

Reality of Urbanization and Urban Master Plan of Vientiane Capital, Lao PDR: Issues and Prospects

Thanousorn Vongpraseuth*

Faculty of Architecture, National University of Laos, Vientiane Capital, Lao PDR

Email: th.vongpraseuth@nuol.edu.la.com

Abstract

This study aims to identify the issues and prospects of Vientiane Urban Master Plan (VUMP) development processes under the urbanized conditions in the capital city of Lao PDR. The existing VUMP within the last decade has been brought into account in consideration both data collection and discussion processes. This study mainly focuses on identifying the characteristics and the implementation directions of the VUMP. In order to clarify these research questions, the implementation data from the Ministry of Public Works and Transport (MPWT), project investments data from the Ministry of Planning and Investment (MPI), and in-depth interview technique in the related sectors are utilized. From these data, the comparison analysis is applied crucially to learn the crossed dimensions between the existing VUMP and the implementation effectiveness. Regarding the results, the implementation processes and administrative sectors are the paralleled issues in driving of VUMP. Therefore, this study suggests the possible solutions with combination of top-down and bottom-up approaches in the implementations. The top-down approach deals with strategic development direction, defined by the master plans. It is suggested that in the framework of implementing the master plans, economic, environmental, financial, and norm of social instruments should be applied in combination with regulative devices, as the later solely could be ineffective. On the other hand, the bottom-up approach emphasized on community empowerment and inclusion of people at the grass-root level into development processes. In order to move forward the collective actions in implementation of the VUMP, it is crucial to encourage the common understanding, share directions, and collaborations with various sectors.

Keywords: urbanization; urban growth management; urban master plan; Vientiane capital; Lao PDR.

1. Introduction

In general, urbanization would be explained through diverse dimensions. The urbanization has been the global issues regarding the concentration of population and job in the large area of city.

* Corresponding author.

In depth dimension would identify the urbanization as size and density of population in their specific territory [6, 7]. The condition of large numbers of population and residence in the city area has had direct impact on urban expansion. As for the dimension of urban expansion, the urban management strategy should be prompted to interact with the over-concentration and urban sprawl movement, which are the causes of environment, quality of living, and climate change issues. Some studies presented that urbanization was the potential of economic growth and job creation. Together with this growth, environmental and related energy consumption issues were also detected at the same context. The urbanization has been developed both in developed and least developed regions [2]. In Asian regions have been reported by the CIA as for the high speed urbanized zone. According the urbanization aspect in 2015, Laos is an Asian country with 39 percent, which showed more than two folds, comparing with the last decade [4]. Lao PDR or Laos is located close to many countries, has been listed under the least developed country (LDC). The development policies have been mainly based on the central government or centralized system [12]. Within few decades, Lao government has been launched the decentralized approach to empowerment the local administrative levels [1]. As for the top-down system has been implemented in Laos more than a decade, some successes and failures were perceived. The strong power of centralized form has various advantages, playing the crucial role in urban development approaches. However, the strong centralized power still remains some conflicts between local and central government, causing of low capacity in urban growth and management toward long term development policy. In order to manage the growth of the capital city of Laos, urban development policy has been launched from the decentralized concept. Back to the 1995, the Vientiane Urban Development and Management Committee (VUDMC) was designated to manage and control urban environment. In order to strengthen the management process, the Vientiane Urban Development Administration Authority (VUDAA) has been set up under the VUDMC in 1999. This organization has been the independent structure of municipal organization, which is dealing with environmental development and management in urban area [14]. Regarding the urban master plan of Vientiane Capita, planning and developing processes have been based on the Ministry of Public Works and Transport (MPWT) and Public Works and Transport Institute (PWTI). Structures and responsibilities of urban planning process should be approved by the central government before the official announcement. Vientiane Urban Master Plan (VUMP) was initiatively entitled in 1991 by the MPWT. Recently, the VUMP has been completed under the support of JICA. This master plan was named "Vientiane Master Plan 2030". This master plan has been conducted through various aspects [5], however, there have been many critical issues regarding the growth of city and implementation processes under the condition of urbanization in Vientiane capital. Regard to these issues, this study aims to concentrated on the relationship between master plan and flow of urbanization in Vientiane Capital. The secondary data and interview techniques have been obtained in the related sectors in Vientiane capital in order to identify the issues and prospects. The crucial results of this study would be an important role in urban planning and policy decision in the future.

2. Literature review

Urbanization has been the well-known for many developed and developing countries all over the world. It is an important indicator of urban growth in the condition of huge number of population. Urbanization has been the inflow of population and growth of geographic in the city. Rapid urbanization movement has brought diverse issues regarding the changes of physical and social aspects. Urbanization was the phenomenal of population

migration from one origin to other destinations [10, 17]. Together with the concentration of population, environmental issues have been illustrated through behavior of residents [22]. In a city with huge number of population should be considered along with their living conditions. People have been always searching for their work and living places. Due to the rapid growth of demand in the condition of urbanization, the problem of housing shortage would be hard to avoid [11, 20]. With the massive demand and supply of housing in the urbanized area, it would be attached with other environmental outputs. For instance, massive population and pollution, population and energy consumption [2, 21]. The environmental issue has been the critical factor associated directly with urbanization. Regarding this movement, social transformation issues have been declared together with environmental aspect. In many cases of mega cities of China, urbanization generally impacts the gap between rural and urban. Urbanization would bring to the inequality between rural and urban life [9]. Some development policy has urged to deal with the over-concentration or rapid urbanization. Urbanization would drive to the condition of land use segregations. The planning sectors would suffer from the rapid development, while they have been trying to balance between population and existing land. Recently, it is rather clear in which some green space and agricultural land has been converted to the built up territories [3]. Urban planning has been a crucial instrument in dealing with the growth of the city. The planning processes could control the growth both geographical and economic aspects. Contrary, the over growth and rapid development would bring to the over-controls of planning strategies. In case of London, the greenbelt system has been applied in order to control and tight the scale of urbanization [15]. Similarly, planning strategies in the form of master plans have been used in South Korea in order to tackle the problems of housing shortage caused by the rapid urbanization since 1980s [8, 19]. According to the critical implications of these studies, it is important to conduct a research in Vientiane Capital. The distinctive geographical and political factors of Laos would bring to the interesting results. The previous studies would be qualitatively applied to be the crucial direction of this study.

3. Urban development and urbanization in Vientiane Capital

Table 1: Urbanization trends in the world

Region	1990		2014		2050	
	Population (mil)	Urbanization (%)	Population (mil)	Urbanization (%)	Population (mil)	Urbanization (%)
Africa	197	31	453	40	1,339	56
Asia	1,036	32	2,064	48	3,313	64
Europe	506	70	545	73	581	83
LAC	314	71	496	80	647	86
North America	213	75	292	81	390	87
Oceania	191	71	275	71	418	74
World	2,285	43	3,880	54	6,339	66

Source: UN Population Division: World Urbanization Prospects: the 2014 Revision [4].

Urbanization has been the popular issue both in nation and worldwide levels. From the worldwide status, population in the urban areas has gradually increased. Table 1 shows the population and percentage of urban population from 1990 to 2050. The statistics reported the growth percentage of urban population, as for the

worldwide level indicated more than half of entire population who live in the urban area in 2014. In details, North America, LAC, and Europe showed highest percentage in urbanized status. While the Africa and Asia indicated as for the high speed of urbanization in recent decades (Table 1).

There are many countries in Asian region; Laos is one of the South East countries, which is shared border with Cambodia, China, Myanmar, Thailand, and Vietnam. Laos is a least developed country with the unique style of political condition. Since 1986, Laos has been developed with the mechanism economic policy. The economic development has been based on the agriculture and mining activities. Regarding the growth of economic and population, it has been also found the rapid growth of urban areas. The urbanization trend in Laos has been growth rapidly since 1995, accounting for 18 percent. While the speed of urbanization indicated for 39 percent approximately (Figure 1).

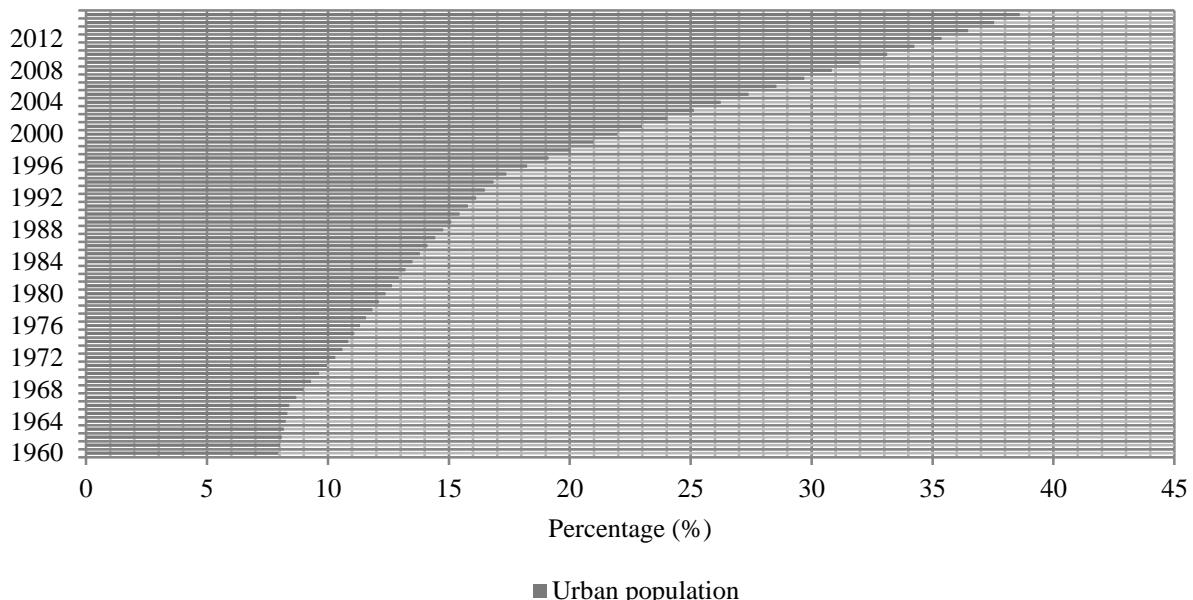


Figure 1: Percentage of urbanization in Laos

Source: Urbanization in Laos [4].

Focusing on the capital city of Laos, Vientiane has been officially designated as the capital city of Laos since 1975. In Vientiane Capital, there are officially 9 administrative cities within whole area (Figure 2). The smallest two cities are located in the central area, there are Chanthabouly (code: 101) and Sisattanak (code: 103).

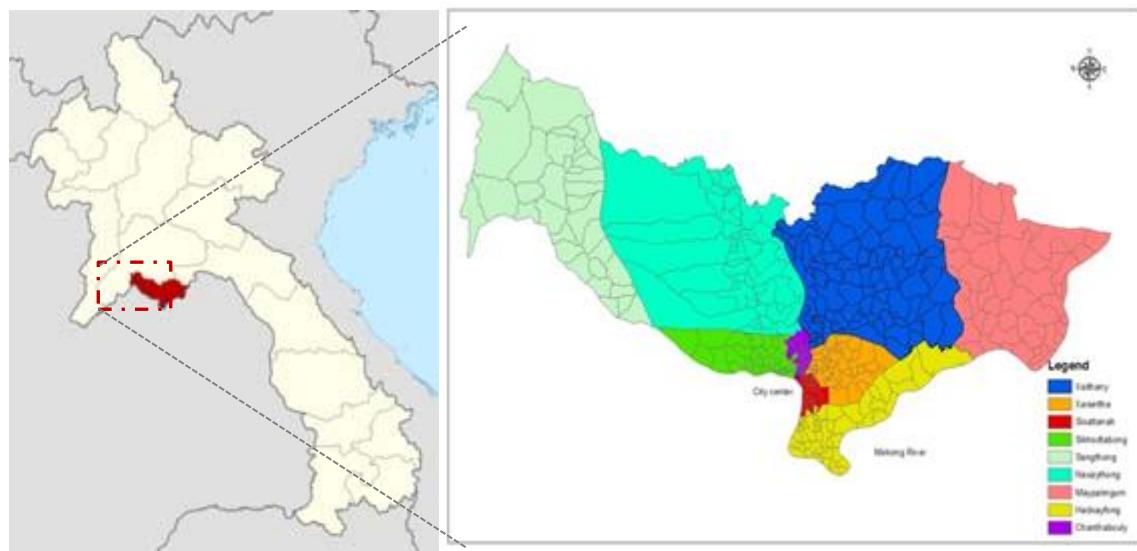


Figure 2: Location map of Vientiane Capital

Table 2: Population density in Vientiane Capital

No.	District	Code	Area	Population density (person/			1995 to 2015 (%)
			(sq.km)	1995	2010	2015	
1	Chanthabouly	101	27	2,028	2,550	2,562	16.04
2	Sikhottabong	102	148	508	675	818	60.85
3	Sisattanak	103	28	2,082	2,453	2,347	12.71
4	Xaysetha	104	142	520	687	823	58.41
5	Naxaithong	105	982	45	59	77	69.20
6	Xaithany	106	845	118	178	233	97.61
7	Hadxayfong	107	238	275	329	410	49.14
8	Sangthong	108	780	22	31	38	70.96
9	Pakngeum	109	730	47	62	67	42.62
Average				627	780	819	53.06

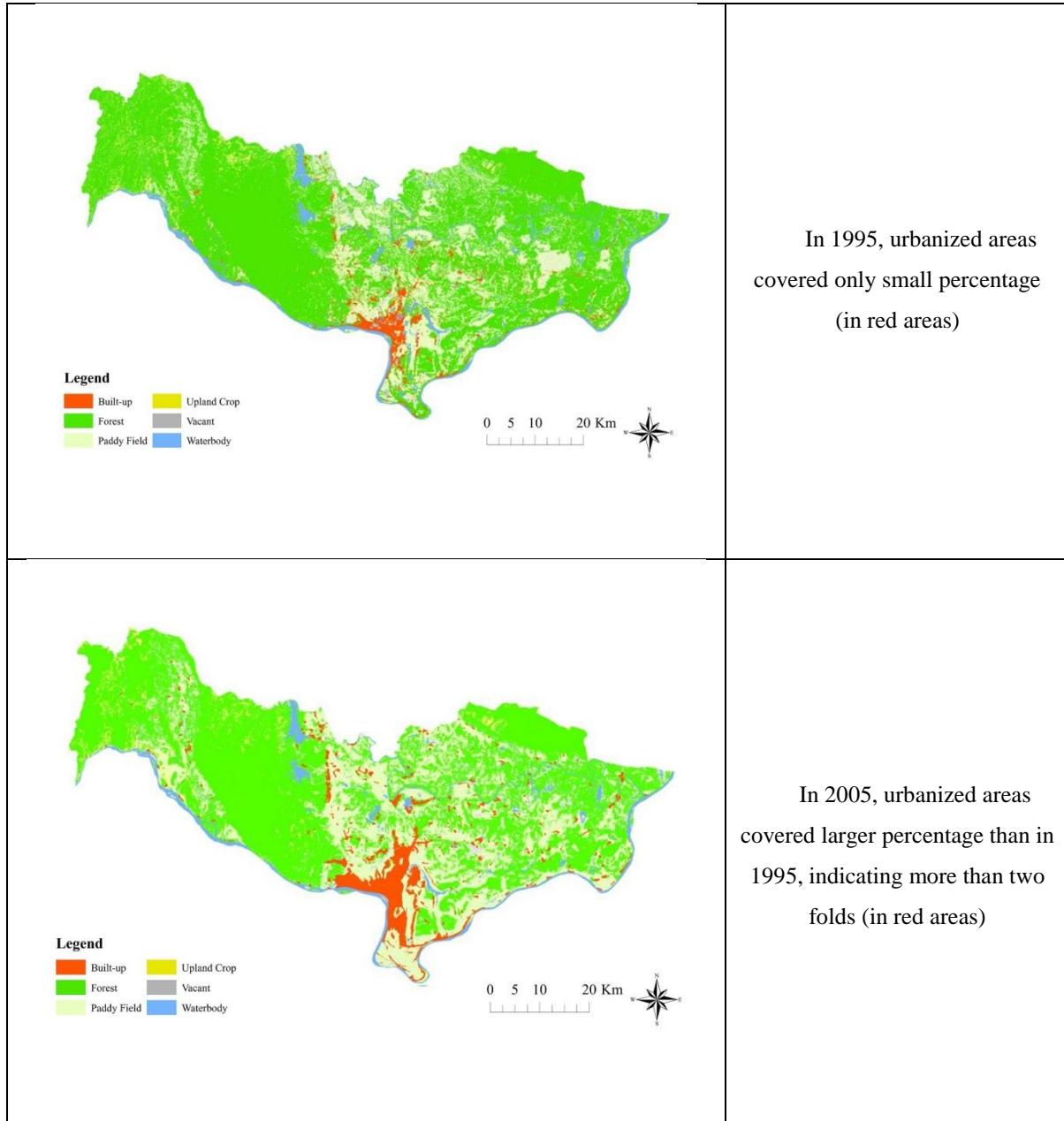
Source: MPI, Population and Housing Census [12].

These two cities showed the highest density among 9 cities regarding table 2 (2,562 and 2,347 people per sq. km, respectively). These two cities have been perceived as CBD area, which consist of diverse activities, including commercial clusters, government offices, companies, traditional markets, shopping centers, and residential buildings. Density from 1995 to 2015 in table 2 revealed only a little change for Chanthabouly and Sisattanak. In contrast, the highest percentage on change is Xaithany city, which located far from the city center 9 kilometers approximately. These phenomena would be interpreted as many dimensions. The significant perception on urbanization has been concentrated in the city center and dispersed within larger boundary.

Table 3: Population density by distance from the CBD of Vientiane Capital

Distance from CBD (km)	Area (Sq. km)	Population density		Growth rate (%)
		(person/sq. km)	1995	
			2005	
5	49.6	3,475	3,790	0.91
5 to 10	154.2	539	837	5.54
More than 10	3,716.2	72	101	3.94
Total	3,920	134	176	3.20

Source: MPI, Population and Housing Census [12].



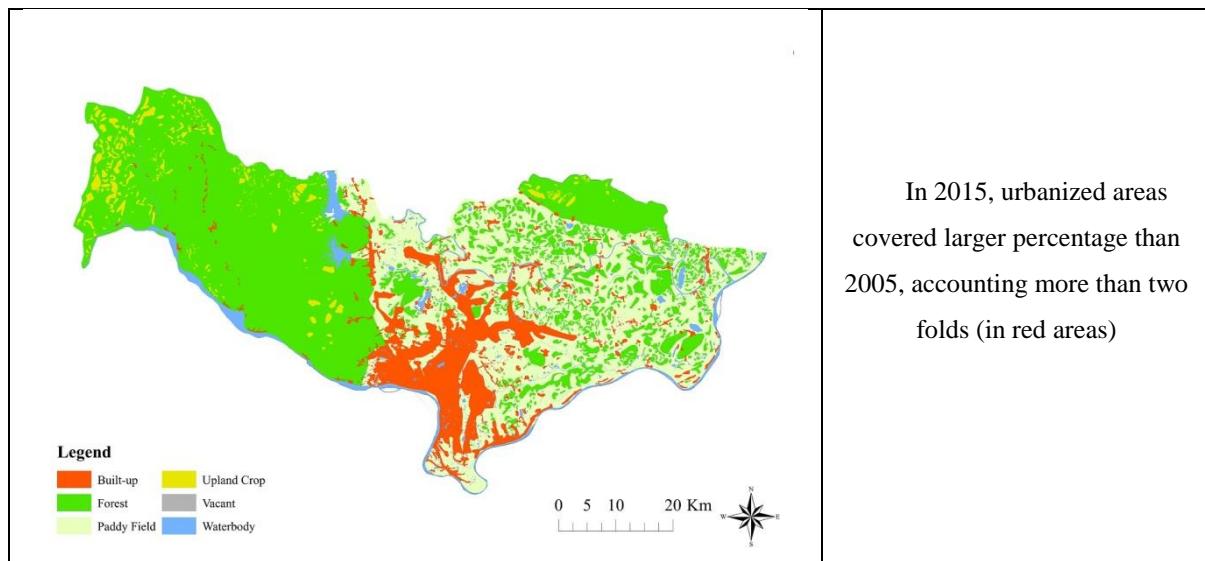


Figure 3: Urbanization in 1995, 2005, and 2015

Table 3 presents the concentration of population in the city center area of capital. Within the observed areas found that people have settled densely in the core area. Especially, within 5 km radius, as for 3,790 residents per sq. km found in 2005, and 5 to 10 km radius accounting for 837 people per sq. km. These numbers would be the important incidence of residential density in the core of Vientiane Capital. The urbanized area could be identified within 10 km radius.

Table 4 and figure 3 identified the direction and percentage of growth boundary of urbanized area in Vientiane Capital. From 1995, urbanized or built up areas were lower than 5 percent, while the green and forest areas covered more than 70 percent of total area. 10 years later in 2005, the survey from Google earth showed two folds of built up area comparing to the 1995.

Table 4: Expansion of urbanized area

Zone	1995		2005		2015	
	Area (sq. km)	(%)	Area (sq. km)	(%)	Area (sq. km)	(%)
Built-up Area	132.84	3.4	220.66	5.6	502.21	12.81
Paddy Area	655.11	16.7	659.93	16.8	613.21	15.64
Upland Crop Area	52.86	1.3	65.17	1.7	88.29	2.25
Forest Area	2710.88	69.2	2,645.56	67.5	2,250.23	57.40
Vacant Land Area	221.08	5.6	113.01	2.9	244.75	6.24
Water Body Area	147.23	3.8	215.67	5.5	221.31	5.65
Total	3,920	100	3,920	100	3,920	100

The vacant land decreased about two folds from 1995 to 2005. Recent data in 2015 illustrated that built up area has increased more than two folds comparing between 2005 and 2015. Interestingly, vacant land showed the higher magnitude in 2015, it was more than two folds comparing to 2005. Aforementioned phenomena can trace the impact of rapid urbanization in Vientiane Capital. Built up areas have been increased with the free space of vacant land. Vacant lands have been categorized as land adjustment for sales. As for the current circumstance, land market has been extended to the suburban areas. This movement would support the growth of urban fringe and sprawl development.

4. Vientiane master plan

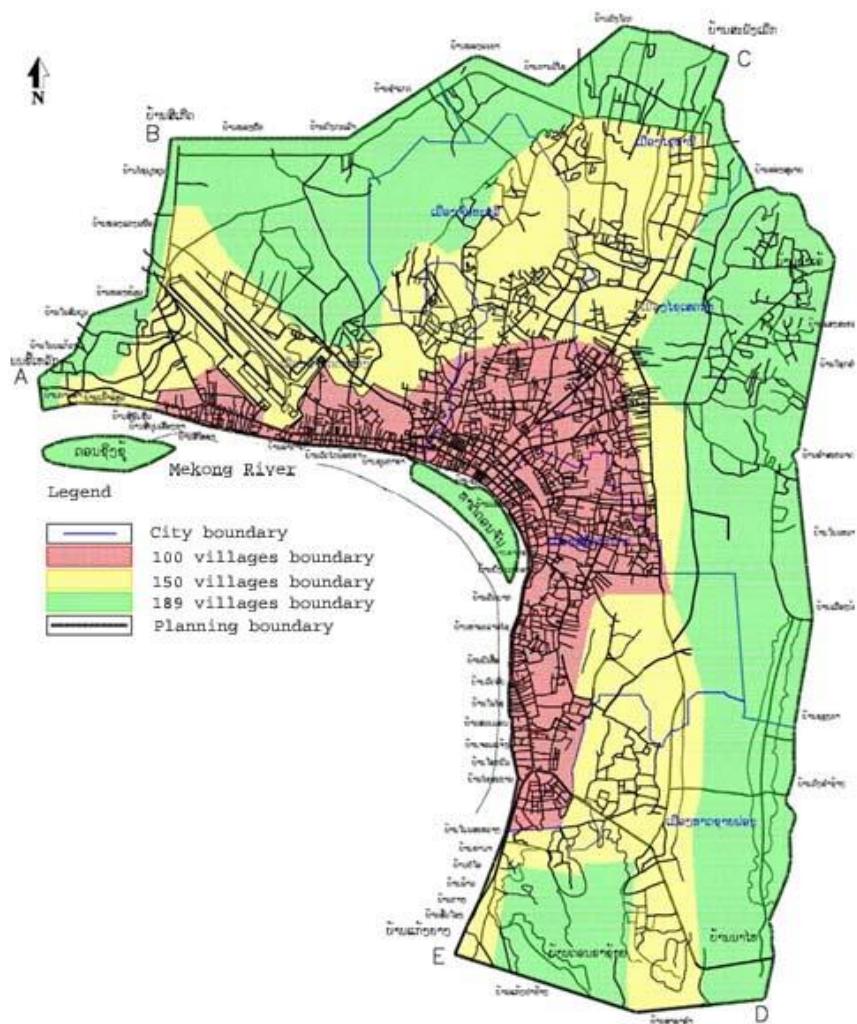


Figure 4: Vientiane Master Plan 2010

Source: [14].

Since the economic mechanism policy has been launched in 1986, the urban area has been growth without controls. The social-economic and physical conditions have been dramatically transformed to the better stage. Together with the flows of this development, various issues were illustrated both in urban and rural areas, for

instance, environmental problems, social segregation, and natural growth of built environments. The gaps between urban and rural area have been wider via the urban areas have been rapidly developed. Regarding these issues, Lao government has provided some critical policies in order to interact with urban growth and rural developments.

In a case of Vientiane Capital, government has tried to provide diverse policy to improve and manage the growth of city with primary zoning tools. In 1986, the government announced to control the growth of city based on the economic growth directions. Therefore, in 1991 was the first step to reach the urban planning policy. Lao government presented the first “Vientiane Master Plan” under the cooperated giant of UN for development or UN-Habitat. Actually, the first master plan was completed in 1989 and was announced by the Council of Prime Minister in 1991 [14].

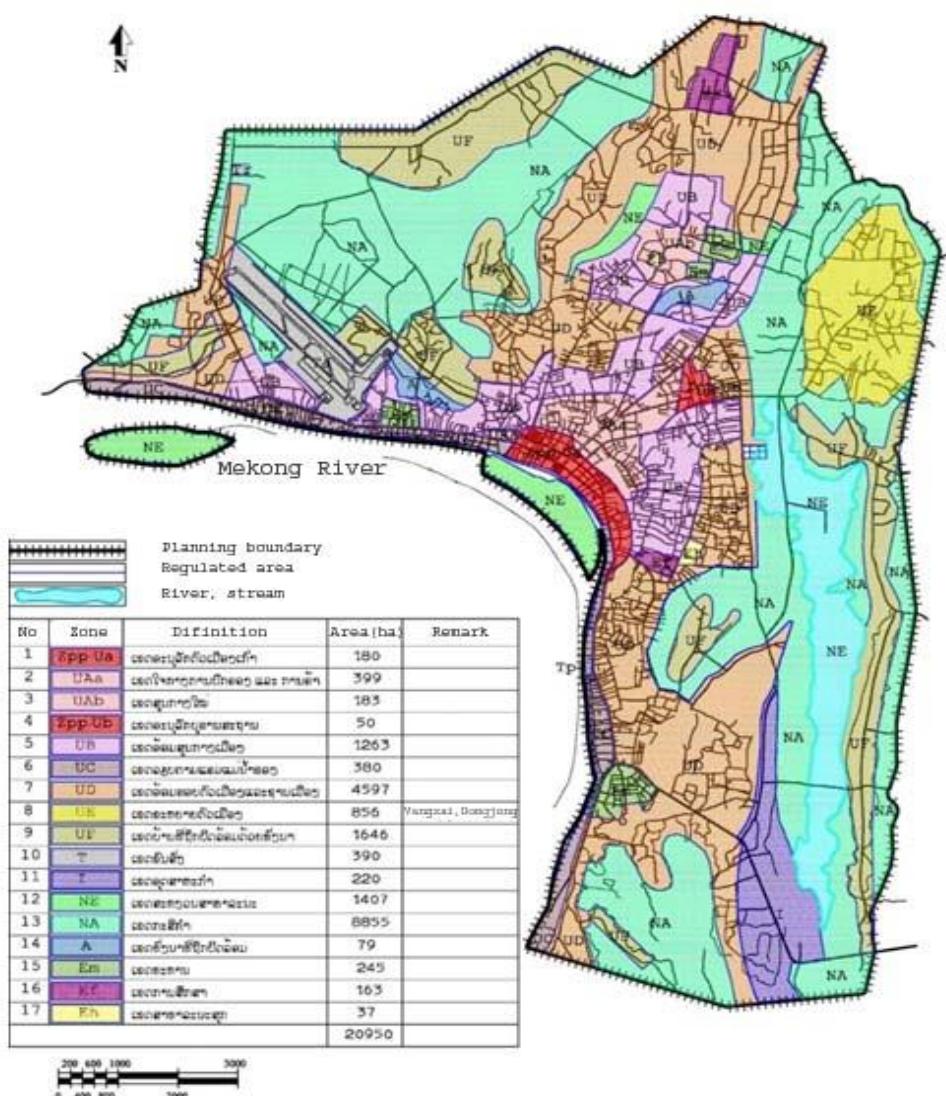


Figure 5: Detailed zones of Vientiane Master Plan 2010

Source: [14].

Master plan of Vientiane Capital has been officially launched within three periods. The first master plan was conducted by the MPWT in 1991; boundary of this master plan covered 150 villages with the area of 9,300 ha in the central of Vientiane Capital (Figure 4). In 2002 the second period of master plan was modified by the MPWT in 2010, covering 20,950 ha in 189 villages. Detailed zones have been designated based on the existing growth boundary within the aforementioned 189 villages (Figure 5). The recent master plan is VMP 2030; this master plan has provided in 2010 under the JICA team. The master plan covered larger area than in the second phase. According to various issues of VMP in each period from 1991 to 2010, Lao government has considered to develop and mitigate the existing problems in Vientiane Capital. Thus, the VMP 2030 would be perceived by government as for a solution for Vientiane Capital.

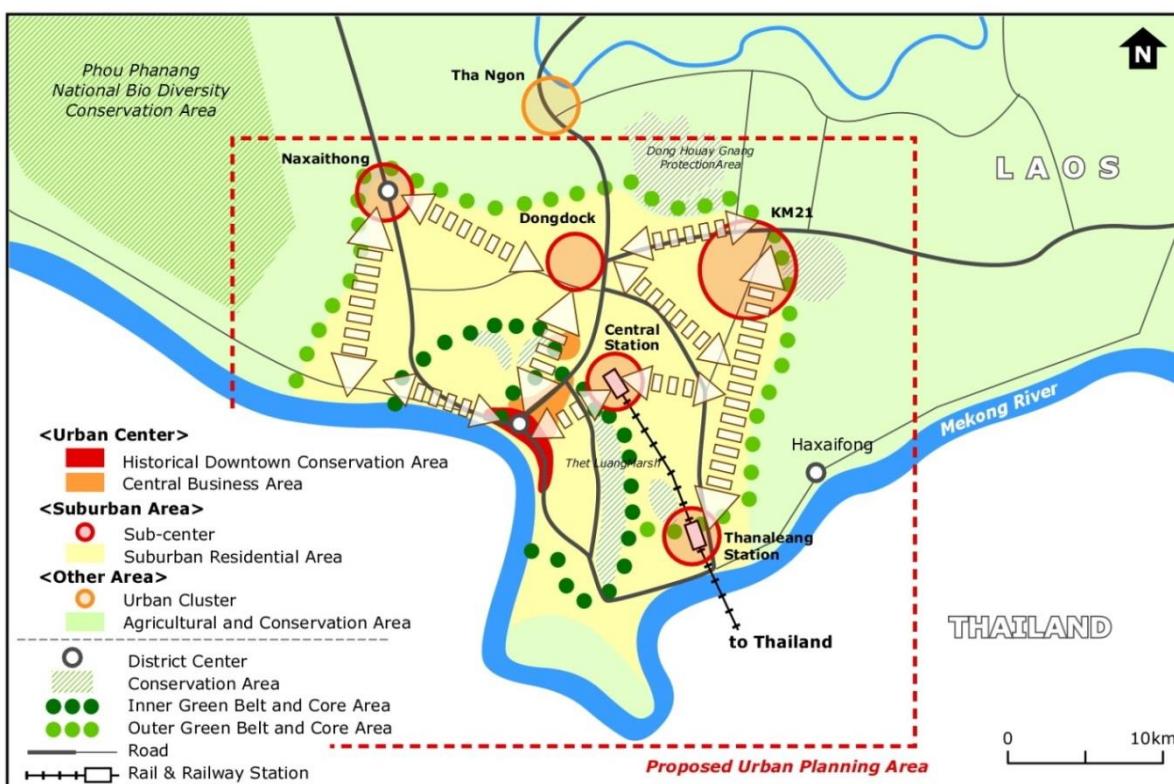


Figure 6: Greenbelt concept for Vientiane Master Plan 2030 (VMP 2030)

Source: [5].

VMP 2030 has been conducted by the JICA team and MPWT in 2010. The initiative concept is to conserve the traditional heritage and existing environment. This concept was to control the growth of urbanized area. In addition, the sprawl development was aimed to mitigate. Therefore, the critical concept of VMP 2030 was to multi core to disperse the over-concentration in the main center of Vientiane. Together with the multi core concept, the greenbelt strategy has been also considered (Figure 6). The greenbelt approach has been mainly employed to conserve the agricultural land in suburban areas. In addition, greenbelt approach has also been the popular direction in controlling the urban sprawl development or the natural growth of urbanized territories. In

recent circumstance, the boundary of greenbelt in VMP 2030 was covered and occupied by built up areas, which consist of both residential, concession zones, and vacant land. This phenomenal would urge the planners and policy maker to rethink in the process of VMP 2030. From the interview technique, 8 crucial interviewees have claimed similarly that VMP 2030 would be hard to reach the successful goals.

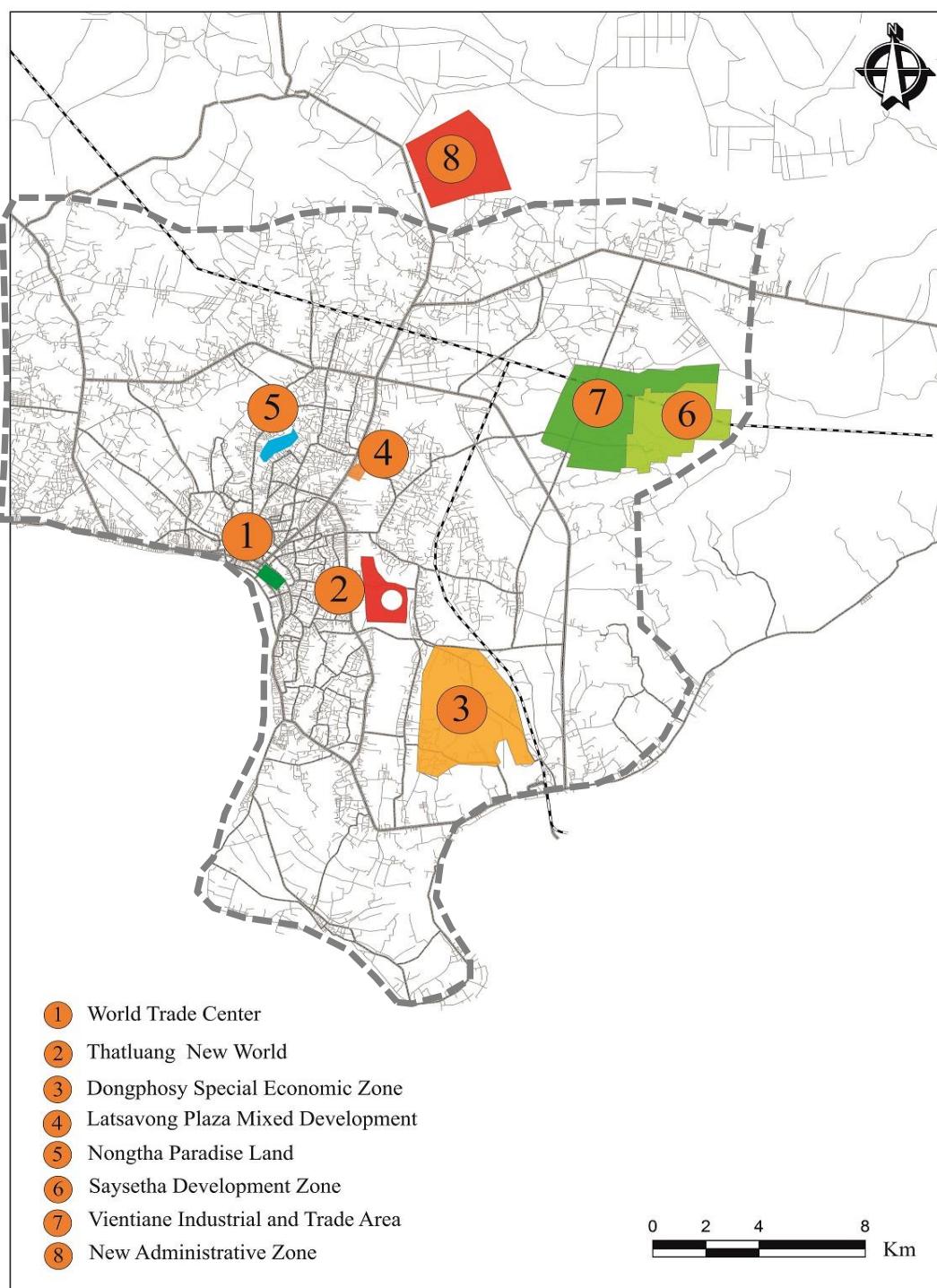


Figure 7: Development projects in the urbanized area from 2011 to present

Regarding the survey map of development projects in Vientiane Capital, many development projects have concentrated in the core area. These development projects have been invested by the FDI with more than 50 years in concession contracts (Figure 7). Regarding the table 5 and figure 7, the missed matching factors have been illustrated, for instance, some designated zones in table 5 were likely to be hard to implement due to the inflows of urbanization. This evidence could be a hint association between power of implementation and speed of urbanization through the economic growth and social changes.

Table 5: Land use planning in the VMP 2030

Zone	Future function	Land use type
Inner urban area	Central administrative office	Historical landscape and buildings conservation: [ZPP-Ua] and [ZPP-Ub]
	Central business district	Natural conservation: [NE]
	Multi-family residence	More Higher density for accelerating redevelopment for business and commerce: [UA]
	Hubs of tourist spots	Housing oriented area in the inner urban area : [UB]
	National cultural heritage	
Outer urban area	Sub-centers	Sub-centers: [UEb] and [UEa]
	Residential area	VIP: [I] and VLP: [T] etc
	Conservation of lower land and swamp land and paddy field for flood control and recreation	Residential oriented area in outer urban area: [UD]
		Conservation of forest and water areas: [NE]
Urban fringe area	Conservation of naturally important areas and agricultural land with higher yield	Conservation of agricultural area: [NA] (accepting minimum housing development in existing settlements)
	Sub-centers	Nature Environmental protection area: [NE] Nature and agricultural area: [NA] (accepting minimum housing development of existing settlements)

Source: [5].

5. Discussions and Conclusions

Vientiane Capital has become the critical hub for economic, cultural, and social developments. Within only a few decades, Laos has been concentrated by the flows of investments. The investment sectors have been classified into two main categories: i) domestic investor and ii) foreign direct investment. However, another category has been existed and accounted as minority, for instance, joint venture between private and public sectors. The critical flows of investments have been influencing the growth of population, jobs, and urbanized areas [18]. This study also revealed the similar situation with the previous study; the urbanized flow has become the key factors in the urban development plan. In the discussion process, table 6 has been categorized using the answer from the interview and map survey techniques. Table 6 shows the missed matching direction between urbanization and urban masterplan, the administrative structure, population growth, environmental

management, economic reinforcement, and equality society indicators have been considered with the issues and prospects.

Table 6: Issues and prospects of urbanization and master plan in Vientiane Capital

Indicator	Urbanization Issue	Prospect	Master plan Issue	Prospect
Administrative structure	Over-control	Clear links between local and central government	Failed in the implementation processes	Local and central government should bring to the real implementation process
Population growth	Migration	Increase population in the urban	Hard to forecast	Planning to control the growth
Environmental management	Lacking of agriculture land, wastes and pollutions	Growth with good condition of environment	Hard to implement	Green and water front preservation
Economic reinforcement	Rapid development	Wealth	Hard to archive the growth	SEZs planning
Equality society	Gap of society, changing of life style	Rich society	Lacking consideration of	Lacking consideration of

According to the focused group interview process regarding the development projects and urban planning in the Vientiane Capital, it has been obviously clarified that the current master plan of Vientiane has been implemented under lower speed than the dynamic of urbanization. Within the rapid expansion of urbanized areas, both opportunities and challenges have been perceived by the government as follows. “Vientiane master plan would be hard to achieve the completed goal of implementation. The coordinated components between central government and local administrative sectors should meet the homogenous direction in order to support the implementation processes” It is not only the consensus amongst administrative authorities in Laos; the clear understanding on urban mater plan should be provided to the related sectors within both technical terms and implementation approaches.

Table 7: Negative and positive dimension of urbanization

Process of urbanization	Strong in negative perception	Strong in positive perception
Demographic		Urban growth
Social	Gap	
Economic		Development
Environmental	Poor outcome with pollution	
Political	Conflict	
Technological innovation		Advanced development
Cultural	Diversity	
Value of locality	Decrease	

Source: Survey and interview, 2018

Many previous articles underlined that urbanization can bring the potential to make regions, countries, and cities more prosperous and successful; however, some cities and regions in the world have been failed in dealing with

the diverse transformation in the condition of urbanization. Some studies tried to explore the flows and magnitudes of urbanization, using the population living within the administrative boundaries (“administrative-based” approach) and within the urbanized or built-up areas (“infrastructure-based” approach) of cities and towns as urban population [16]. However, only the magnitude of urbanization would be hard to find the sustainable growth of cities, rather the combination between urban master plan and implementation should meet the balanced contexts.

6. Recommendations

This study would be the initiative perception on the urban planning terms. The critical planning from the urban planner side should be reached the flexible stage in order to interpret the planned image to the reality whereas the implement sector. Regarding the point of views both survey technique and interview decisions, master plan would meet the successful goal in the condition of “PLAN” and “IMPLEMENT”, otherwise, the natural growth of urbanization, including freedoms of population, administrative structure, economic, environmental, and social aspects would overcome the direction of planning.

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