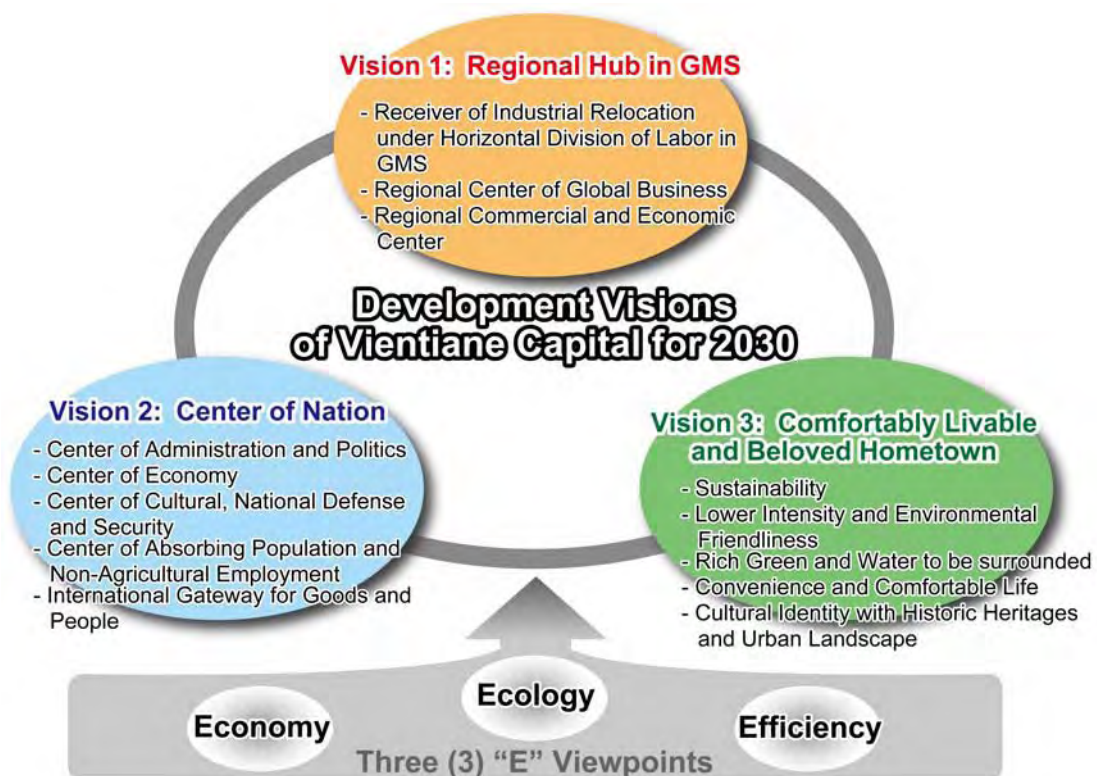
will play a major role in integration and will be a center of the GMS economic corridors. As the capital city, Vientiane has the best stock of human resources to become the international gateway and the national center for administration and economy.

Vision 3: Comfortably Livable and Beloved Hometown

- Sustainability
- Lower Intensity and Environmental Friendliness
- Rich Green and Water to be surrounded
- Convenience and Comfortable Life
- Cultural Identity with Historic Heritages and Urban Landscape

All those who live in Vientiane Capital, “Vientianes”, should be able to enjoy safe and comfortable living in harmony with environmental and social considerations. Vientiane Capital also can provide Vientianes and visitors with time and space for relaxation in rich greenery and water, and in historical and cultural landscape. To ensure the comfortably-livable and beloved hometown in future, these characteristics should be maintained and enhanced further.

A relational structure of these three (3) visions is illustrated conceptually in Figure 3.1.2. Three (3) development visions are related to each other, and for the realization of these three visions, three viewpoints are also needed and should be considered, which are “Economy”, “Ecology” and “Efficiency”.



Source: JST

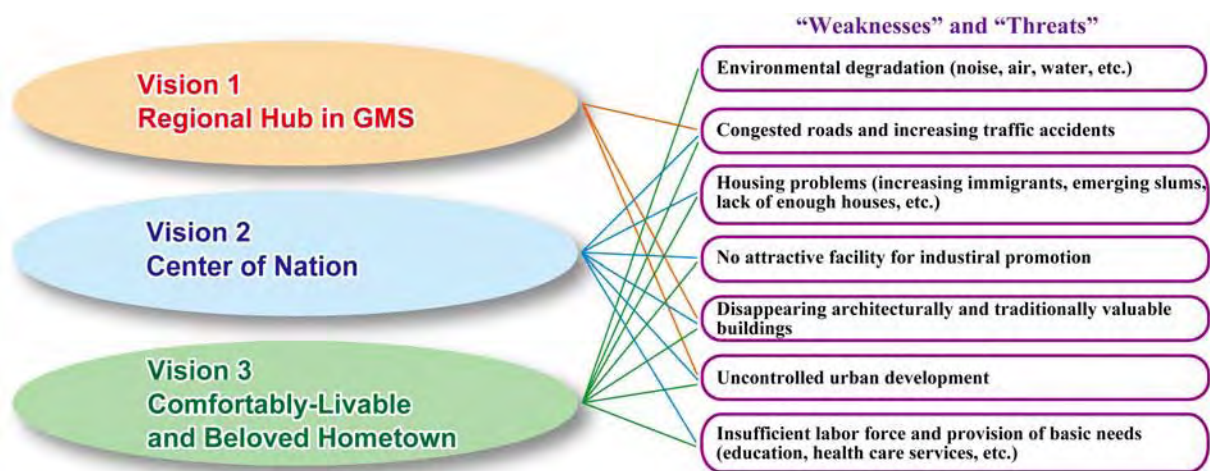
Figure 3.1.2: Relational Structure of Development Visions of Vientiane Capital for 2030

3.1.4 Key Planning Issues Related to the Drafted Development Visions

In this section, key planning issues are discussed based on the “Weaknesses” and the “Threats” of the SWOT analysis. Appropriate measures should be taken by the stakeholders toward 2030 to accomplish the drafted development visions.

The “Weaknesses” and the “Threats” mainly focuses on the insufficient infrastructure and public services, uncontrolled development including urban sprawl and land speculation, environmental degradation, etc. Some working group members were worried about the lack of attractiveness from the viewpoint of foreign investors, disappearance of historic and traditionally valuable buildings due to new developments, and/or the young generation’s changing attitude and lifestyle away from the traditional culture, etc.

Figure 3.1.3 shows the linkages of “Weaknesses” and the “Threats” with development visions. The objective will be to minimize and overcome the negative impacts caused by such threats and weaknesses as highlighted in the SWOT analysis.




Source: JST and the Working Group Meeting

Figure 3.1.3: Correspondence of the Main “Weaknesses” and “Threats” to the Development Visions

According to Figure 3.1.3, most of the “Weaknesses” and the “Threats” may have an impact on more than one development visions. Based on this analysis, the current conditions in Vientiane Capital that correspond with each vision are described in Table 3.1.1. Key issues based on current conditions that need to be overcome to attain the visions are also described in Table 3.1.1.

Table 3.1.1: Key Issues to be Overcome to Attain the Drafted Visions

	Current Conditions (Problems Clarified through the SWOT Analysis) 	Key Issues to be Overcome Judging from the Current Conditions		
<u>Vision 1</u> Regional Hub in the GMS	<ul style="list-style-type: none"> ✓ There is no industrial park or logistic center in the area zoned as industrial at this moment and thus is not attractive for industrial promotion in the country. 	(1) Build and Expand Industrial Infrastructure to be a Host of Active Economy and Trade	(2) Strengthening one of the Main Urban Functions: “Center of Qualified Human Resources”	(4) Creating a Visually and Substantially Attractive City for Both Laotians and Foreigners Improving the Urban Development Management System
<u>Vision 2</u> Center of the Nation	<ul style="list-style-type: none"> ✓ The qualified labor force is not sufficient to meet the foreign investors’ demand. ✓ Roads in the central area are congested and traffic accidents are increasing. ✓ Better housing is needed as the number of immigrants is increasing. 			
<u>Vision 3</u> Comfortably Livable and Beloved Hometown	<ul style="list-style-type: none"> ✓ Natural and living environment is degrading due to uncontrolled urban development both in the central area and the suburbs. ✓ Architecturally and traditionally valuable buildings are disappearing, which is lamentable from the viewpoint of tourism promotion. 	(3) Environmental Protection and Well-Controlled Urban Development		

Source: JST

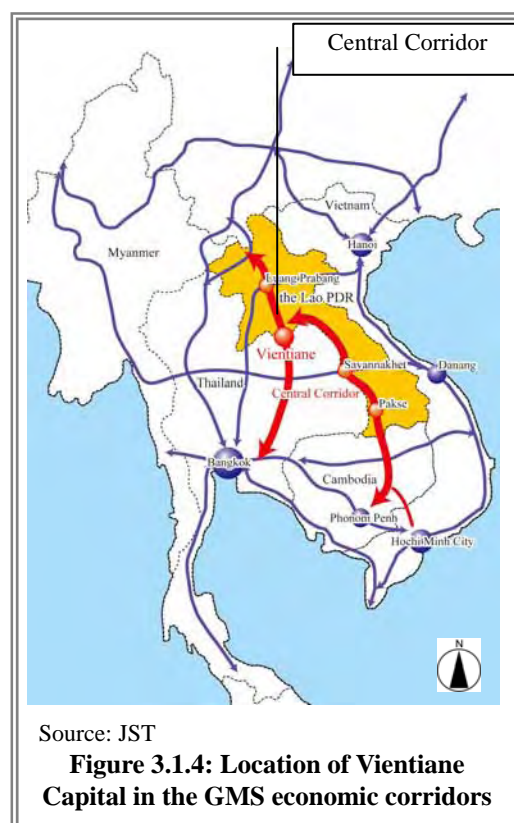
The key issues to be overcome are detailed below.

(1) Build and Expand Industrial Infrastructure to be a Host of Active Economy and Trade

Vientiane Capital is located on a GMS economic corridor which is called “the Central Corridor” as shown in Figure 3.1.4, and is expected to develop as a regional gateway of Lao PDR. At present there is no industrial park or logistic center, which is placing a limitation to the industrial promotion in the country. In this context, to accomplish “Vision 1: Regional Hub in the GMS”, it is important to realize, at an earliest possible timing, an industrial park and a logistics center in Vientiane Capital which are now being planned in JICA study.

(2) Strengthening one of the Main Urban Functions: “Center of Qualified Human Resources”

Apart from the infrastructure mentioned in (1), it is necessary to strengthen the function of “center of qualified human resources”. Human resources will be the key factor for many of the foreign and domestic investors to decide for an investment in Vientiane Capital and Lao PDR. There is a minimum basic qualification that needs to be fulfilled to be qualified human resources. Such qualified pool of resources is not only important for foreign investors’ business but also vital at domestic level to support economic activities such as in government administration, scientific and technology sphere and others. In this context, to accomplish “Vision 2: Center of the Nation”, it is



Source: JST

Figure 3.1.4: Location of Vientiane Capital in the GMS economic corridors

recommended to enhance the education and the vocational training in Vientiane Capital as well as in Lao PDR as a whole. Students or trainees from other provinces should also be able to study and/or master high level skills in Vientiane Capital.

(3) Environmental Protection and Well-Controlled Urban Development

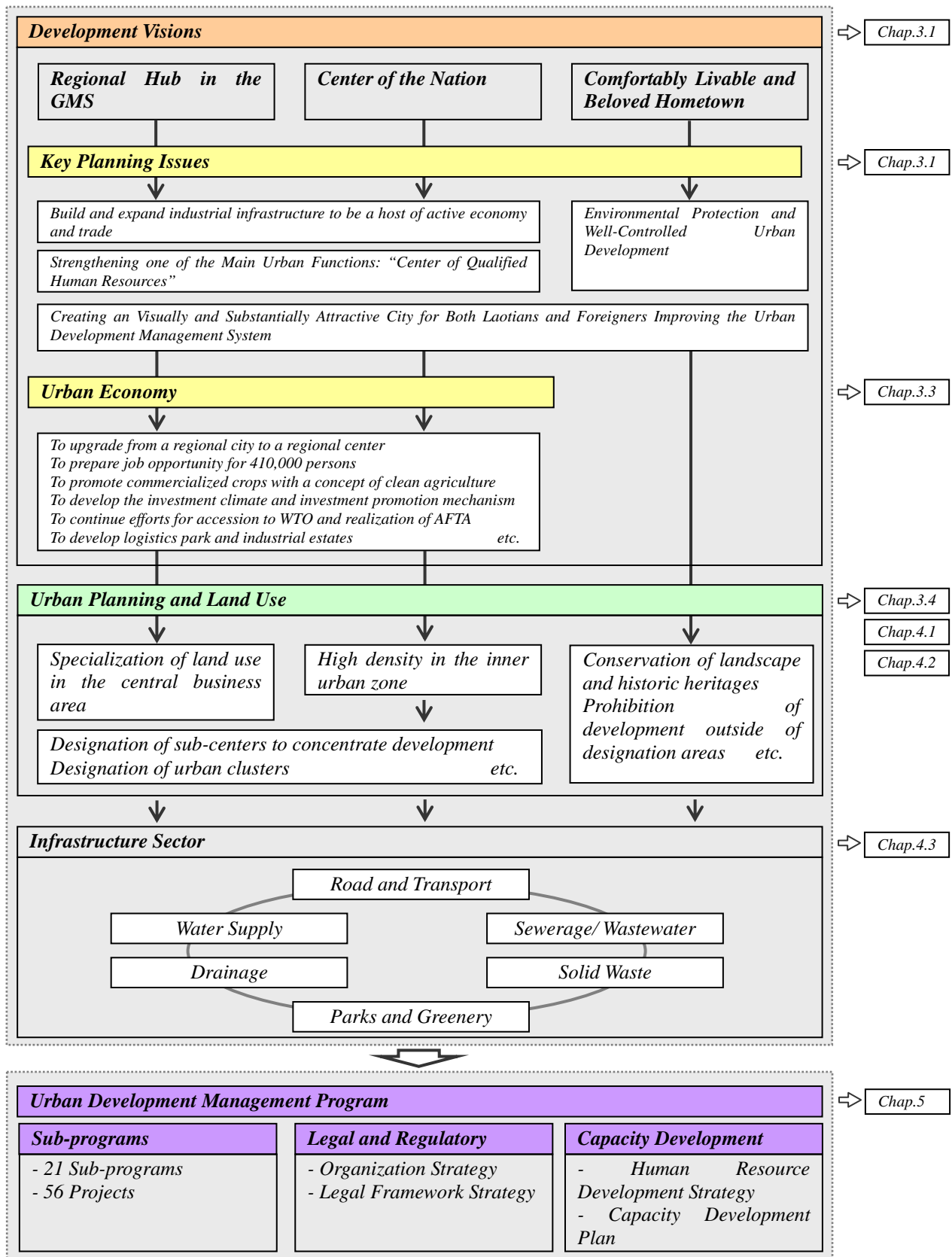
Nowadays, new types of urban problems are recognized in Vientiane Capital: traffic congestion, traffic accidents, housing shortage, disappearance of historically valuable buildings, degradation of natural and living environment, etc. In this context, to accomplish “Vision 3: Comfortably Livable and Beloved Hometown”, it is important to have considerations for environmental protection and controlling and regulating urban development.

(4) Creating an Visually and Substantially Attractive City for Both Laotians and Foreigners by Improving the Urban Development Management System

Vientiane Capital is inhabited mostly by Lao people and visited by a number of foreigners from all over the world. In other words, the capital city should be attractive enough and capable to meet different needs from different types of people. Vientiane Capital must be beautiful, comfortable, and safe and convenient to travel, to do business and to live in.

In this context, to accomplish three (3) development visions, it is essential to create a visually attractive and comfortable city for both Laotians and foreign visitors, by means of improving the urban development management system. In other words, to create a restored new Vientiane Capital, a drastic change of mindset might be needed at national government level, the private sector level and in the mindset of ordinary citizens too.

On the basis of the proposed development visions, urban economy, policies and basic strategies were formulated in this Study as depicted in Figure 3.1.5.



Source: JST

Figure 3.1.5: Framework of Development Visions and a Master Plan

3.2 Socioeconomic Framework

Preceding JICA Study Teams prepared a national socioeconomic framework through discussion with the Laotian side. In this study, JICA Study Team examines various alternatives of socioeconomic development in Vientiane Capital from the viewpoint of different development scenarios as described in the national socioeconomic framework. With such analysis consistency between the national socioeconomic framework and the socioeconomic framework for Vientiane Capital will be achieved.

Another point in preparing the socioeconomic framework for Vientiane Capital is to ensure the consistency between the demographic development and economic development. In this analysis, JICA Study Team examines 3 different demographic development alternatives in the first step, and prepares 3 economic development alternatives. After examinations of 3 alternatives of demographic frameworks and economic frameworks, the most favorable one will be selected.

3.2.1 Demographic Framework

(1) National development context

A demographic framework at the national level has already been proposed in the preceding JICA Studies, namely Industry Development Study, Logistics Network Study, and Study on Regional Core Cities. Table 3.2.1 and Figure 3.2.1 indicate population projection until 2030 for the national level.

Table 3.2.1: Population Projection until 2030

	2005	2010	2015	2020	2025	2030
Population (000 persons)	5,622	6,133	6,696	7,286	7,874	8,417
Annual average population growth rate (%)		1.8	1.8	1.7	1.6	1.3

Source: JST (Industrial Development Study, Logistics Network Study and Study on Regional Core Cities)

The population projection is calculated from the cohort method following the total fertility rate (TFR) and death rate as suggested by UN population Division. The population of Lao PDR will increase by 2.8 million in 25 years, from 5.6 million in 2005 to 8.4 million in 2030.

Table 3.2.2 and Figure 3.2.1 indicate changes in urban population and rural population until 2030. In 1995, the percentage of urban population to the total population was 17%, and it has increased to 27% in 2005. Most of the increase occurred due to change of village category from Rural Village to Urban Village. The JICA Study Team prepares an assumption that the percentage will increase from 27% in 2005 to 40% in 2025 and 43.5% in 2030. JICA Study Team expects the change comes from transmigration from Rural Villages to Urban Villages. The first reason for this transmigration is demographic pressure from the Rural Villages to Urban Villages. Arable land per rural inhabitant is 0.19 ha in Lao PDR, which is lower than Thailand, Cambodia and Myanmar, according to “The Status of Food and Agriculture” published by Food and Agriculture Organization of the UN (FAO). Another reason is the pull factor of urban areas in accordance with economic development and industrialization of Lao PDR. Younger generation will come to urban area for studying and working, and then will continue to live in the urban area.

This scenario prepared by JICA Study Team is also similar to the projection of “World Urbanization Prospects”, which describes that the percentage of urban population will increase from 27.4% in 2005 to 49.0% in 2025, and 53.1% in 2030¹.

¹ Data on urbanization rate can be downloaded from this web page: <http://esa.un.org/unup/index.asp>

Table 3.2.2: Urban Population and Rural Population

(Unit: 000 persons)

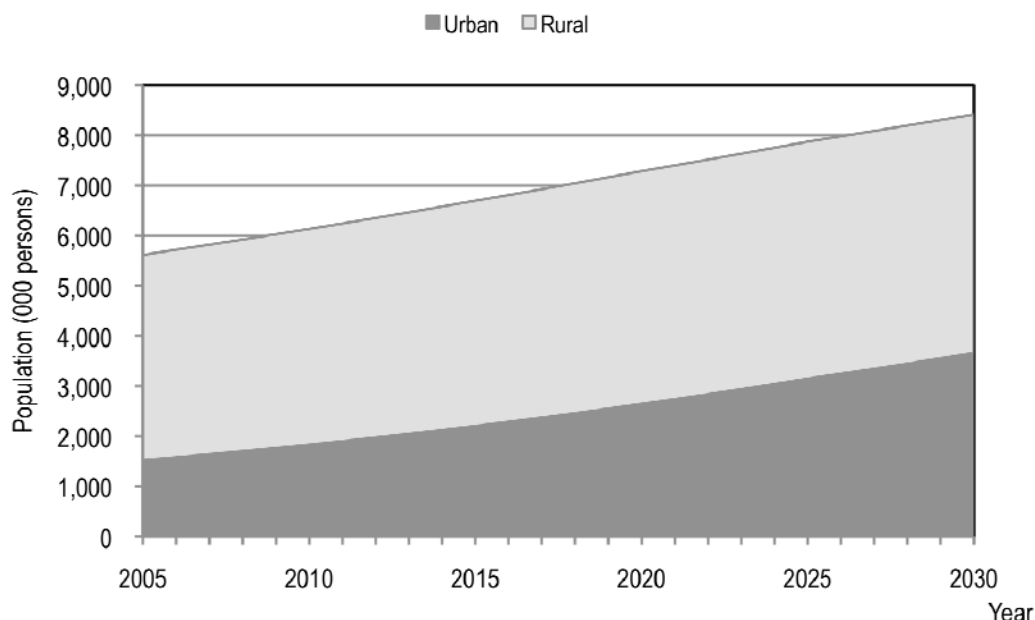
Year	Total Population	Urban Population	Rural Population
1995	4,575	782	3,793
2005	5,622	1,523	4,092
2015	6,696	2,204	4,491
2025	7,874	3,149	4,724

Source: Census 1995 and 2005; JST (Industrial Development Study, Logistics Network Study and Study on Regional Core Cities)

Table 3.2.3: Arable Land per Rural Inhabitant in 2004

	Arable land per rural inhabitant (ha)
Lao PDR	0.19
Thailand	0.37
Vietnam	0.10
Cambodia	0.32
Myanmar	0.28

Source: State of Food and Agriculture, Food and Agriculture Organization of the United Nations



Source: JST (Industrial Development Study, Logistics Network Study and Study on Regional Core Cities)

Figure 3.2.1: Change of Total Population, Urban Population and Rural Population

(2) Three Demographic Development Alternatives for Vientiane Capital

In projecting the future population of Vientiane Capital, JICA Study Team prepares 3 different scenarios. These scenarios are a low scenario, a middle scenario and a high scenario. Difference of urban growth and change of future population are explained in the following.

1) Low Scenario

If Vientiane Capital did not presume the vision as described in the previous section, economic development will be led only by hydropower development and mining and would occur

outside of Vientiane Capital. In addition, considering the lowering the impact of national border such as establishment of ASEAN Community and promotion of GMS, Lao people might find it easier to transmigrate to other cities like those in the north and northeast Thailand. As a result, population growth in Vientiane Capital would be limited. According to Census 2005, the share of population in Vientiane Capital to Lao PDR accounted for 12.3%. In this scenario, this share would be maintained until 2020. As indicated in Table 3.2.4, population would be 1,036,000 persons in 2030. The average population growth rate would be 1.6% during 2005 and 2030.

2) Middle Scenario

This is the case if Vientiane Capital presumes the development vision. Economic development will take place and population of Vientiane Capital will increase in line with the defined vision and implementation of measures to achieve the vision. In addition, other towns such as Savannakhet and Pakse would also experience steady growth and absorb a certain level of population from rural area. Currently the percentage of urban population is 38%. It is assumed that the percentage of urban population to total population will increase from 27% in 2005 to 43.5% in 2030 at the national level. As a result, population will be 1,439,000 persons in 2030 as indicated in Table 3.2.4 and Figure 3.2.2. The average population growth rate will be 3.0% during 2005 and 2030.

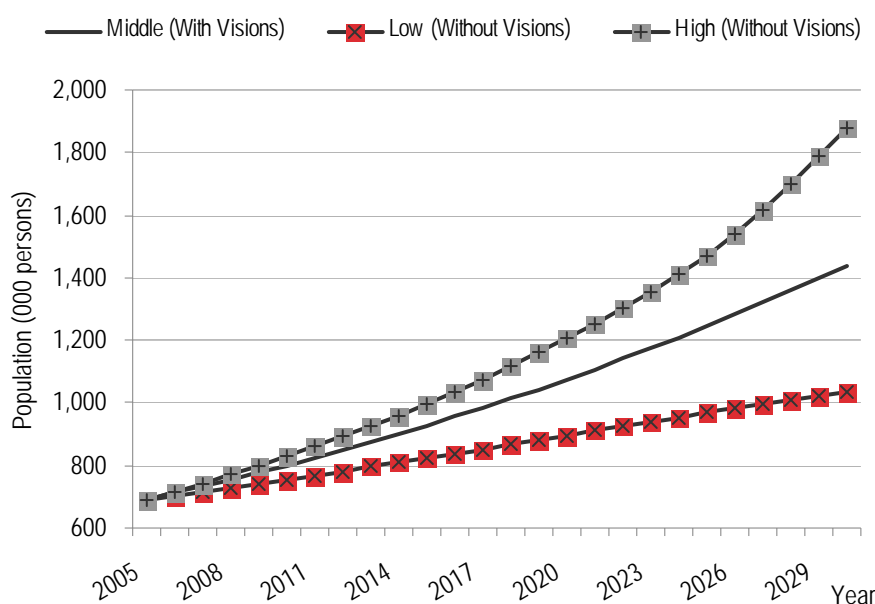
3) High Scenario

This is the case if Vientiane Capital does not presumes the development vision In reality, in recent years, the population growth of Vientiane Capital is higher than DPI expected. Such kind of situation would occur if Vientiane Capital did not presume the vision and economic development is limited in other towns such as Savannakhet, Pakse and other provincial capitals. In such case, magnitude of migration from the rural area form other provinces to Vientiane Capital would be greater than other scenarios. It is assumed that the percentage of urban population which recorded 27% in 2005 would increase to 50% in 2030. Population would be 1,878,000 persons in 2030, and the average population growth rate would be 4.1% during 2005 and 2030.

Table 3.2.4: Population Growth in 3 Different Scenarios

	Unit: 000 persons					
	2005	2010	2015	2020	2025	2030
Low Scenario	692	755	824	896	969	1,036
Middle Scenario	692	801	927	1074	1246	1,439
High Scenario	692	829	994	1,207	1,467	1,878

Source: JST



Source: JST

Figure 3.2.2: Population Projection of Vientiane Capital in Different 3 Scenarios

(3) Labor Force

Based on the population projection in the previous section, number of working population (Economically Active Population (EAP), hereinafter referred to as Labor Force) for each alternative has been estimated with the certain assumptions as follows:

- Low Scenario: calculated under an assumption that composition of each sector is constant due to limited economic development and industrialization of Vientiane Capital. The proportion in 2010 is utilized to calculate working population of each sector until 2030.
- Middle Scenario: calculated from the national-level projection prepared by the preceding JST and result of Social Survey are utilized to estimate the current and future proportions of EAP to total population and its share in each sector.
- High Scenario: calculated under assumptions that working population of the primary sector will remain same as the middle scenario, and the same proportion as applied to the middle scenario will be used to calculate Labor Force of the secondary and the tertiary sectors. The primary sector will not have enough capacity to absorb in-migration population from rural areas of other provinces. Therefore the secondary sector and the tertiary sector will absorb the gap of Labor Force between the high scenario and the middle scenario.

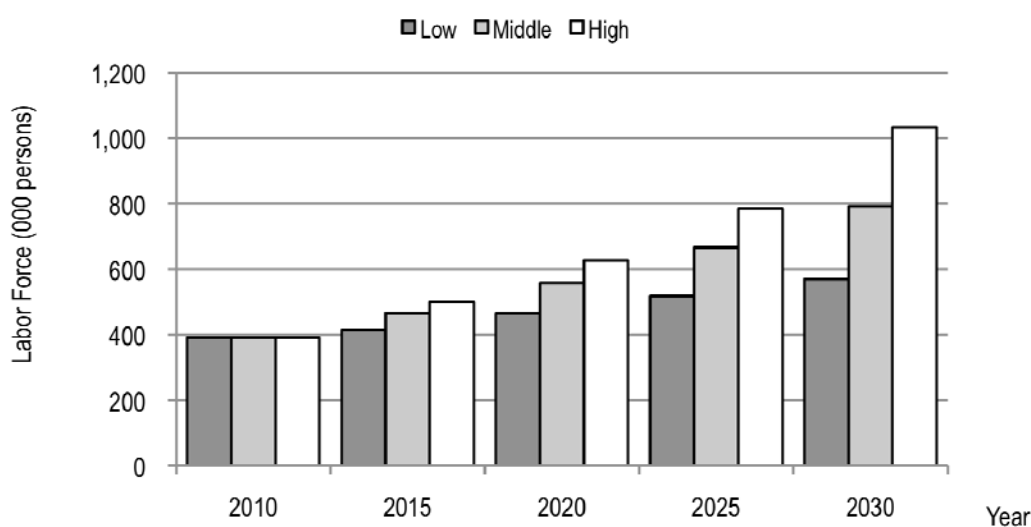
Table 3.2.5 indicates population and Labor Population in 3 different alternatives. Proportion of Labor Force to the total population recorded 47% in 2005. JICA Study Team assumes that the percentage will increase gradually and reach 55% in 2030 in accordance with maturity of demographic growth in Lao PDR. Such changes will be applied to the all scenarios. As a result, Labor Force will be 570,000 persons for the low scenario, 791,000 persons for the middle scenario and 1,033,000 persons for the high scenario. Figure 3.2.3 shows change of Labor Force in 3 alternatives.

Table 3.2.5: Population and Labor Population in 3 Scenarios

Unit: 000 persons

Year	Low Scenario		Middle Scenario		High Scenario	
	Population	Labor Force	Population	Labor Force	Population	Labor Force
2009	788	382	788	382	788	382
2010	801	390	801	390	801	390
2015	824	414	927	467	994	599
2020	896	465	1,074	558	1,207	626
2025	969	518	1,246	666	1,467	784
2030	1036	570	1,439	791	1,878	1,033
Increase from 2010 to 2030	281	202	638	401	1,049	629

Source: JST



Source: JST

Figure 3.2.3: Change of Labor Force in 3 Scenarios

3.2.3 Economic Framework

In consideration of the national economic development, an average GDP growth rates as shown in Table 3.2.6 and Figure 3.2.4 were estimated by analyzing different development alternatives. After the Global Financial Crisis in 2008 and 2009, GDP growth rate will recover and will be at the same level prior to recession. Thus, the average GDP growth rate of 7.5% until 2020 has been assumed. After 2020, the average growth rate will decrease gradually in accordance with maturity of economy and decrease of population growth rate.

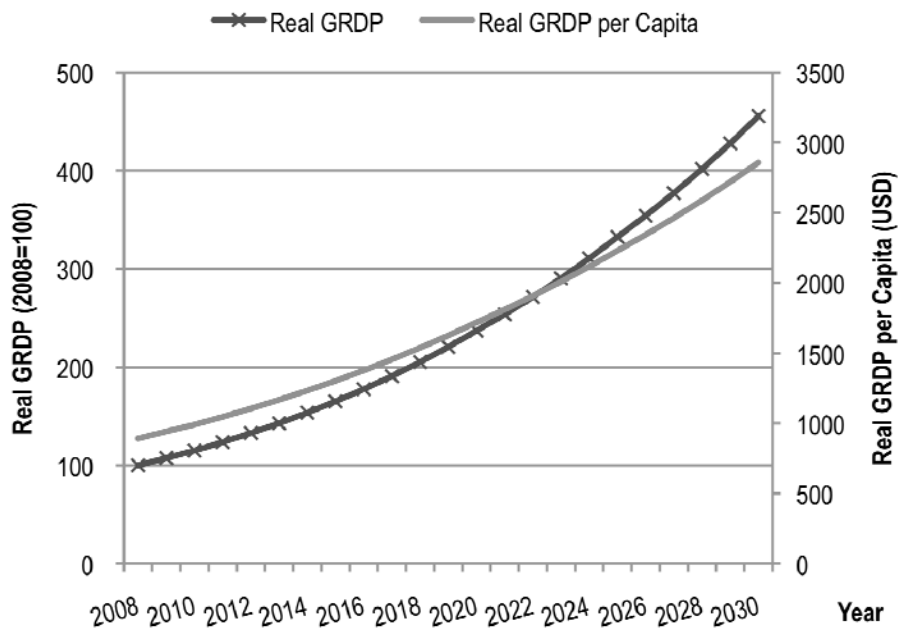
Table 3.2.6: GDP Growth Rates until 2030

Unit: percent

	2009	2010	2011-20	2021-25	2025-30
Average GDP Growth Rate	7.0	7.5	7.5	7.0	6.5

Source: JST (Industrial Development Study, Logistics Network Study and Study on Regional Core Cities)

If Real GDP in 2008 was set as 100, it would increase to 456 in 2030. Real GDP per Capita will also increase 3 times from USD 891 in 2008 to USD 2,858 in 2030 as indicated in Figure 3.2.4.



Source: JST (Industrial Development Study, Logistics Network Study and Study on Regional Core Cities)

Figure 3.2.4: GDP Growth Scenarios until 2030

Regarding the economic development of Vientiane Capital, JICA Study Teams prepared the following GRDP growth alternatives, which are inter-linked with 3 population growth alternatives. The GRDP for each alternatives scenario has been calculated in the following manner:

(1) Low Scenario

If the economic development in Vientiane Capital were limited, economic growth in Lao PDR would only be led by resource-based industries such as mining development and hydropower.

GRDP in this scenario is calculated from GRDP per employment in the middle scenario and considering the working population in each sector. If GRDP in 2010 were set as 100, GRDP would increase to 206 in 2030. It will be two third of the middle scenario as indicated in Figure 3.2.5. The annual average growth rate is 5.7% or 2.4% lower than the middle scenario for 2008 to 2030.

(2) Middle Scenario

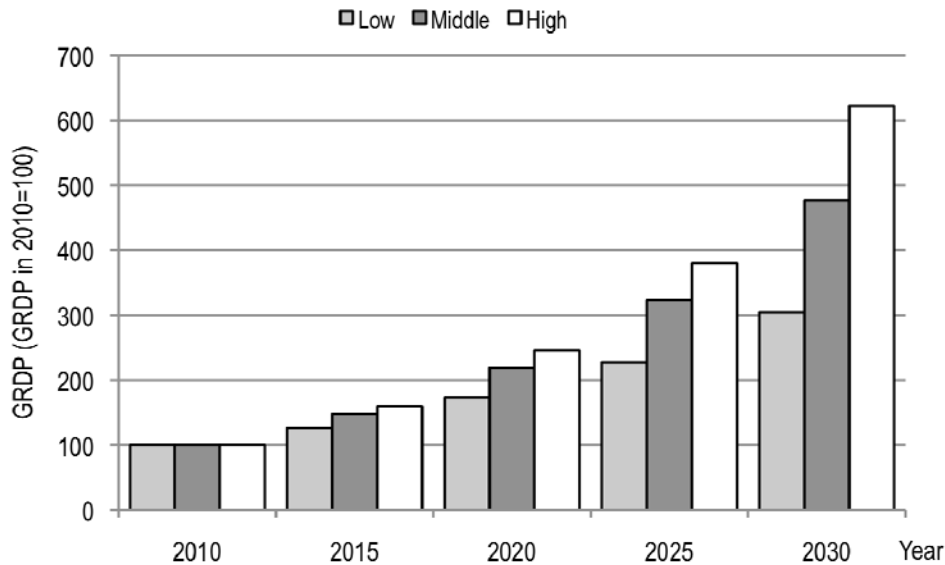
Vientiane Capital would enjoy sustainable economic development, powered by manufacturing, value-added agriculture and commercial and tourism sectors. The share of GRDP to the national GDP would increase in this scenario. JICA Study Team assumed that the share of GRDP would increase by 5 points from 23% in 2005 to 28% in 2030.

If GRDP in 2010 were set as 100, GRDP would increase to 206 in 2030, with an annual average growth rate of 8.1%. This scenario can absorb certain level of labor population who come from rural areas of other provinces. As a result, GRDP per employment will increase from USD 3,620 in 2010 to USD 8,510 in 2030 with an annual average growth rate of 4.4%.

(3) High Scenario

In the high scenario, population will be 1.9 million in 2030. In order to keep the same GDP per capita as the middle scenario, GRDP must continue to grow by 9.6% annually from 2010 to 2030. Continuation of such rapid growth in excess of 20 years would bring about issues such as financial resource for investments in economic activities and urban infrastructure, rapid development in industry and service sectors to absorb employment, and rapid change of urban and social environment, etc.

Figure 3.2.5 illustrates GRDP Growth in Different three scenarios



Source: JST

Figure 3.2.5: GRDP Growth in Different 3 Scenarios

(4) Selection of Optimum Alternative

As the capital city of Lao PDR and one of the major cities in GMS, Vientiane Capital has a mission to lead the national and regional economic development. Vientiane Capital also has a role to absorb in-migration population in the national context, while the percentage of urban population will increase from 27% in 2005 to 43.5% in 2030.

In the low scenario, an increase in population and labor population will be only 235,000 and 179,000 persons, respectively. In this scenario, economic development of Vientiane Capital will be seriously limited (5.5% per annual). Vientiane Capital cannot show its presence significantly, and it will not be an attractive city in GMS.

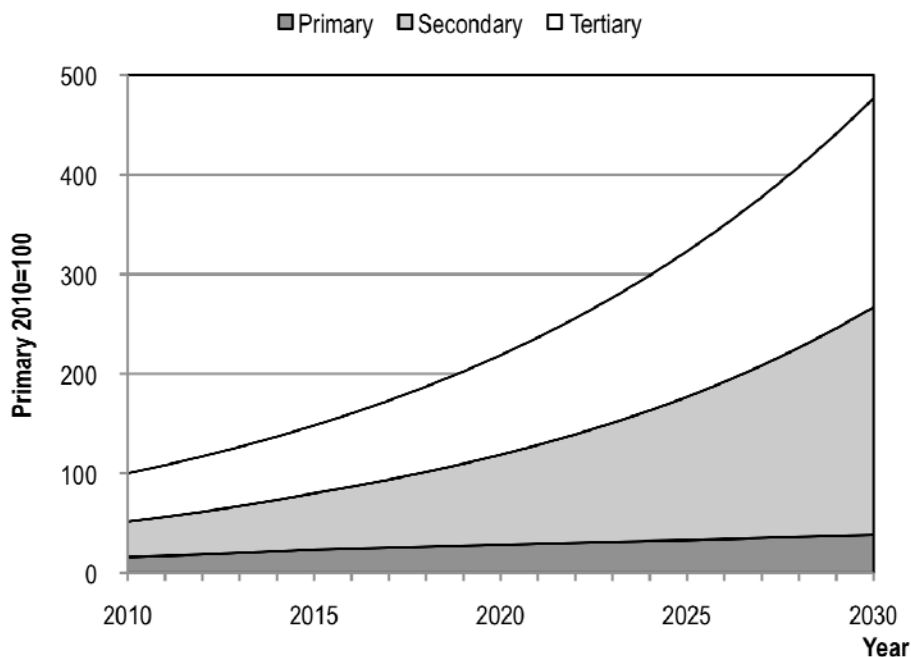
On the other hand, in the high scenario, the increase in population and labor population will be nearly 1.1 million and 643,000 persons respectively. GRDP will also grow at a rate of 9.5% annually from 2010 to 2030. However, it would be extremely difficult to continue the development of infrastructure to accommodate such a rapidly growing economy and to absorb a large number of people in the city. Some apprehension could be observed for this scenario. The concept is to have more balanced urban development not only in Vientiane Capital but also in regional core cities such as Savannakhet and Pakse. Such balance development will be vital for the steady and sustainable urban and national development in Lao PDR.

In the middle scenario, population in 2030 will double from the current population with an average growth rate of 3.0%, and increase of labor population to 400,000 persons in 20 years. Annual average growth rate of GRDP will be 8.0% during the same period. This is slightly at a higher level but the same time it is possible and achievable target in terms of urban growth, economic development, attractiveness of the city and infrastructure development. Therefore JICA Study Team selects the middle scenario as an optimum alternative.

3.3 Promotion of Urban Economy

3.3.1 Role of Urban Economy from the Viewpoint of Urban Development

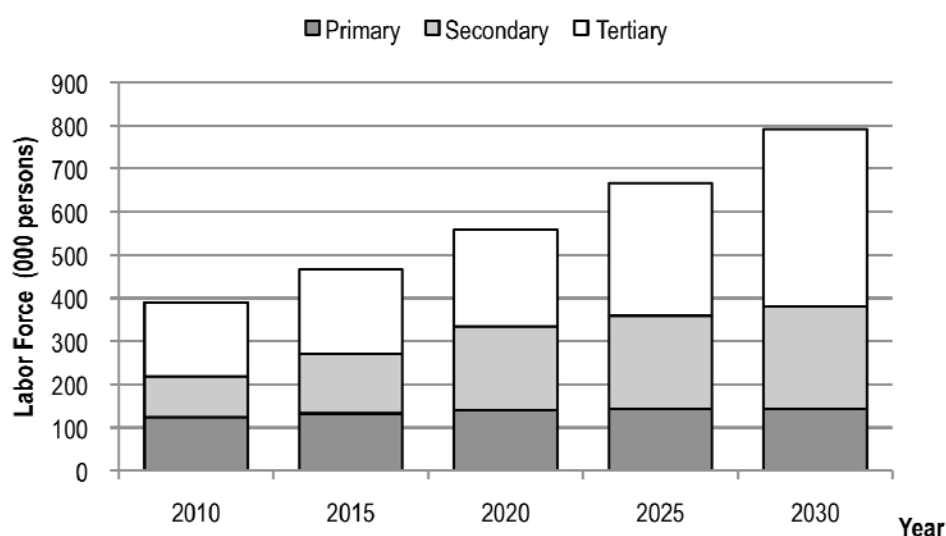
Figure 3.3.1 shows the growth of GRDP (optimum scenario as discussed in the previous section) from 2010 to 2030. GRDP in 2010 was set as 100, and amount of GRDP is measured by the index. As per analysis, GRDP will increase by 4.8 times in 20 years. Growth in the economic sectors will be 2.4 times for the primary sector (4.4% growth per year), 6.4 times for the secondary sector (9.8% growth per year), and 4.3 times for the tertiary sector (7.6% growth per year).



Source: JST

Figure 3.3.1: GRDP Growth from 2010 to 2030

Figure 3.3.2 indicates the labor force by economic sectors. Total labor force will reach 390,000 persons in 2030. Of this 32% (124,000 persons) will be engaged in the primary sector, 24% (88,000 persons) in the secondary sector, and 44% (170,000 persons) in the tertiary sectors. Labor Force will increase to 558,000 persons in 2020 and 791,000 persons in 2030. In terms of percentage, the composition share of labor force in primary, secondary and tertiary sector will change from 32:24:44 in 2010 to 25:35:40 (139,000:195,000:224,000) in 2020 and 18:30:52 (142,000:237,000:412,000) in 2030. Overall, there will be significant increase in labor force. In comparison to 2010, the labor force will increase by 410,000 persons in 2030. Among the three economic sectors, there will be an overall increase of 18,000 persons in the primary sector, 150,000 persons in the secondary sectors, and 242,000 persons in the tertiary sectors.



Source: JST

Figure 3.3.2: Labor Force by Sectors (Optimum Alternative)

From the view point of urban development, the most important role of the urban economy is to prepare job opportunity for 410,000 persons, almost double of the current level. With this is an objective, the following sections will examine the potential industries for Vientiane Capital, necessary actions required to promote these industries, and the desirable portion of Vientiane Capital in the GMS.

3.3.2 Position of Vientiane Capital: From Regional City to Regional Center

Table 3.3.1 indicates classification of cities in Thailand (cities in the northern and northeastern parts), Vietnam and Lao PDR into 3 layers (Global center, regional center and regional city). In Thailand such classification of cities are available in the context of regional development, and JICA Study Team classified cities of Vietnam and Lao PDR accordingly.

Table 3.3.1: Position of Cities in GMS

Layer of Cities	Thailand	Vietnam	Lao PDR
Global Centers	Bangkok	Ho Chi Minh City	
Regional Centers	Chiang Mai Udon Thani Khon Kaen Ubon Ratchathani	Ha Noi Da Nang	
Regional Cities	Chiang Rai Nakhon Ratchashima Lampang	Can Tho Nha Trang	Vientiane Capital

Source: Department of Interior Royal Thai Government, JST

“Global Centers” are considered as the highest position in terms of international business activities in the GMS. This is same like world-class cities in the global business. “Regional Centers” are at the 2nd position in the GMS. “Regional Cities” are at the 3rd level in this hierarchy. In the case of Vietnam, Ha Noi, the capital city is positioned as a regional city, and Ho Chi Minh City, the largest city in demography and economic activity is the positioned as a global center. Table 3.3.2 shows an example of these 3 levels by taking an example of Thai bank branches and Thai supermarket chain store shops locations in Thai cities. Such hierarchical locations indicate a network of business activities in Thailand.

Table 3.3.2: Location of Bank Branches and Supermarket Shops of Thai Company

	Bangkok Bank	Siam Commercial Bank	Krung Thai Bank	Bank of Ayudhya	Thai Airways	Big C
Global Centers						
Bangkok	325	184	224	192	1	16
Regional Centers						
Chinang Mai	31	45	32	13	1	2
Khon Kaen	10	6	16	13	1	1
Udon Thani	6	11	10	5		1
Ubon Ratchathani	8	10	16	9	1	1
Regional Cities						
Chiang Rai	9	12	10	7	1	1
Nakhon Ratchashima	20	16	18	12		1
Lampang	7	6	8	3		1
Other towns						
Nong Khai	3	3	9	2		
Sakon Nakhon	3	4	6	4		1
Nakhon Phanom	2	0	4	2		
Mukdahan	1	1	4	1		
Kalasin	3	0	4	1		
Si Sa Ket	6	7	8	1		1
Roi Et	3	3	7	4		
Loei	3	4	3	1		
Nam	1	1	3	1		
Phrae	4	3	3	1		1
Phyao	5	0	5	0		
Lamphn	3	4	6	2		1

Source: Compiled by JST from Annual Report of each company

JICA Study Team recognizes Vientiane Capital as one of the regional cities. This is based on infrastructure development, accumulation of manufacturing factories and modernized commercial facilities in Vientiane Capital. For example, congestion during weekends at border point, First Friendship Bridge, is observed due to shopping and entertainment at Nong Khai and Udon Thani. It means commercial and entertainment functions in Vientiane Capital are lower than Udon Thani and Nong Khai. On the other hand, Vientiane Capital is connected with major cities of the surrounding countries, where major Thai commercial banks have branches.

Table 3.3.3: Overseas Branches of Thai Commercial Banks

	Bangkok Bank	Siam Commercial Bank	Krung Thai Bank	Bank of Ayudhya	Thai Airways
Vientiane Capital	1	1	1	1	1
Savannakhet				1	
HCMC	1	1			1
Hanoi	1				1
Danang					
Haiphong					
Phnon Penh		1	1		1
Siem Reap		1	1		
Sihanoukville		1			
Battambang		1			
Yangon	1				1
Kunming			1		1

Source: Compiled by JST from annual report of each company

JICA Study Team recognizes **it is necessary to upgrade Vientiane Capital from a regional city to a regional center**. This upgrading is strongly related with the employment generation or job creation for 410,000 persons. To achieve these targets, this will require promotion of the primary, secondary and tertiary sectors as described in the following sections.

3.3.3 Role of Agriculture in Vientiane Capital

(1) Role of Rural Area

As indicated in Figure 3.3.1 and 3.3.2, growth of GRDP and labor force in the primary sector is smaller than the other 2 economic sectors. Basically the primary sector will not function as an engine of economic growth but it will have the following two roles. The first one is to minimize disparity between central business districts /centre, and the surrounding districts in the future. The other role of the primary sector will be to provide amenities to residents living in the central districts, who will be visiting the surrounding districts to enjoy the greenery and local life during weekends.

The future increase of the population in Vientiane Capital in accordance with the economic development means the increase of demand for food, namely agricultural products such as rice, vegetables, fruits, feed crops, etc. Further, the demand for food materials for frozen food, restaurants, and cold chain stores will be increased due to i) Westernization of the citizens' life style as per urbanization trend of Vientiane Capital, ii) the improvement in logistics of agricultural products, iii) the spread of refrigerators and freezers. Under such circumstances, the demand for agricultural products will become diversified, and the demand for value-added commercialized crops will be further increased. The rural areas of the surrounding 5 districts i.e. Naxaithong, Xaythany, Mayparkngum, Sangthong, and Hadxaifong are adjacent to the active market of Vientiane Capital and have a large development potential to cater in the increasing demand for food and commercialized crops and be a "food supply bases for the citizens". Furthermore, these rural areas have a latent development potential as "places for recreation and relaxation of the citizens" or "agro-tourism", too.

(2) Basic Strategy for Agriculture Development

Presently, lots of labor forces are moving to the urban areas due to various income opportunities in sectors other than agriculture, and the population engaged in agriculture in the rural areas tends to decrease, and such a trend may further accelerate in the future. Thus, "the revitalize of the economy of the rural areas" becomes critical for the sustainable and harmonized economic development of the entire Vientiane Capital.

In order to revitalize the economy of the rural areas, it is important to pursue sustainable agriculture and agro-processing business taking advantage of natural, social and economic conditions of each area. Accordingly, it is first necessary to encourage farmers to engage in agriculture. For that, the government should encourage farmers to change their old practice and to challenge commercialized agriculture. At the same time, the government should implement effective policies to support farmers in order to promote the increase of the farmers' income.

Further, similarly as in some of the surrounding countries, "Security and Reliable Agriculture Production" is required as one of the steps for establishment of ASEAN Community, for revitalizing trade of commercialized crops such as vegetables and fruits, and the introduction of "ASEAN GAP (Good Agriculture Practice)" as being promoted among ASEAN countries.

Under such borderless trading of agriculture products, the government of Lao PDR is promoting commercialized agriculture aiming at not only domestic markets but also international markets. In

order to promote commercialized agriculture production, the government has implemented various projects under a concept of “Clean Agriculture in Lao PDR”. “Clean Agriculture” includes 4 farming systems such as i) traditional farming system (without chemical fertilizer and agro-chemicals), ii) farming system based on GAP and/or Integrated Pest Management (IPM), iii) farming system without agro-chemicals, and iv) organic farming system.

Despite the facts that lots of qualified vegetables and fruits have been imported to Lao PDR and little of the Lao agriculture products have been exported up to now, the department of Agriculture and Forestry of Vientiane Capital is now promoting exportation of some agricultural products which have advantages as local Lao products. Such efforts and trends are expected to expand continuously in the future.

In addition, taking into account of i) speeding up of economic development, and ii) diversified markets in these days, and the limitation of i) fund, ii) technology, and iii) marketing, the development of commercialized agriculture will not be realized by only the efforts of the government and smallholder farmers. Therefore, the power of the private companies has to play an important role for the development of commercialized agriculture and then for revitalization of the economy in the rural areas. Presently, the promotion of investment by private investors in agriculture sector is one of the priority issues of the government. The promotion of foreign investment has been implemented according to the new Investment Promotion Law that was promulgated in July 2009 for both domestic and foreign direct investment.

Generally, commercial crops are represented by vegetables, fruits, feed crops and other industrial crops, etc. However, for rice producing farmers in Lao PDR rice is an important commercialized crop as well as for self-consumption. The Study Team estimated the balance of rice production and demand in Vientiane Capital and concluded that there has been about 50,000 tons of surplus rice in the past 5 years until 2008. However, it is assumed that the balance of rice production and demand will certainly be reversed in the future due to i) increase of population and ii) decrease of paddy fields in the urban areas. Thus, from the view point of food security policy the government gives a high priority to the increase of rice productivity. In order to increase the rice productivity the government puts a high priority to i) mechanized farming for labor saving, ii) development of irrigation system, particularly gravity irrigation system, iii) re-lotting of the fields for more effective irrigation and mechanization, iv) improvement of seeds, and v) improvement of rice farming technology.

It is expected that the demand of rice as a commercial crop will be diversified and increase, and in other words, selling of such rice will greatly increase as i) security and reliable rice, ii) rice varieties hitting on consumers tastes, iii) quality rice through high technique milling process, and iv) sub-divided vacuum-packed rice. Further, the demand of rice for processing materials such as beer, and Lao noodles such as “*fuu*”, “*khaopiak*”, “*khaophune*” will also be increased.

Based on the consideration of above, the basic strategy for agricultural development in Vientiane Capital is summarized by the following 4 points.

- Agriculture development will be given the top priority in 5 districts i.e. Naxaithong, Xaythany, Hadxaifong, Sangthong and Mayparkngum.
- The basic policy of agriculture development is to develop Vientiane Capital as a model of modernized agriculture with advanced technology to rest of the Lao PDR.
- The objective of agriculture development is i) to increase rice productivity and to improve rice quality through introduction of advanced technology, and ii) to promote commercialized crops with a concept of “Clean Agriculture”.

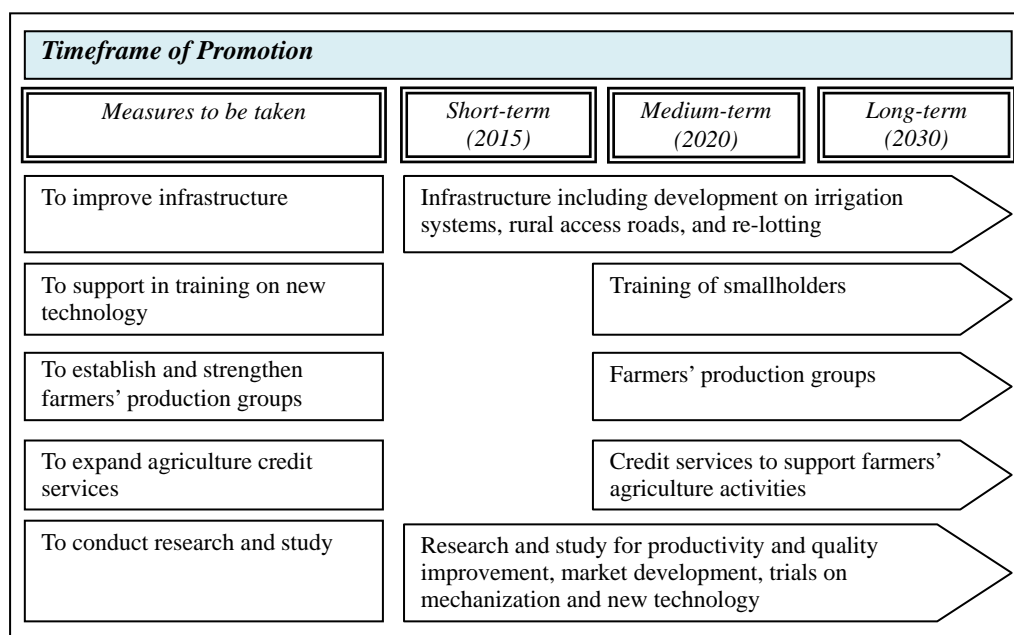
- The role of the three stakeholders in agriculture sector, namely i) the government, ii) smallholders, and iii) private companies/investors, should be clarified and their strong cooperation be promoted.

(3) Timeframe of Promotion

Figure 3.3.3 shows the timeframe of promotional measures for agriculture.

In the short term till 2015, the public sector should continue to develop infrastructure such as irrigation systems and rural access roads and re-lot the irrigated fields to promote agriculture in the five priority districts including Naxaithong, Xaythany, Hadxaifong, Sangthong and Mayparkngum. At the same time, the public sector should conduct research and study to improve productivity and quality; and develop new markets and technology including trial of mechanization and new technology.

In the medium and long terms, the public sector should continue to improve infrastructure in the five priority districts. To challenge commercial agriculture and utilizing the results of research and study, the public sector as a short term measure should also provide training about new technologies to smallholders. As introduction of new technology require investment, the public sector should expand agriculture credit service and facilitate in the establishment of farmers' production groups.



Source: JST

Figure 3.3.3: Timeframe for Promotion of Agriculture

3.3.4 Prospective Growth in the Secondary and Tertiary Sectors

It is expected that the secondary and tertiary sectors will contribute to the economic growth and job creation in Vientiane Capital. In particular, the business categories with the following characteristics are expected to be the engines of the growth.

- Utilizing abundant available resources or advantage of Lao PDR such as electricity, mineral resource and location of Lao PDR in the GMS,
- Addressing the permeation market economy in Vientiane Capital and Lao PDR, and
- Division and reallocation of production base in the GMS and ASEAN economy

(1) Manufacturing

1) Manufacturing of tiny electronic parts

Small and light weight electronic parts can be transported by air in case of quick delivery or urgent shipment. The manufacturing small or tiny electronic parts appears to be promising in Vientiane Capital, taking advantage of the existing international airport equipped with a 3,000 meter long runway. The manufacturing industry appears to be more promising particularly when such tiny parts are manufactured by the labor-intensive process, or by a lot of electricity.

Some manufacturers in Thailand have already invested in Vientiane Capital to produce electronic parts which needs labor-intensive process. In Lamphun, 25km south of Chiang Mai, there is an industrial agglomeration of electronic parts manufactures located in an industrial estate.

In Thailand, a large number of industrial workers were laid off due to economic downturn caused by the Lehman shock in 2008, and a part of these workers has not returned even after the recovery of production activities. As a result, the number of industrial workers is not enough in Thailand these days. Taking this as an opportunity, Vientiane Capital has a potential to attract investment of these manufacturers, if it can offer satisfactory investment conditions.

2) Manufacturing of metal and metalworking

Metal smelting that utilizes domestic mineral resource and a plenty of inexpensive electricity appears promising in Vientiane Capital especially near the mining site. Alloyed metal also appears promising in Vientiane Capital, when it is made from various kinds of metal available in Lao PDR. In addition, the metalworking industry for fabricating mechanical parts or construction materials also have a good potential, if fabricated products are needed in the market not too distant.

3) Apparel with High Value-added

The apparel industry has been the largest industry among the manufacturing industry in Vientiane Capital. However, it is losing a competitive advantage against other Asian countries such as Bangladesh, Cambodia, and Myanmar due to appreciation of Lao Kip and a rise in the labor wage. In order to survive such circumstances, the apparel industry needs to manufacture high value-added apparels such as, for example, fashionable ladies' wear with embroidery, designer dress, ladies' underwear with lace, lace fabric, and designer shirt.

4) Others

Small and high-value products are suitable for manufacturing in Vientiane Capital. For example, it seems made-to-order production of jewelry, denture, and wig production have a good prospect in Vientiane Capital. Such business needs manual skill, access to market, management know-how for order control and quality control, and fast transport that can make the quick delivery possible.

Besides, traditional furniture manufactures will have a chance to increase export, if they can make knock-down furniture that can satisfy the customers' requirement.

(2) Data Center and Business Process Outsourcing

Since electricity is abundant in Lao PDR, it should be fully utilized for industrial development. A potential business that can utilize electricity is data center business. Since electricity is generated at hydropower plant, environmental-friendly power is also an advantage, and attractive for the private businesses which collect and handle database in the neighboring countries. Data centers, which will develop and maintain database under outsourcing contracts, can be located near hydropower plants or in Vientiane Capital.

Along with the development of data center business, there is a high degree of potential for software development. The software development business is also done on outsourcing basis from neighboring software development companies, and it could be interpreted as parts production of custom software. A specific point of database management and software development is rapid catch-up to the advanced technology. Unlike mechanical engineering, the area of experience and know-how is not so important in electrical engineering. Therefore, these businesses would be possible if public sector and/or private sector invest in human resource development.

(3) Mining and Electric Power Supply

Mining and electric power supply sectors are the most important sectors that make significant contributions to the economy in Lao PDR. However, in terms of employment, these sectors do not make large contributions to Lao PDR. Vientiane Capital undertakes a role of the center of project implementation and management of operation, because authorities concerned and relevant private sectors are concentrated there.

(4) Construction

There are a lot of ongoing and future construction projects in Lao PDR including, for example, hydropower, bridge, road, water supply, housing, government building, commercial facility, amusement facility, railway, industrial estate, and logistic park. These construction projects are undertaken by domestic and foreign construction companies.

Construction companies established an association called the Lao Business Construction Group with 33 member companies under the Lao National Chamber of Commerce and Industry. All of the member companies have head offices in Vientiane Capital. Vientiane Capital will continue to have a role of a center of management for the construction companies.

(5) Tourism

Tourism is one of major service sectors for Lao PDR, which has two World Heritage sites, Luang Prabang and Wat Phu. The number of visitors to Lao PDR reached 2 million, according to Statistical Yearbook 2009. Vientiane Capital with its international airport is a gateway for the international visitors. According to the Statistical Yearbook, in 2009, 40% of hotels and 14% of guesthouse is located in Vientiane Capital. It is estimated that the total number of accommodation rooms are around 2,700, and 3,000 to 4,000 persons are working in the hotel industries. It is possible to enhance the tourism industry in Vientiane Capital by promoting the following two points. One is improvement of gateway function, and the other is promotion of MICE (Meeting, Incentives, Conference and Event).

Regarding the improvement of gateway function, it is necessary to develop a tour circuit where every international visitor coming to Lao PDR collects information about history, nature, culture and tour sites in the country and leaves for destinations. One of the important efforts to develop the circuit is to improve the national museum in Vientiane Capital by raising the quality of display, comfort facilities and amenities for the visitors and development and improvement of tourist entertainment function, including food for international visitors.

In terms of promotion of MICE, major targets are private businesses in the GMS countries, in particular, Thailand. People in Lao PDR have already recognized the impact of international conference and event, etc on tourism business through the successful implementation of ASEAN summit and the SEA Games. It is not so easy to organize such international and regional-class events every year but it is possible to promote business-related tourism among business society and companies in Thailand. The MICE tourism also contributes in minimizing gaps between on-season and off-season visits.

(6) Food Service Industry

Along with expansion of consumption-oriented economy in Vientiane Capital, the food service industry with a franchise system begins to locate in Vientiane Capital in addition to traditional type of restaurants. In early 2010, *the Pizza Company*, which is a restaurant chain and international franchise based in Bangkok, opened its first restaurant in Lao PDR opposite Lao Plaza Hotel. *The Pizza Company* has been expanding its franchisee internationally in the Middle East such as Jordan, the United Arab Emirates, Saudi Arabia, and Bahrain; and also in Asia such as China, Vietnam, and Cambodia since 2004. It has in all 244 restaurants all over the world as of 2009.

KFC with its headquarter in Kentucky, USA, is one of the world's most popular fried chicken fast food restaurant chains. More than 12 million customers are served in *KFC* restaurants every day in 109 countries and territories around the world. There are *KFC* restaurants in the neighboring countries such as China, Thailand, Vietnam and Cambodia; but not yet in Vientiane Capital.

McDonald's is one of the largest chains of hamburger fast food restaurants, serving nearly 47 million customers daily. *McDonald's* restaurants are found in 119 countries and territories around the world. *McDonald's* operates over 31,000 restaurants worldwide, employing more than 1.5 million people. Although *McDonald's* have not had a branch yet in Vientiane Capital, citizens know the names of *McDonald's* from TV advertisement.

A large number of citizens have tasted foods of *KFC* and *McDonald's* brought from Nong Khai or Udon Thani by their friends. They are getting gradually familiarized with these foods, and generally expected to welcome franchised restaurants such as *KFC* or *McDonald's* in Vientiane Capital.

In addition to the food service that provides meals at the restaurants, there are also food services to sell prepared foods to customers at home or offices; and deliver prepared foods at homes. Due to the entrance of women into the workforce and expansion of convenience stores, this type of food service industry has shown a remarkable growth in some countries.

Fast foods are mostly cooked in a cooking factory so-called "central kitchen", and for efficient operation they just grilled or fried in kitchens of individual restaurants. Taste of the same fast food chain is homogenized due to mass-production in the factory. There is a variety of opinions on fast food including, for example, fast food is not familiarized in the country in which citizens respect own traditional food culture; and change in food culture leads to obesity and ill health.

Along with the progress of urbanization, an increasing number of citizens live in apartments without kitchens. Under such conditions, the food service industry will have business opportunities and may

change the traditional food culture in near future. It is expected that the food service industry will create job opportunities and contribute in the economy of Vientiane Capital.

(7) Retail Industry

Total population in Urban Center and Suburban Area of Vientiane Capital was about 200,000 persons in 2005. It is larger than population in Udon Thani City (about 140,000 persons) in 2008, and is much larger than the population in the central area of Nong Khai.

Although a large consumer market is available, people in Vientiane Capital goes to the Thai cities for shopping and enjoying weekends. This customer behavior was initially formed due to the large difference in economic development between Lao PDR and Thailand. Since then, foreign investment to the retail industry in Lao PDR has not been expanded much. This is partly due to the various non-tariff barriers such as high logistics costs and difficulty in regular transport service.

It is expected that these barriers will be eliminated by improving cross border trade under CBTA in the GMS, and thus forming ultimately AFTA and improving regional logistics. In the medium and long terms, the comparable level of accumulation of retail trade stores (department stores, commercial malls, supermarkets and convenient stores) in Udon Thani should be established in Vientiane Capital. Customers should be attracted to Vientiane Capital not only from within the Vientiane Capital but also from the neighboring provinces.

Development of large-scale retail stores are expected in Vientiane Capital, along with the permeation of market economy. *Talat Sao* Mall (Phase-2) which is under construction now will be a good example of the large-scale retail store.

In April, 2010, the *Big C* (Thailand) held the first presentation in Vientiane Capital, showing the interest in establishing a store in Lao PDR.² *Big C* is one of the largest supermarket chains in Thailand. As of December 2009, it has opened a total 76 branches across Thailand. Earlier in 1998, *Big C* was established in Vietnam as well, and since then it established 10 branches in Vietnamese cities such as Ho Chi Minh City, Hanoi, Bien Hoa (Dong Nai Province), Haiphong, Da Nang, and Hue. Name of *Big C* is very familiar to citizens in Vientiane Capital through TV advertisement.

If large-scale retail stores are opened in Vientiane Capital, citizens will be able to select commodities of their own choice from the wide range of showcases of electrical appliance, clothing, accessories, furniture, kitchenware, etc. and they can enjoy movies and amusement facilities without consuming time in going to Nong Khai or Udon Thani. If citizens spend money at the stores in Vientiane Capital, it would contribute to the Lao economy and employment in Vientiane Capital.

Besides large-scale retail stores, there are a large number of small retail stores, called “Convenience Stores” in some countries. “Convenience Stores” are open seven days a week and for long business hours to sell foods and miscellaneous daily goods and provide some services including delivery and payment. *M-Point Mart* and *Mini Mart*, which are a kind of “Convenience Stores”, have already started business in Vientiane Capital.

(8) Logistics Business

JICA is conducting a study to formulate national logistics strategy for Lao PDR and to develop logistics facilities in major cities including Vientiane Capital, Savannakhet and Pakse. Lao PDR is located at the center of the Indochina Peninsula, and surrounded by international boundaries.

² Newsletter published in June 2010 by Investment Promotion Department of MPI

However, in accordance of promotion of ASEAN Community and Cross Border Trade Agreement in the framework of the GMS, and rapid economic development of this region, the position of Lao PDR is changing from “Land-locked Country” to so-called “Land-linked Country.”

In the current regimes of transport and logistics, Lao PDR is at the most advantageous position, which means a truck and trailers registered in Lao PDR can transport cargo to all neighboring countries except Myanmar. Therefore, to invite international-level logistics companies from abroad, and start logistics business in this country makes good business sense. Vientiane Logistics Park proposed by JICA Study Team will work as a base for such logistics business. Improvement of logistics will bring improvement in external environment of retail trade business.

(9) Timeframe of Promotion

Figure 3.3.4 shows the timeframe, targets and the promotion measures in the secondary and tertiary sectors.

In the short-term till 2015, the public sector should improve the investment climate: particularly providing the one-stop service through operation of the Investment Promotion Law; and reforming taxation and land management. The public sector should develop and adopt investment promotion mechanism to attract more FDI to Vientiane Capital. Trade globalization should be promoted in the short-term through the accession to WTO and full realization of AFTA. The Lao-Thai aviation agreement should be revised in the short-term to increase airlift capacity and make more effective use of the Watty International Airport. For the labor supply, the public sector should develop the housing plan for workers as well as develop the mechanism of employing people from provinces in the short-term. In order to promote the logistics business and the manufacturing industry, Vientiane Logistic Park (VLP) and Vientiane Industrial Park (VIP) should be developed, in the short-term.

In the medium and long-terms, it is necessary to build further on the success achieved during the short-term measures and take appropriate measures to promote the secondary and tertiary industries. With such measures and efforts, International trade and FDI will be further enhanced.

Targets of Promotion			
Manufacturing (tiny electronic parts, metal/metalworking, high-value apparel, other)			
Mining and Electric Power Supply (project implementation and operation management)			
Construction (Function of head office)			
Tourism (Function of gateway and MICE)			
Food service industry (fast food)			
Retail industry (large-scale retail stores)			
Logistics Business (“Land-locked Country” to “Land-linked Country”)			
Timeframe of Promotion			
<i>Measures to be taken</i>	<i>Short-term (2015)</i>	<i>Medium-term (2020)</i>	<i>Long-term (2030)</i>
To develop the investment climate and investment promotion mechanism	Compliance with the Investment Promotion Law, improvement of OSS, taxation, land management Continuous effort on investment promotion		
To continue efforts for accession to WTO and realization of AFTA	Effort for WTO and AFTA	Economic development in the global trade relations and ASEAN members	
To revise the Lao-Thai aviation agreement to increase airlift	Revise agreement	Operation of larger aircraft to increase airlift capacity	
To development the labor movement mechanism	Develop mechanism	Effort to ensure the supply of labors to industries	
To strengthen housing policy planning and implementation	Housing policy plan	Improve housing supply for increasing population	
To develop Logistics Park and Industrial Estates	Build VLP and VIP	Operate VLP for logistics and VIP for manufacturing industry	

Source: JST

Figure 3.3.4: Targets and Timeframe of Promotion in the Secondary and Tertiary Sectors

3.4. Structure Plan for Vientiane Capital

3.4.1 Concept of Urban Structure

The spatial structure of Vientiane Capital is an elaboration to determine that how Vientiane Capital will accommodate the urban development issues as described in Section 2.5. Vientiane Capital needs to strengthen its urban economy functions, particularly, commercial and business, industry and logistics, and improve livability at the same time under rapid population growth. Urban structure will be determined in consideration of location and size of necessary functions to be accommodated. In this sense, the three determinants are taken into account:

- Centralized pattern or decentralized pattern (urbanization pattern)
- Location of nodes (urban core area) with its urban function
- Transport network (links)
- Conservations

(1) Alternatives of Urban Pattern

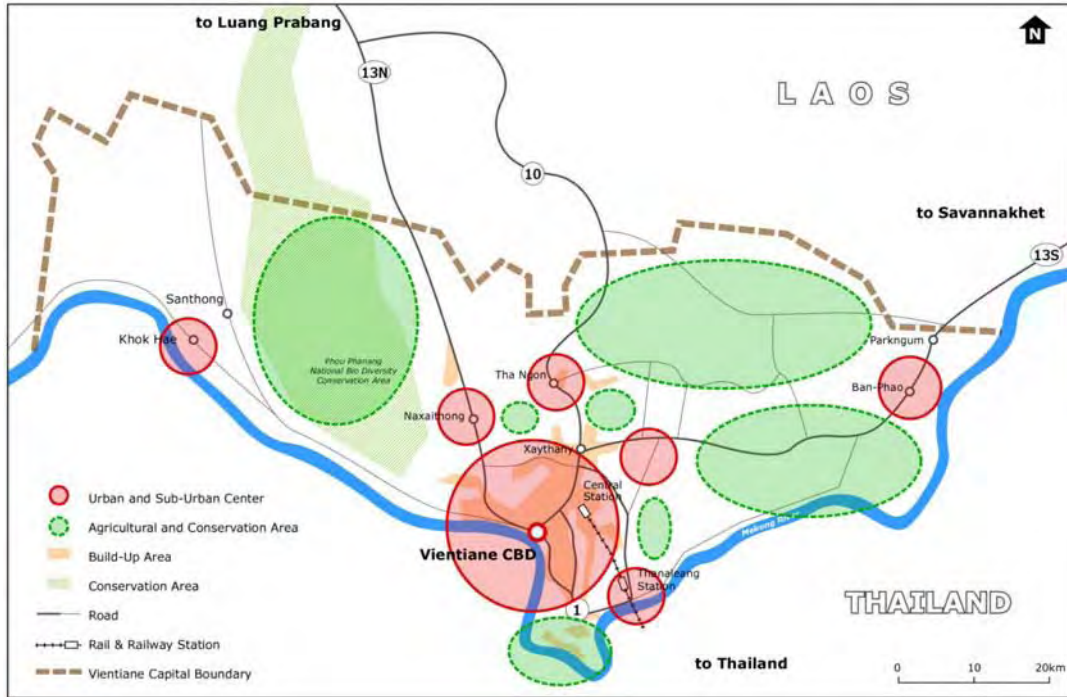
1) Multi-core Structure

This urban structure aims at controlling expansion of existing urban center with creating a few of sub-centers and urban clusters to avoid over-concentration and disordered expansion of the existing urban center. The urban center will be specialized as a commercial and business center and for urban residence. Specific functions should be decentralized to each of sub-centers located around 15 to 20 Km radius area from the urban center. The sub-centers are KM21, Thanaleang, Dongdock, Naxaithong and Railway town. An urban cluster, which is a local urban agglomeration to provide public and commercial services to surrounding local villages, will be developed at Khoh Hae, Tha Ngon and Ban Pao area.

Urban development shall be limited in the designated area and other area will be designated either agricultural or conservation area and will be basically maintained with existing land use or conservation.

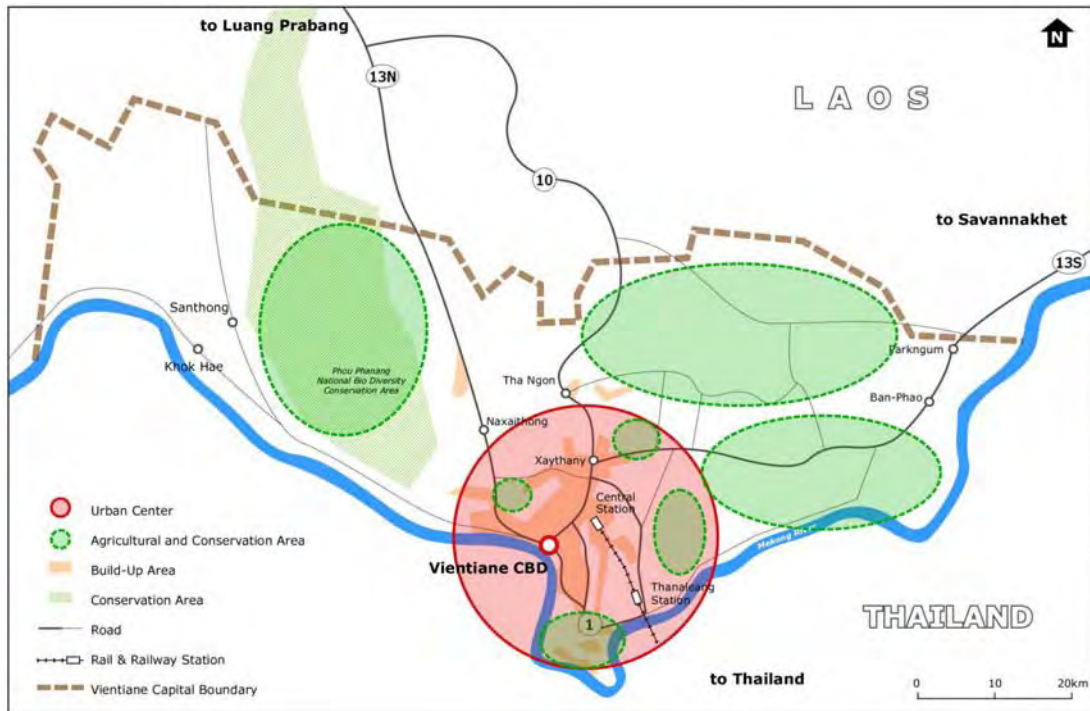
2) Single-core Structure

This urban structure follows naturally concentrated urbanization and suburban development pattern with minimum intervention to maintain agricultural area and conservation area.



Source: JST

Figure 3.4.1: Concept of Multi-core Structure



Source: JST

Figure 3.4.2: Concept of Single-core Structure

3) Comparison of Alternatives

Urban structure influences the urbanization process along with location and size of urban accumulations. Meanwhile, realization of a certain urban structure needs certain level of inputs such as public intervention (guidance and restriction) and investment. In this regard, Table 3.4.1 shows potential spatial extent of urban areas and public roles to realize the urban structure of each alternative. The urban structure under a single-core structure will be a sort of a policy-free case with minimum public interventions, while the multi-core structure may need more public interventions to realize but it may create a more functional city.

Table 3.4.1: Comparison of Alternatives

		Multi-core Structure	Single-core Structure
Urban System		Decentralizing certain urban functions from existing urban center to newly developing sub-centers in order to avoid disordered urban expansion /sprawl in outskirts	Centralizing all urban functions to single urban center to fully utilize existing urban accumulation with minimal investment and public intervention.
Size of Urban		10,000 ha for Sub-center 20,000 ha for residential area Limited expansion of existing urban center to distribute urban function and population to sub-centers	35,000 ha for new urbanized area linked with urban center Larger expansion of existing urban center to accommodate all necessary urban functions and population in the single existing urban center
Density (Spatial Extent)	Historic Conservation Inner Urban	Lower density area for historic conservation Limited higher density areas for business and commercial use Lower density area for residential use	Lower density area for historic conservation Middle density for mixed use Lower density area for residential use
	Outer Urban Outskirts	Higher density in Sub-centers Lower density area for residential use	Lower density area for residential use
	Other	Middle density in Urban clusters Low density area for agricultural and residential use scattered in the remote areas.	Same as present Urban development occurs naturally.
Conservation Nature		Designating urban planning area to be urbanized (urban center, sub-center, urban cluster, etc) and other areas to be protected area. This principally means nature conservation by restricting urbanization in important areas.	By defining it under one of land use zoning which intend to maintain and conserve the nature or agricultural land in an urban planning area
Public Role	Intervention against development	It is necessary to designate intentional development areas for sub-centers and urban clusters with development control.	Same as present
	Conservation Method	Development is principally prohibited in the area except for urban center, sub-centers and urban clusters. As an exception, minimum development by dwellers is accepted in outside of those areas.	Designated areas in the agricultural zone and conservation zone need to be maintained /conserves as per current land use.
	Investment	Large investment is needed to construct sub-centers and urban clusters by either Public investment or PPP.	Minimum investment as same as present is needed.

Source: JST

(2) Evaluation of Alternatives

1) Criteria

The alternatives indicated above could accommodate requirements from development vision and framework. However, there are different advantages and disadvantages linked with each alternative. The best alternative shall be selected based on the following criteria:

- Traffic in urban center
- Travel time
- Further environmental improvement
- Necessity to strengthen urban planning and management capacity to realize the structure
- Cost to realize the structure

2) Results of Evaluation

Multi-core structure has most advantages compared to the single-core structure. However it is important to acknowledge that large investment and sufficient capacity and institution are required to manage and materialize urbanization and urban development as specified under multi-core structure pattern.

Table 3.4.2: Evaluation of Alternatives

	Multi-core structure	Single-core structure
Traffic in Urban Center	Good High mobility can be maintained with distribution of traffic attractions.	Bad There is a risk to generate heavy traffic and congestion in the urban center in future.
Travel time	Good Travel time can be shortened by developing a balance between working and living areas in sub-centers and urban clusters	Bad Travel time will be longer due to large distance between working place and living place.
Further Environmental Improvement	Good Improvement target area can be minimized with initial investment.	Bad Target area will be larger than others.
Necessity of Improvement on Urban Planning and Management Capacity	Bad Need many improvements on urban planning and management capacity	Good No need to strengthen current capacity in urban planning and management
Cost to realize the structure	Bad Need much investment for infrastructure and utility	Good No special investment
Total	Good	Bad

Source: JST

(3) Identifications of Nodes

1) Basic Policy to select Nodes

Node in the structure plan indicates urban core area which performs as a center of urban activities. The nodes in general are identified considering the areas that have a development potential to be an urban core in Vientiane Capital. For identification of nodes, the following factors are taken into consideration:

- Existing urban agglomeration

- The area that have a potential to be transport hub function
- The area that have a potential to be a hub function of trade for agricultural products
- The area that have a potential to serve the function of business, trade and commercial center
- The area that have a potential to serve the function of local public services
- The area that has a potential to support higher valued agriculture in local area

The following nodes are identified based on the above criteria:

2) Existing Urbanized Area

Existing urbanized area of Vientiane Capital consists of typically 3 areas such as historic area, business area and residential area with highly accumulated urban economic activities and densely population. The area also performs as the center of intra and inter city transport hub. These areas shall be continuously urban center of Vientiane Capital and center of national administration based on the urban existing agglomeration.

3) KM21 Area

KM21 area since long time has been recognized as a sub-center area and planned for relocation of government offices. The area, which currently increased its development potential with several development projects with 450 years road as an important truck transport network and several other development projects such as Vientiane Industrial Park (VIP), development of university, development of industrial estates and large residential area. These development projects will be a suitable seed for further development and to be a sub-center.

4) Thanaleang Area

Thanaleang area is known as an international gateway to Thailand with Friendship Bridge and Railway. The development potential of the area has been improved with 450 years road as an important truck transport network and with several development projects such as Vientiane Logistics Park (VLP) and Thanaleang Commercial Complex. Thanaleang area will take care of logistics and trade center functions of Vientiane Municipality.

5) Dongdock Area

Dongdock area is an existing urban agglomeration specialized in higher education and research with new suburban residential area. The area has large development potential due to proximity to the downtown of Vientiane with existing better living conditions. This special urban agglomeration will be an important seed for further development and the area to be a sub-center.

6) Naxaithong Area

Naxaithong area is the currently utilized as district center. The area is located along NR-13N with approximately 15 Km from the downtown of Vientiane with large vacant land. The area has a large potential for development of residential satellite town and to serve the function as a centre of local public and commercial service in the suburban Vientiane.

7) Railway Station Area

The area is planned to have Vientiane Central station, which is expected to work as a railway transport hub/ gateway connecting to Thailand. Considering these development in transport hub, this area have a development potential in commercial and residential sector. The area will be an urban core in the suburban Vientiane.

8) Tha Ngon

Tha Ngon is traditional local urban center in the north of Vientiane Capital. It is located approximately 20 Km from the downtown of Vientiane and has been developed along Tha Ngon River as intersection of river crossing and road (NR-10), and center of agricultural products. The area along Tha Ngon River has a high potential of eco-tourism as well as for vegetables and fruits production. It also has a large to be a transport and storage center of agricultural products in future. Existing small urban agglomeration are suitable and will further strengthen and enhance its potential to be a core of urban cluster, which will serve the functions of agricultural center, local public services and commerce..

9) Khok Hae

Khok Hae is planned to be a new district center of Sangthong District. The area is located along Mekong River. Khon Hae is planed to have district office and local trade center targeting Thai peoples and local villages in Sangthong,

10) Ban Pao

Ban Pao is traditional local agricultural center in the east of Vientiane Capital. It is located approximately 30 Km from the downtown of Vientiane and has been developed near river mouth of Tha Ngon River to Mekong River. The surrounding area in particular the area along Tha Ngon River has a high potential for vegetables and fruits production. Considering this, it has a high potential to be a local transport and storage center of agricultural products in future. Ban Pao currently is a small town which will be a suitable seed to strengthen the functions of agricultural center, local public services and commerce.

(4) Transport Network (Links)

The basic road network pattern of ring and radius system is considered to be effective in dividing and distributing the concentration of traffic between through-traffic and urban traffic. Urban link is considered to be another arterial corridor in urban area which connects the center and sub-centers.

The following links are connected among nodes with roads to form major transport corridor:

1) Ring System

There are two ring systems in Vientiane: inner ring and outer ring. Ring road system mainly works as distribution of urban traffic and through traffic generated from inner and outer urban zone of Vientiane. Inner ring road divides the inner urban zone, an urbanized area with outer urban zone, newly urbanizing area. The outer ring road divides the outer urban zone with outer conservation and agricultural area. The followings are the major routes of both ring systems:

- Inner Ring: Link: Khanpengmuang Road to T4 road
- Outer Ring: Thanaleang to Naxaithong via Dongdock

2) Radius Road

Radius system serves as inter-city arterial transport corridor. There are three radius systems in Vientiane: northern radius system, southern radius system and eastern radius system. The followings are the major routes of radius systems:

- Northern radius: NR-13N
- Southern Radius: NR-1
- Eastern Radius: NR-13S

3) Urban Links

Urban link serves as intra-city arterial transport corridor, connecting urban center and sub-centers in Vientiane Capital. Some of the urban links are designated along the routes of the radius systems and ring system. The followings are the major routes of urban links:

- West Link: Urban center to Khok Hae
- East link: Urban center to KM21 and Ban Pao via Railway town
- North Link: Urban center to Dondock and Tha Ngon (same as northern radius system)
- South Link: Urban Center to Thanaleang (same as southern radius system)

(5) Conservations

Conservation areas are those areas that should not be developed or should be maintained with its current situation. The areas along with the reasons to conserve them are as follows:

- Historic areas to keep heritage and own cultural assets
- Designated conservation and reserve areas to conserve the natural environmental.
- Important agricultural areas to provide business opportunity for farmers as well as to avoid natural disaster (flooding)

1) Historic Area

The heart of Vientiane has kept well the traditional townscape with traditional buildings. It is currently works as important tourism attraction of Vientiane and is one of the important national assets of Lao culture.

2) Protected / Reserve Area

The following are environmentally important and environmentally vulnerable areas:

- Phu Khao Khoay National Protected Area
- Phou Phanang National Protected Area
- Dong Phosy Protected Area (partially)
- Dong Houay Gngang Protected Area
- Dong Banxay Protected Area

- Done Xang Fay Protected Area
- That Luang Marsh
- Nong Tha Marsh
- Nong Ping Marsh

3) Important Agricultural Area

Agricultural development is one of important strategy to up-lift economic development of Vientiane Capital. In particular, agricultural land which can cultivate higher value crops like vegetables and fruits is important to improve farmers' income. On the other hand, agricultural area has a unique function of retaining rain water and contributing in flood control.

- Agricultural area suitable for higher valued crops
- Paddy fiend functioning as water retention

(6) Multi-core Urban Structure (Summary)

Multi-core urban structure in Vientiane Capital as mentioned above is summarized in the Table 3.4.3 below.

Table 3.4.3: Multi-core Urban Structure

Node:	<ul style="list-style-type: none"> • Urban center- existing central business district (CBD) and surrounding residential area • Sub-center: KM21 area, Thanaleang area, Dongdock area, Naxaithong area and Railway town • Urban cluster: Tha Ngon, Khok Hae and Ban Pao
Link:	<ul style="list-style-type: none"> • Ring system: inner ring road, outer ring road • Radius system: NR-13N, NR-1, NR-13S • West Link: Urban center to Khok Hae • West Link: Urban center to Khok Hae and Naxaithong (NR-13N) • East link: Urban center to KM21 and Ban Pao (NR-13S) • North Link: Urban center to Dondock and Tha Ngon (NR-13S and NR-10) • South Link: Urban Center to Thanaleang (NR-1)
Urbanizing Area	Urban area will be limited to existing urban centers and some expansion areas. The other urban development demand will be absorbed by the sub-centers and urban clusters.
Green Network	<ul style="list-style-type: none"> • Inner green network at the edge of central urban center area, based on That Luang Marsh and Nong Tha, Nong Ping Marsh • Outer green network at the edge of urban center, based on Dong Houay Gngang Protected Area, and Don Banxay Protected Area
Conservation Area Agricultural Area	<ul style="list-style-type: none"> • Historic conservation area in central Vientiane Capital • Protected / Reserve Area (Phu Khao Khoay National Protected Area, Phou Phanang National Protected Area, Dong Phosy Protected Area (partially), Dong Houay Gngang Protected Area, Dong Banxay Protected Area, Done Xang Fay Protected Area, That Luang Marsh, Nong Tha Marsh, Nong Ping Marsh, etc.) • Agricultural area (higher productive area, water retention area)

Source: JST

(7) Population Distribution

The total population established in the socio-economic framework is now distributed under the concept of multi-core structure with careful consideration of the land availability and speed of urban development. Results are shown in Table 3.4.4 and are summarized as follows:

- In 2030, the population in urban area will be 65% of the total (which was 47 % in 2005). Out of this, within the urban area, the share of the population in urban center, sub-center, and urban cluster will be 40%, 22 % and 3 % respectively. Decentralization will progress by 7%, which means that the concentration of population in the urban center will be reduced from 47% in 2005 to 40% in 2030. It could also be concluded that the multi-core urban structure will contribute in decentralization of Vientiane Capital.
- In the central area of urban center, there is very little vacant space is available to accommodate increase in population and further development or redevelopment of higher buildings. Accordingly, population increase rate was restrained to be only 0.5 %/year.
- In the outer urban zone and outskirts zone the population growth will continue to increase with similar pace as of urban development.
- Sub-centers accommodate approximately 350 thousands persons, which is approximately 22% of the total population. Thus, significances importance and efforts should be made to guide investment in this area and to control development in other areas.

Table 3.4.4: Population Distribution

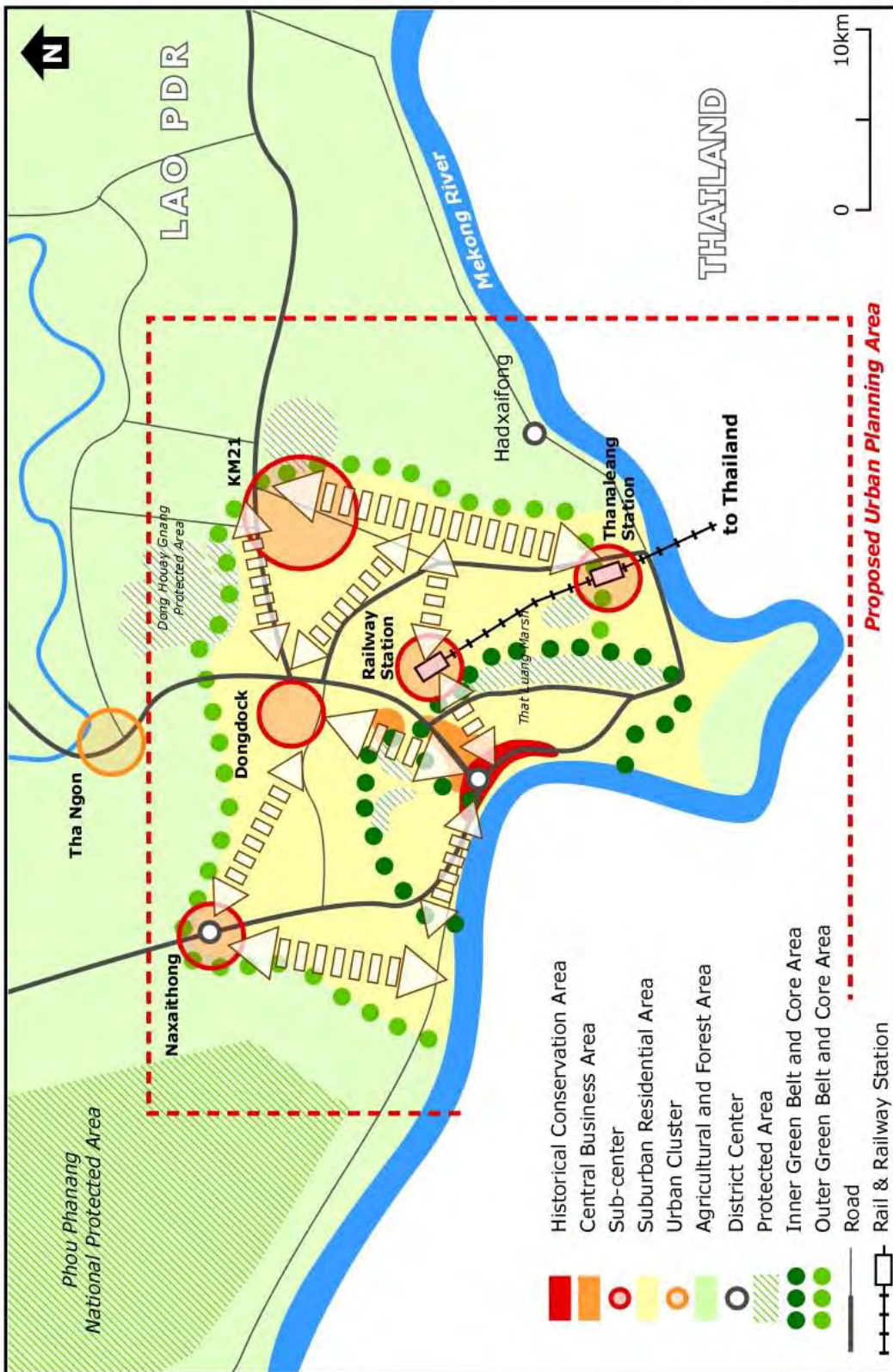
		Past Population			2030	Growth Rate (%)		
		1995	2005	Growth Rate (%)				
Historic Conservation Zone		185,453	203,660	-	11,000	0.5%		
Inner Urban Zone			126,212			219,000		
Outer Urban Zone							300,000	4.2%
Outskirts Zone							50,000	
Sub-center	KM21	16,562	18,701	1.2%	150,000	8.7%		
	Thanaleang	3,215	3,809	1.7%	35,000	9.3%		
	Dongdack	11,723	19,163	5.0%	80,000	5.9%		
	Naxaithong	1,799	2,531	3.5%	20,000	8.6%		
	Railway Town	2,858	3,796	2.9%	30,000	8.6%		
Total		36,157	48,000	2.9%	315,000	7.8%		
Urban Cluster	Tha Ngon	3,888	5,162	2.9%	20,000	5.6%		
	Khok Hae	854	848	-0.1%	10,000	10.4%		
	Ban Pao	1,686	2,137	2.4%	5,000	3.5%		
Total		6,428	8,147	2.4%	35,000	6.0%		
Outside of the urban planning area		301,464	305,702	0.1%	509,000	2.1%		
Total		529,502	691,721	2.7%	1,439,000	3.0%		

Source: JST



Source: JST

Figure 3.4.3: Multi-core Structure Plan (Vientiane Capital)



Source: JST

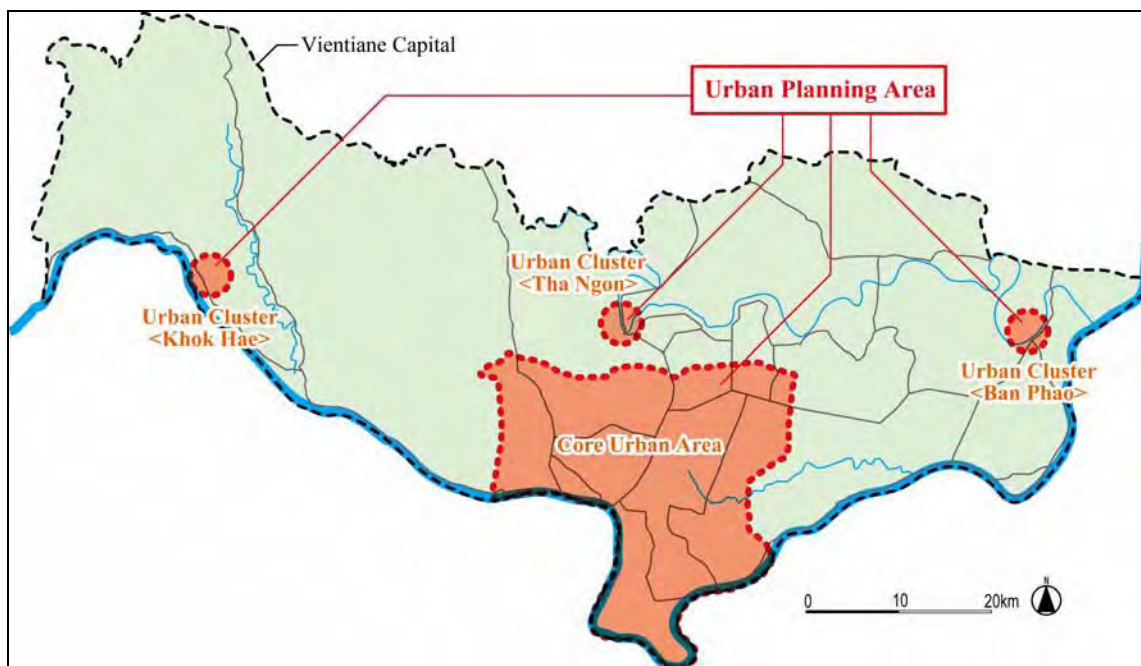
Figure 3.4.4: Multi-core Structure Plan (Core Urban Area)

3.4.2 A Basic Policy for Urban Development

(1) General

1) Urban Planning Area

The “Urban Planning Area” is a spatial extent where the law of urban planning is effective. In this study, the urban planning area is outlined as shown in 3.4.5 based on the demographic projection and the land use planning. Detailed zoning is conducted inside the urban planning area.



Source: JST

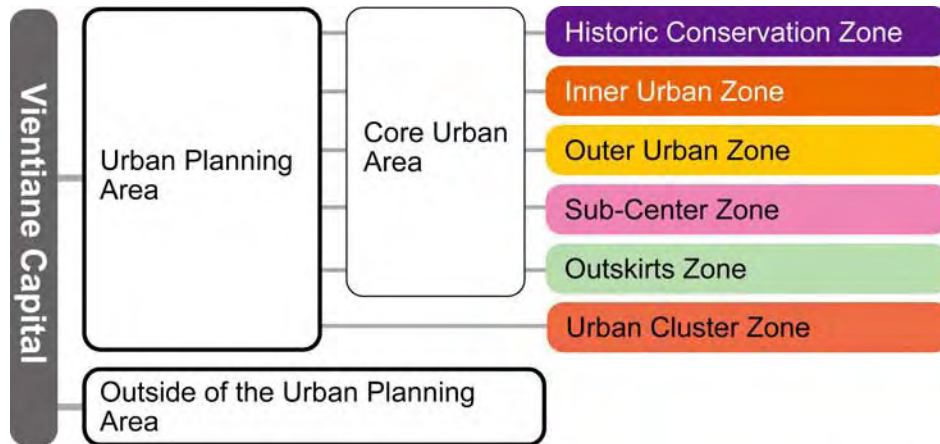
Figure 3.4.5: Urban Planning Area

2) Planning Zone

It is necessary for the Lao authorities to control the urbanization based on the formulated urban land use plan as described in detail in Section 4.1. In this context, it is recommended that the urban planning area should be divided into six (6) “planning zones” in order to induce appropriate spatial use and effectively restrict the inappropriate building construction. The six (6) planning zones are “Historic conservation zone”, “Inner urban zone”, “Outer urban zone”, “Sub-center zone”, “Outskirts zone”, and “Urban cluster zone” as shown in Figures 3.4.6 and 3.4.7.

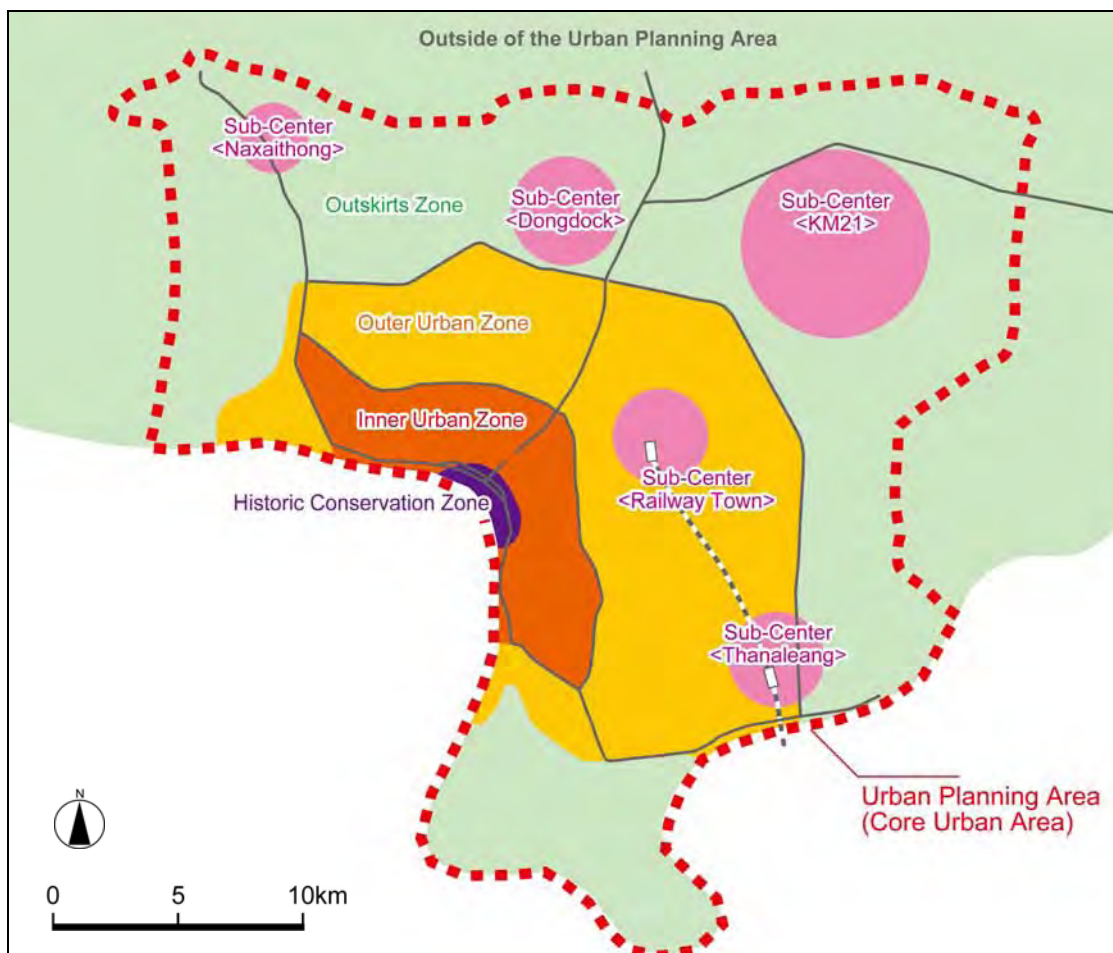
Historic conservation zone and inner urban zone comprises urban center of Vientiane Capital. Outer urban zone and outskirts zone consist of residential area and conservation area. Sub-center zone is new centers of business and economic activities. The area outside of urban planning area is basically used for agricultural area and forest area with local settlements, which should be basically restraint development. Urban cluster zone will be exceptional area concentrating on urban development and offering administration and public

service, local community service as well as trade and commercial center to the local community.



Source: JST

Figure 3.4.6: Planning Zones in Vientiane Capital



Source: JST

Figure 3.4.7: Planning Zones in the Core Urban Area

Table 3.4.5: Six (6) Planning Zones (Actual Situation)

Zone		Location	Main Building Use	Characteristics
Core Urban Area	Historic Conservation Zone	Inside the ancient ramparts	Public offices, Private offices, Embassies, Hospitals, Large & tourist hotels, Restaurants, Cafés, Souvenir stores, Retail hops, Colleges, Temples	- Many historic buildings - Densely constructed with low-rise semi-detached buildings
	Inner Urban Zone	Outside the Historic Conservation Zone and inside the Inner Ring Road	Houses, Commercial buildings, Public offices, Private offices, Embassies, Hotels, Restaurants, Collages	- Newly developed area - Commercial buildings located along main roads - Sparsely constructed low and middle-rise semi-detached and independent buildings - Greenery to be protected
	Outer Urban Zone	Mainly between the Inner Ring Road and the Outer Ring Road *This zone extends partially outside the Outer Ring Road	Houses, Commercial buildings, Roadside stores, Hotels, Factories, Conference halls, Collages	- Agricultural land - Urbanization rapidly increasing along the main roads - Low-rise detached houses - Paved main roads and unpaved dirt feeder roads - Environmentally important water surfaces (That Luang March, etc) - Greenery to be protected
	Sub-Center Zone	Specific zones in the Outer Urban zone and the Outskirts zone	Houses, Private offices, Roadside stores, Stadium, Universities	- Agricultural land - Urbanization rapidly increasing along the main roads - Paved main roads and unpaved dirt feeder roads - New large-scale infrastructure (450 Year Road, Railway, etc) - Politically initiated new development - Foreign private investments
	Outskirts Zone	Outer side of the Outer Urban zone and inside the Urban Planning Area	Houses, Roadside stores, Agriculture-related buildings	- Overwhelmingly dominating agricultural land with typical Lao rural landscapes - Large-scale important greenery to be protected
Urban Cluster Zone	Small-scale urbanized areas separately located outside the “Core Urban Area”	Houses, Roadside stores, Agriculture-related buildings	- Sparsely constructed low and middle-rise buildings - Scattered agricultural land - Greenery to be protected	

Source: JST

A basic policy of land use and urban development is necessary to realize the concept of the multi-core structure as mentioned in the previous section. The policy will be determined based on the roles along the multi-core structure by area with careful considerations of the location and the current situations. It is important for the Lao authorities' in-charge to properly manage the urbanization in each zone by following these basic policies.

Prior to the formulation of policies for each planning zone, it is important to check the characteristics derived from of result of the social survey about the six (6) planning zones. Please refer the Appendix-2 for justification, feedback and details of the social survey.

(2) Historic Conservation Zone

1) Current Conditions

Historic conservation zone is located in the urban center of Vientiane Capital. Downtown of Vientiane Capital consists of mainly low shop-house buildings, which is a historic landscape of Vientiane Capital since 19 century. The area has been designated as conservation area in the previous urban plan to maintain townscape of traditional townscape, which supposes to be supported by several governmental policies as well as appreciated by peoples of Vientiane Capital.

Currently, many building reconstruction projects are observed, depending upon increased investment under favorable economic conditions. However, it is necessary to formulate more comprehensive measures to guide reconstruction of shop-house buildings and street beautification.



Source: JST

Figure 3.4.8: Current Pictures of the Historic Conservation Zone

2) Development Target

- a) *Expected Area and population*
- Approximately 250 ha
 - Approximately 11,000 persons
- b) *Urban Functions*

Historic conservation zone of urban center of Vientiane Capital is the place of history and cultural heritage of Lao PDR. This townscape consists of low shop-house buildings along Settha Thirath Road and vista of Lane Xang Avenue from Patu Xay, which is a major tourist attraction in Vientiane Capital. This zone highlights the following:

- Identity of Lao People
- Cultural heritage of Lao peoples
- Tourism attraction

3) A Basic Policy

a) Urban Development Policy

To realize the land use as mentioned above, the historic conservation zone should maintain current land use and improved landscape by controlling building reconstruction projects, sign board, shape and color of buildings. This will maintain the good townscape. The public buildings that are unnecessarily located in the area should be relocated to the sub-centers. This will generate some vacant space which can be utilized for greenery or other public purposes.

In this zone, the following urban development policy should be taken into account:

- Conservation of historic heritages and buildings
- Development of the attractiveness as tourist resources (urban landscape, land use, etc.)
- Improvement of environment and urban transport (pedestrian-friendly roads, etc.)
- Restriction and refinement of building control regulation
- Relocation of public facilities toward the Suburbs

b) Land Use policy

The zone should be conserved as a historic heritage of Lao PDR, and maintained as a tourism attraction with many hotels, guesthouses, restaurants and shops to be a gateway and tourism hub of Lao PDR.

For this purpose, the following land use policy should be taken into account:

- Maintain temples and street
- Conservation of landscape and historic buildings
- Guide of building reconstruction with land use plan and building code

c) Infrastructure Development Policy

Residents along with many tourists will exert an extra burden on traffic and environment in the area, causing the risk of heavy traffic congestion and environmental deterioration. This will require further effort to provide ample parking spaces and efficient traffic management in the area. In addition, continuous efforts are required in improving the utility, facilities and infrastructure in the area. In particular the following infrastructure and urban facility will be given higher priority:

- Car parking
- Drainage and sewerage system
- Beautification of landscape and street and street amenity

Table 3.4.6: Infrastructure Development Policy in the Historic Conservation Zone

Sector	Basic Policy
Road and Transport	- To eliminate private mode of transportation with a provision of public transport corridor and implementing TDM policies.
Water Supply	- Identification of the location of under ground pipes - Renovation of the transmission and distribution pipe network. - Rehabilitation of water leakage from pipes
Sewerage/ Wastewater	- Improve existing septic tank or develop decentralized wastewater treatment plant
Drainage	- Improved existing drainage channel by removal of sediment, garbage and side wall rehabilitation. Keep existing pond or marsh area as retarding basin.
Solid Waste	<Short-term> - Awareness-raising about the importance of collection and reducing generation and discharge - Expansion of collection/transportation service area in the build-up area
Parks and Greenery	- Construction of additional 9 village parks in 4 phases

Source: JST

(3) Inner Urban Zone

1) Current Conditions

Inner urban zone is located outside the historic conservation zone and inside the inner ring road. The zone is currently utilized for public and private business, commerce and tourism and urban residence. The zone has the stock of past investment and higher attractiveness for customers owing to the accumulated urban functions, which is its strength for further development. Although some office buildings are currently constructed, the zone is almost fully built-up with typical shop-house buildings having a mixed use i.e. shop/factory on the ground floor and residence on the upper floors.

There seems to be still large development demands in this zone due to market expansion as well as increase in the size and affordability of people in Vientiane Capital due to economic growth and population increase. Barrier-free movement of people and goods under the market integration of GMS and ASEAN will strongly support the enlargement of the market function as well.



Source: JST

Figure 3.4.9: Current Pictures of the Inner Urban Zone

2) Development Target

a) *Expected Area and Population*

- Approximately 5,100 ha
- Approximately 219,000 persons

b) *Urban Functions*

The inner urban zone strengthens the urban function as a center of regional economic hub in GMS in addition to the national center of Lao PDR. More regional branch offices, commercial and businesses are expected to be located in pursuit of business chances triggered by economic development in Lao PDR and Vientiane Capital. Central business district (CBD) should realize higher land use intensity with higher buildings to accommodate more offices and shops. This zone can fulfill the following functions:

- Center of Administration
- Regional hub of business and service
- Commerce

- Urban residence

3) A Basic Policy

a) Urban Development Policy

To realize the land use as mentioned above, the historic conservation zone should be actively reformed in the area specified for the business, banking and commercial center. The other functions that are not necessarily located in the area should be relocated to the sub-centers to generate land for further development.

For this purpose, the following urban development policy should be taken into account:

- Acceleration of urban redevelopment for business use intensification
- Relocation of comparatively large-scale factories, and logistic facilities toward the suburbs
- Improvement of living environment (drainage and sewerage system, solid waste disposal, etc.)
- Improvement of road network and public transport
- Encouragement of environment-friendly residential developments
- Conservation of the existing natural environment (marshes, etc.)

b) Land Use policy

It is important for the zone to up-lift the land use efficiency and intensity. This is due to the limitation of vacant land, and requirements for strengthening “scale merit” and “attractiveness” of commercial and service activity to cater to the strong demand. Urban redevelopment projects should be accelerated for specific land use and buildings as well as to raise land use intensity with higher-rise buildings, replacing from mixed and lower-rise ones.

For this purpose, the following land use policy should be taken into account:

- High density in the inner urban zone
- Specialization of land use in the central business area mainly for business and commercial use and partially urban residence
- Coordination with landscape and historic buildings in the historic conservation zone

c) Infrastructure Development Policy

Higher intensity of land use will exert a more burden on traffic and environment in the inner urban zone, causing the risk of heavy traffic congestion and environmental deterioration. To avoid them properly, it is indispensable to continuous efforts to improve utility and infrastructure at the inner urban zone. In particular the following infrastructure and urban facility will be given higher priority:

- Public transport system
- Car parking at CBD

- Drainage and sewerage system
- Street amenity
- Public parks and green network

Table 3.4.7: Infrastructure Development Policy in the Inner Urban Zone

Sector	Basic Policy
Road and Transport	- To form urban structure by the construction of circular primary arterial road and, arterial and collector road complementary to the arterial road.
Water Supply	- Identification of the location of under ground pipes - Renovation of the transmission and distribution pipe network. - Rehabilitation of water leakage from pipes
Sewerage/ Wastewater	- Improve existing septic tank or develop decentralized wastewater treatment plant
Drainage	- Same as historic conservation, drainage pump might be necessary in low area with flood prone.
Solid Waste	<Short-term> - Awareness-raising about the importance of collection and reducing generation and discharge - Expansion of collection/transportation service area in the build-up area
Parks and Greenery	- Construction of additional 9 village parks in 4 phases

Source: JST

(4) Outer Urban Zone

1) Current Conditions

Outer urban zone is developed mainly as residential area. At present development is in progress along the major roads and relatively at higher places (to avoid flood). Currently urbanization is taking place around 5Km radius in the east and south and 10 Km radius in the north and west except for Dongdock area in Northeast. These zones still has large vacant land within 15 to 20 Km radius area. The land price in these zones gets higher and higher particularly in the land along major roads due to more demand for land development, but is still lower than in the urban center. Currently the area along DR108 has several development plans like a Chinese university, golf course and industrial park. Likewise, development demand will continue to be more and more in accordance with economic growth and population increase. Meanwhile, the development mainly occurs along the major roads, as a result there are many unused land existing behind the developed land along the roads. This harms the efficient use of land as a whole. Increasing demand and preferable future perspectives will cause more land speculation and development without proper infrastructure and utility. If no efforts are made for planning and controlling such development, this will result in inefficient use of land and poor living environment in future.



Source: JST

Figure 3.4.10: Current Pictures of the Outer Urban Zone

2) Development Target

a) Expected Area and Population

The total area of the outer urban zone is about 14,500 ha, extending outside the urban center in 10 km radius area in east, 15 Km radius area in south, 20 Km radius area in North.

- Approximately 14,500 ha
- Approximately 300,000 persons

b) Urban Functions

The outer urban zone is the surrounding area of the inner urban zone and is capable of providing sufficient residential areas with better living environment. Current outer urban zone has land at lower level, marsh and swamp area, forest and higher productive paddy fields, which are important areas from environmental and disaster prevention point of views. As per the current land uses, these area should basically be maintained/conserved use as much as possible to keep environment and livability of Vientiane Capital. Coordination of urban

development and conservation of current land use will be the two most important tasks for the outer urban zone. The outer urban zone can be conceptually divided into two types of areas in terms of characteristics of land use such as:

- Residential area
- Conservation area including lower land, swamp land and paddy field for flood control and recreation

3) A Basic Policy

a) Urban Development Policy

The outer urban zone should be properly developed to provide new residential areas with good living environment. The existing residential area also needed to be improved in terms of living environment and improved infrastructure. For this purpose, the following urban development policy should be taken into account:

- Acceleration of new urbanizing area (residential area with good living environment)
- Improvement of road network (primary, secondary, etc.)
- Improvement of living environment (water supply, drainage and sewerage system, solid waste disposal, etc.)
- Conservation of the existing natural environment (marshes, river-front, etc.)

b) Land Use Policy

Residential area in the outer urban zone has high land development demand for residential, industrial, recreational, logistics and commercial development. To create better living environment for increased population and an efficient working environment for new business and industries, the residential area should be taken into account, and demand on land for new business should be carefully guided to concentrate into the sub-centers.

There is a risk for land speculation and urban sprawl, which is basically the development without proper infrastructure and utilities. Accordingly it is of importance to guide and control the development in the suburban areas to generate good living environment. The outer urban zone will be an expansion of residential area from current central residential areas and it is expected to be middle density in terms of land use intensity.

For this purpose, the following land use policy should be taken into account:

- Designation of urban area to regulate urban expansion
- Low density in residential area
- Conservation of environmentally important area such as That Luang Marsh, Nong Tha Marsh
- Prohibition of development outside of designated urban area

c) *Infrastructure Development Policy*

Utility and Infrastructure development should be considered not only as a tool to improve living environment but also as a tool to properly guide urban development. In this sense, utility and infrastructure should be developed prior to new residential development. Such infrastructure development will guide the future urban development. Environmental improvement projects shall be implemented in the existing residential area.

For this purpose, the following policy should be taken into account:

- Infrastructure development to guide residential development in the outer urban zone and the outskirts zone (Secondary road, approach road development, water supply and power supply to the area to be developed for guiding development)
- Improvement of living environment by providing sanitary infrastructure and approach roads in the existing suburban residential area
- Public parks and green network

Table 3.4.8: Infrastructure Development Policy in the Outer Urban Zone

Sector	Basic Policy
Road and Transport	- Construction of trunk roads, which consist of Outer Ring Road and supporting arterial roads, and establishment of public transport service lead by BRT to connect villages to the Inner Urban Area.
Water Supply	- Identification of the location of under ground pipes - Renovation of the transmission and distribution pipe network. - Rehabilitation of water leakage from pipes - Installation of pipes where is going to be developed - Enlargement of the WTP capacity to supply the water demand.
Sewerage/ Wastewater	- Provide overall treatment by on-site or decentralized system to new housing and new development
Drainage	- Provide proper drainage system inside the outer urban area by using additional drainage channel, pipe and retarding basin.
Solid Waste	<Short-term> - Awareness-raising about the importance of collection and reduciing generation and discharge - Expansion of collection/transportation service area in the build-up area
Parks and Greenery	- Construction of two types of parks based on the construction standard of service distance to use

Source: JST

(5) Sub-center Zone

1) Current Conditions

As mentioned in outer urban zone and outskirts zone, increasing demand and preferable future perspectives will cause more land speculation and development without proper provision of infrastructure and utility services. Such speculation will fail to utilize the land efficiently and will result in formation of poor living environment. Thus, it is required for urban development authority to guide such land development properly in outer urban zone and outskirts zone to construct well-planned sub-centers. As the sub-centers have very limited utility and infrastructure, it is necessary to develop all infrastructures in advance to develop a new town. It would be an advantage or effective tool to guide urbanization or to concentrate investment into the outer urban. However, it is of great importance to avoid land speculation and urban development authority must be cautious and take necessary steps for effective land management.



Source: JST

Figure 3.4.11: Current Pictures of the Sub-center Zone

2) Development Target

a) *Expected Area and Population*

- Approximately 10,800 ha
- Approximately 315,000 persons

b) *Urban Functions*

Sub-center is developed as a new urban accumulation to relocate certain urban functions from the urban center and to receive new urban activities. The sub-centers are located outside of the urban center. Some of them are in the outer urban zone and the others are in the outskirts zone. The land price of respective sub-centers is higher particularly in the area along major roads while the land prices inside is still low. Among the locations of different sub-centers, the sub-centers located in the urbanized area such as in the outer urban zone have high development demand. In such areas, the price may continue to be rise in accordance with the economic growth and population increase. Thus, it is of great importance for urban development authority to guide the land development demand in the sub-centers located in different areas.

- Sub-centers to generate new urban accumulation in suburban area

c) Five (5) Sub-centers

Sub-center is developed to distribute certain urban functions from the existing urban center or to receive new urban functions instead of the urban center. The sub-centers are located in either outer urban area or in the outskirts area and are within the 15 to 20 Km radius area from the urban center. These sub-centers are basically self-sufficient with balanced working and living place.

- KM21 (new town): New administration and industrial town (150,000 persons)
- Thanaleang: Logistics and Border trade town (35,000 persons)
- Dongdock: Academic and science town (80,000 persons)
- Naxaithong: Satellite residential town (20,000 persons)
- Railway town (30,000 persons)

3) A Basic Policy

a) Urban Development Policy

The action required is to focus on the construction of sub-centers. First, the candidate area for the sub-centers needs to be confirmed first and then the land to be properly acquired prior to any development. Secondly, the area should be properly developed to attract new economic activities like business, industry, commerce etc. along with housing development.

For this purpose, the following urban development policy should be taken into account:

- Clarification of characteristics, land use, specific functions for each sub-center
- Investment promotion, development inducement and PPP acceleration
- Development of an industrial estate and a logistics park
- Relocation of public facilities (public offices, universities, colleges, hospitals, etc.)
- Development of infrastructure for each sub-center (roads, ICT, parks and greenery, etc.)

Table 3.4.9: Urban Development Policy by Each Sub-center

Name	Urban Development Policy by each sub-center
KM21	<ul style="list-style-type: none"> - Infrastructure development - Relocation of governmental offices and factories - Development and site development for residential and business district development - Industrial park development
Thanaleang	<ul style="list-style-type: none"> - Infrastructure development - Vientiane Logistics Park development - Commercial and Trade Complex development - Site development for residential development
Dongdock	<ul style="list-style-type: none"> - Infrastructure development, relocation of governmental offices and site development for academic and high education and training - R&D facility
Naxaithong	<ul style="list-style-type: none"> - Infrastructure development and site development for residential town
Railway town	<ul style="list-style-type: none"> - Infrastructure development - Station plaza development - Site development for residential area

Source: JST

b) Land Use Policy

Sub-center basically consists of business, commercial area and residential areas. A sub-center is conceptually an independent city with balanced working and living places. Business and commercial areas should be developed with higher land use intensity, and the residential area shall be developed with medium land use intensity to create good living environment, which will be similar but a little lower than the land use intensity applied in the outer urban zone and the outskirts zone. Sub-centers are conceptually exceptional area in terms of urban development outside the urban center. The development is permitted in the sub-centers with prohibition of urban development outside the sub-centers. The areas to be conserved from environmental, disaster preventive and agricultural point of view will be designated as agricultural and conservation area in the land use planning.

For this purpose, the following land use policy should be taken into account:

- Designation of sub-centers to concentrate on development
- Higher density in business and production area while low density in residential area in the sub-centers
- Prohibition of development outside of designated sub-centers
- Conservation of environmentally important area such as paddy field with water retention function, agricultural land suitable for higher value added field crops

c) Infrastructure Development Policy

Sub-center can be developed under the public initiatives with private participation (PPP). Major utility and infrastructure should be developed by the public sector prior to attracting private investment for the development.

- Preparation of land for sub-centers and network to connect with urban center
- Infrastructure development to guide private investment to sub-centers
- Attraction of private investment

Table 3.4.10: Infrastructure Development Policy in the Sub-center Zone

Sector	Basic Policy
Road and Transport	- Improvement and up gradation of existing roads to improve the accessibility of sub-centers and urban clusters to primary arterial road and the Inner Urban Area.
Water Supply	- Identification of the location of under ground pipes - Renovation of the transmission and distribution pipe network. - Rehabilitation of water leakage from pipes - Installation of pipes as per planned network - Enlargement of the WTP capacity to meet the water supply demand.
Sewerage/ Wastewater	- Provide overall treatment by on-site or decentralized system to new housing and new development
Drainage	- Provide proper drainage system inside the outer urban area by using additional drainage channel, pipe and retarding basin.
Solid Waste	<Medium to Long-term> - Awareness-raising about the importance of collection and reducing generation and discharge - Expansion of collection/transportation service area in the new urban area
Parks and Greenery	- Construction of two types of parks based on the construction standard of service distance to use

Source: JST

(6) Outskirts Zone

1) Current Conditions

Outskirts Zone should basically avoid urban development to maintain current land use from environmental value, water retention function, land productivity points of view. From environmental conservation and agricultural points of views, there are some areas that need to be conserved as per current land use without any further development. These areas are rich in nature and society tends to acknowledge the importance of natural environmental conservation. From environmental point of view, these important areas are That Luang marsh, Dong Houay Gngang Protected area, Dong Phosy Protected area.

Certain agricultural lands are valuable in terms of either higher yield or having a potential for higher value added crop production. These areas may desire to change the crops to higher value added ones which will also improve the farmers' income. These agricultural lands are located nearby the sub-centers. Some agricultural lands also plays an important function of water retention.



Source: JST

Figure 3.4.12: Current Pictures of the Outskirts Zone

4) A Basic policy

a) *Urban Development Policy*

Basically there should not be any active urban development in this area. The following policy should be taken into account:

- Development of irrigation facilities/ enhancement of rice farming
- Encouragement of cash crop production
- Preservation of pastoral landscapes
- Restriction/ inducement in shape and use of buildings so as not to damage the pastoral landscapes and the environment.
- Designation of natural forests, agricultural land, water surfaces for conservation of the urban greenery and the water faces

b) *Land Use policy*

The agricultural and conservation area is located outside of suburban area of Vientiane Capital and mainly utilized as agricultural land and forest land with traditional local settlements.

Such areas should basically maintain the current land use (conservation and agricultural land use) and avoid any unnecessary and disordered development without the provision of infrastructure facilities. The area is prohibited for urban development except for minimum development allowed to local dwellers. The conservation area will maintain the current land use and avoid any development.

- Prohibition of development outside the designated sub-centers and urban clusters
- Conservation of environmentally important area such as paddy field with water retention function, agricultural land suitable for higher value added field crops
- Acceptance of minimum development by local dwellers

c) Infrastructure Development Policy

Infrastructure and utility development for basic human needs shall be taken into account.

(7) Urban Clusters Zone

1) Current Conditions

Other area mainly consists of forest and agricultural land with rich nature and good environment. It is conceptually remote area of Vientiane Capital, which may have little influence on urban development and demand caused by economic development and population increase. The area currently has local traditional settlements scattered over the area. Urbanized area is limited to certain local centers only.



Source: JST

Figure 3.4.13: Current Pictures of the Urban Cluster Zone

2) Development Target

a) *Expected Area and Population*

Tha Ngon and Ban Pao are developed based on the existing local urban agglomeration, while Khok Hae is a town to be newly developed. Tha Ngon and Ban Pao are traditional local trade center while Khok Hae is a potential area for future border trade with Thailand across the Mekong River.

- Approximately 3,100 ha
- Approximately 35,000 persons

b) *Urban Functions*

Urban cluster is developed to form local economic and service center serving surrounding villages as well as to distribute certain population from the urban center. Although there is existing urban accumulation in each urban cluster but it is very small in size with limited economic activities except for Tha Ngon. The land prices are very cheap in each urban cluster compared to the prices in urban center and sub-centers. Major land use in the urban clusters and surrounding areas is agriculture like paddy and crop fields and forest land.

The urban cluster will be a local center for agricultural products and is required to coordinate urbanized area with agricultural areas. The urban clusters have very limited utilities and infrastructure and require improvement to improve the living environment in the area.

c) *Three (3) Urban Clusters*

Urban cluster is developed to act like a local base which provides urban services to the surrounding villages in rural districts. The urban services provided at the urban clusters are

public services like health care, education and other administrative services, and local trade and commercial center. Further, the urban clusters are located in the area that have a good accessibility to river and road transport, so that the original towns have been developed for long time, accordingly, there is certain economic development potential in trade and logistics as a center of the rural districts. The followings are the urban clusters:

- Tha Ngon: Commercial and tourism town, (20,000 persons)
- Khok Hae: Border trade and transport town, (10,000 persons)
- Ban Pao: Local commercial town, (5,000 persons)

3) A Basic Policy

a) *Urban Development Policy*

The required action focuses on the construction of urban clusters. The candidate areas for the urban cluster should be properly developed with adequate infrastructure facilities to improve its attractiveness.

For this purpose, the following urban development policy should be taken into account:

- Improvement local public service in urban clusters
- Development of agriculture and green tourism center

Table 3.4.11: Urban Development Policy by Each Urban Cluster

Name	Urban Development Policy by each Urban Cluster
Tha Ngon	- Infrastructure development by government with certain public service facilities - Residential and commercial development by PPP
Khok Hae	- District center development - Infrastructure development by government - Residential and commercial development by PPP
Ban Phao	- Infrastructure development by government with certain public service facilities - Residential and commercial development by Private

Source: JST

b) *Land Use policy*

Urban cluster is a sort of local urban accumulation in Vientiane Capital, but the size of urban accumulation will be limited. The urban cluster basically consists of public area, business and commercial area and residential areas. The land use intensity will be low except for central area of the urban clusters.

Urban cluster is conceptually an independent town with balanced working and living places. The urban cluster is also conceptually exceptional area in terms of urban development outside the urban center. The development is accepted in the urban clusters with prohibition of urban development except for minimum development by local dwellers.

For this purpose, the following land use policy should be taken into account:

- Designation of urban clusters
- Low density in urban clusters with mainly mixed land use
- Prohibition of development outside of designated urban clusters
- Acceptance of minimum development by local dwellers for their living purpose.
- Conservation of environmentally important area such as paddy field with water retention function, agricultural land suitable for higher value added field crops

c) Infrastructure Development Policy

Urban cluster can be developed by public initiatives with private participation (PPP). Major utility and infrastructure should be developed by the public prior to attracting private investment for development of office, factory, commercial facility and houses.

- Infrastructure development to improve attractiveness of the urban cluster
- Attraction of private investment

Table 3.4.12: Infrastructure Development Policy in the Urban Cluster Zone

Sector	Basic Policy
Road and Transport	- Improvement and up gradation of existing roads to improve the accessibility of sub-centers and urban clusters to primary arterial road and the Inner Urban Area.
Water Supply	- Identification of the location of under ground pipes - Renovation of the transmission and distribution pipe network. - Rehabilitation of water leakage from pipes - Installation of pipes as per planned network. - Enlargement of the WTP capacity to meet water supply demand.
Sewerage/ Wastewater	- Overall wastewater treatment by improved septic tank and grease trap
Drainage	- Provide proper drainage system within the area by using additional drainage channel and natural pond or marsh.
Solid Waste	<Medium to Long-term> - Awareness-raising about the importance of collection and reducing generation and discharge - Expansion of collection/transportation service area in the new urban area
Parks and Greenery	- Construction of two types of parks based on the construction standard of service distance to use

Source: JST