DATA COLLECTION SURVEY ON URBAN DEVELOPMENT AND URBAN TRANSPORT IN LUSAKA CITY

FINAL REPORT (SUMMARY)

FEBRUARY 2022

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

EIGHT-JAPAN ENGINEERING CONSULTANTS INC.

PACET CORPORATION

NIPPON KOEI CO., LTD.

6R
JR
22-015

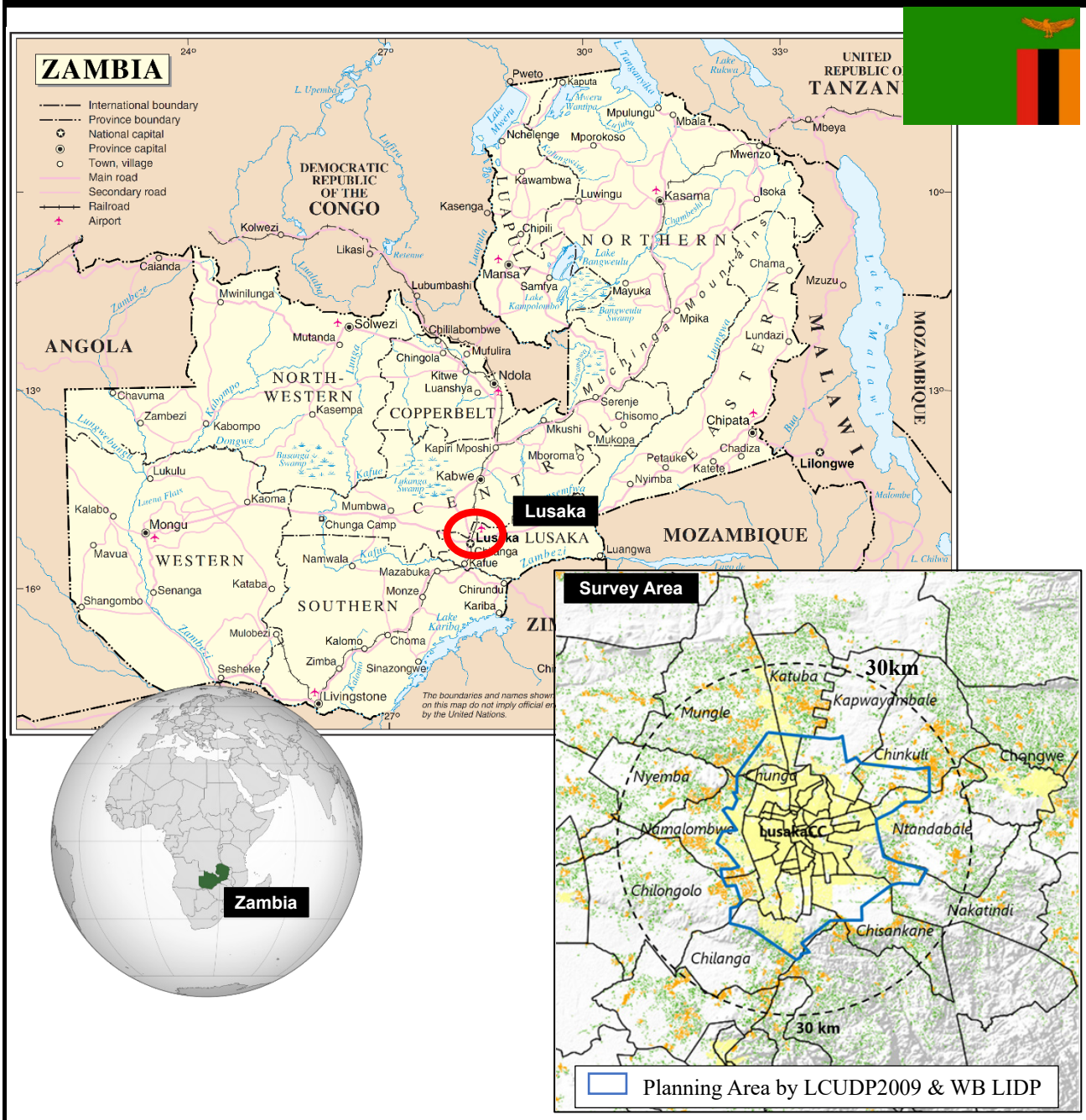
CURRENCY EXCHANGE RATE

(1) Zambia Kwacha (ZMW) to Japanese Yen (JPY)
1 ZMW = 6.933 JPY (JICA Monthly Exchange Rate, January 2022)

(2) US Dollar (USD) to Japanese Yen (JPY)
1 USD =114.674 JPY (JICA Monthly Exchange Rate, January 2022)

(3) US Dollar (USD) to Zambia Kwacha (ZMW)
1 USD =16.540 ZMW (JICA Monthly Exchange Rate, January 2022)

LOCATION MAP OF Zambia



Basic Data of Zambia

Area	752,600 sq.km	• Economic Growth Rate:	1.8% (2021, Source: World Bank)
Population	17.9 million (2021, Source: World Bank)	• Inflation Rate:	1.2% (2020, Source: World Bank)
Capital	Lusaka	• Unemployment Rate:	12.2% (2020, Source: World Bank Estimation)
Languages	English,Bemba,Tongan,Nyanja,Mwanga	• Trade Amount: (2015, World Bank	(1) Export: USD 6,607million (2) Import: USD 7,934million
Religions	Christians (75%), Traditional Religions Muslims , Hinduism		
Major Industries	Mining, Agriculture, Tourism	• Currency:	Zambia kwacha (UGX)=6.599 Japanese Yen (N 2021, JICA)
GDP	USD 19.3 billion (2020, Source: World Bank)		
GNI per capita	USD 336 (2020, Source: World Bank)		

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FINAL REPORT

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LIST OF ABBREVIATIONS

Abbreviation	Description
AfDB	African Development Bank
AMDA	Africa Minigrid Developers Association
AU	African Union
B/C	Cost Benefit Ratio
BRT	Bus Rapid Transit
C/P	Counterpart
CBD	Central Business District
CAG	Cluster Advisory Group
CBE	Community Based Enterprise
CBO	Community-based Organization
CCA	Climate Change Adaptation
CIP	Capital Investment Plan
CLTC	Clanga Town Council
CMC	Chongwe Municipal Council
COVID-19	Coronavirus Disease 2019
COVAX	COVID-19 Vaccines Global Access
CS	Council Secretary
CTC	Chibombo Town Council
CTL	Certificate of Title for Land
D/D	Detailed Design
DUCA	District, Urban and Community Access
DFID	Department for International Development
DDCC	District Development Coordination Committee
DMMU	Disaster Management Mitigation Unit
DPO	District Planning Officer
ECZ	Electoral Commission of Zambia
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EPB	Environmental Project Brief
ESMS	Environmental Social Management System
ESIS	Environmental and Social Impact Statement
EU	European Union
FIRR	Financial Internal Rate of Return
F/S	Feasibility Study
FY	Fiscal Year
FP	Financial Plan
GCALA	Guidelines for Compensation Assessment under Land Acquisition
GDP	Gross Domestic Product
GHS	Global Heaven System
GIZ	Gesellschaft für Internationale Zusammenarbeit
GRDP	Gross Regional Domestic Product
GIS	Geographic Information System
GoJ	Government of Japan
GHGs	Greenhouse Gas
HCM	Highway Capacity Manual
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HWL	High Water Level
HSIAA	Housing Statutory Improvement Areas Act
IDC	Industrial Development Corporation
IDP	Integrated Development Plan
IC	Interchange
ICD	Inland Container Depot
ICT	Information and Communication Technology
ICU	Intensive Care Unit
IEE	Initial Environmental Examination
ITS	Intelligent Transport System
JCT	Junction
JICA	Japan International Cooperation Agency
JICA GL	JICA Environmental and Social Consideration Guidelines (2010)

Abbreviation	Description
JPY	Japanese Yen
JST	JICA Study Team
KfW	Kreditanstalt Für Wiederaufbau
KTC	Kafue Town Council
LAP	Local Area Plan
LCC	Lusaka City Council
LCUDP 2009	Lusaka Comprehensive Urban Development Plan 2009
LRC	Land Record Card
LSMFEZ	Lusaka South Multi-Facility Economic Zone
LWSC	Lusaka Water Supply and Sanitation Company
LDC	Least Developed Country
LRT	Light Rail Transit
M/M	Minutes of Meeting
M/P	Master Plan
MC	Municipal Council
M/C	Motor Cycle
MCC	Millennium Challenge Cooperation
MDGs	Millennium Development Goals
MGV	Medium Goods Vehicle
MLGH	Ministry of Local Government and Housing
MOH	Ministry of Health
MoU	Memorandum of Understanding
MRT	Mass Rapid Transit
MP	Master Plan
MLGRD	Ministry of Local Government and Rural Development
MCDSS	Ministry of Community Development and Social Services
MCTI	Ministry of Commerce, Trade and Industry
MFEZ	Multi-Facility Economic Zone
MFNP	Ministry of Finance and National Planning
MGEE	Ministry of Green Economy and Environment
MIHUD	Ministry of Infrastructure, Housing and Urban Development
MLGRD	Ministry of Local Government and Rural Development
MLNR	Ministry of Lands and Natural Resources
MLSS	Ministry of Labor and Social Security
MMMD	Ministry of Mines and Minerals Development
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOE	Ministry of Energy
MOH	Ministry of Health
MOT	Ministry of Tourism
MSMED	Ministry of Small Medium Enterprise Development
MTEF	Medium Term Expenditure Framework
MTL	Ministry of Transport and Logistics
MTS	Ministry of Technology and Science
MWDS	Ministry of Water Development, Sanitation
MYSA	Ministry of Youth, Sports and Arts
NMT	Non-Motorized Transport
NPA	National Planning Authority
NPV	Net Present Value
NSSF	National Social Security Fund
NTMP	National Transport Master Plan
NWSC	National Water and Sewerage Corporation
NGO	Non-governmental Organization
NHA	National Housing Authority
OCL	Occupancy License
OP	Office of the President
OVP	Office of the Vice President
O & M	Operation and Maintenance
OD	Origin - Destination
ODA	Official Development Assistance
PDCC	Provincial Development Coordination Committee

Abbreviation	Description
PPO	Provincial Planning Officer
PAPs	Project Affected Persons
PC	Prestressed Concrete
PCR	Polymerase Chain Reaction
PCU	Passenger Car Unit
PHC	Primary Health Care
PHD	Public Health Department
PPhPZ	People's Process on Housing and Poverty in Zambia
PPP	Public-Private Partnership
PS	Permanent Secretary
PT	Person Trip
PUA	Peri-Urban Area
Q-V	Quantity-Velocity
RAP	Resettlement Action Plan
RC	Reinforced Concrete
R/D	Record of Discussions
RFB	Road Fund Board
RFP	Request for Proposal
ROW	Right of Way
ROAID	Romania's International Development
RTSA	
RT-PCR	Reverse Transcription Polymerase Chain Reaction
RDA	Road Development Agency
SADC	Southern African Development Community
SADCC	Southern African Development Coordination Conference
SDGs	Sustainable Development Goals
SEA	Strategic Environmental Assessment
SGR	Standard Gauge Railway
SP	Service Provider
SP	Stabilized Pond
STD, STI	Sexually transmitted diseases
SATCC	Southern African Development Coordination Conference
SHIA	Statutory Housing Improvement Area
TOD	Transit Oriented Development
TOR	Terms of Reference
TSIP	Transport Sector Investment Programme
TTC	Travel Time Cost
TTI	Trusted Travel Initiative
TC	Travel Code
TC	Town Clerk
UHC	Urban Health Center
UNDP	united nations development programme
URPA	Urban and Regional Planning Act
UTH	University Teaching Hospital
UUS	Unplanned Urban Settlement
VAT	Value Added Tax
VOC	Vehicle Operation Cost
WDC	Ward Development Committee
WB	World Bank
WWTP	Wastewater Treatment Plant
ZEMA	Zambia Environmental Management Authority
ZAMSTAT	Zambia Statistics Agency
ZCCZ	Zambia-China Economic & Trade Cooperation Zone
ZDA	Zambia Development Agency
ZICTA	Zambia Information and Communication Technology Authority
ZEMA	Zambia Environmental Management Agency
ZNPHRL	Zambia National Public Health Reference Laboratory
ZNPHI	Zambia National Public Health Institute
ZRL	Zambia Railways Limited

CHAPTER 1 OUTLINE OF THE PROJECT

1.1 Background

In 2009, JICA assisted a comprehensive urban development plan (hereinafter referred to as "JICA2009MP"), including the development strategy of urban transportation. More than 10 years have passed since the formulation of JICA2009MP, and the population has increased more than expected, urban areas have expanded disorderly, and traffic demand has increased sharply. During this period, Japan has supported the road development consisting of a part of the inner ring road, which is a priority project of JICA2009MP, and the access road to a large industrial park namely LS-MFEZ. Regarding the remaining inner ring road section (about 7 km) (hereinafter referred to as "Inner Ring Road Phase 2"), the route proposed by the Zambian government requires a lot of resettlements of residents. Therefore, from the view of environmental and social considerations, it is necessary to examine the candidate route and to consider alternative routes if the candidate route is not feasible.

1.2 Objectives of the Survey

In this survey, the progress of implementation of JICA2009MP, the trend of traffic demand, and the trend of urban development of Lusaka city will be surveyed, and issues on urban development and transport infrastructures will be focused on and analyzed. Regarding the Inner Ring Road Phase 2 requested by the Zambian government, alternative routes including the government-proposed route and alternative support project proposals will be examined. The objectives of this survey are to examine the direction and possibility of cooperation by JICA in the future through comparison and verification of the candidate projects based on the data collection and hearing with related governmental organizations.

1.3 Project site

Zambia is a landlocked country, located approximately 1,500 km from the major seaports of neighboring countries, and is connected by international economic corridors such as the North-South Corridor and the Nacala Corridor. The city of Lusaka is a transportation hub connected by these international economic corridors. In recent years, the population of the Lusaka metropolitan area has increased rapidly with an average annual increase rate of 4.6%, which is higher than the JICA2009MP forecast, and traffic congestion in the city center has become severe, making a pressing issue. In addition, the urban area is expanding beyond the city border. The previous master plan in 2000 by the World Bank considered this condition by setting the planning boundary beyond the city boundary. For this reason, the planning area of the master plan 2000 was followed by the JICA2009MP, covering approximately a 20 km range from the city center of Lusaka, as well as neighboring areas under the jurisdiction of other local governmental bodies.

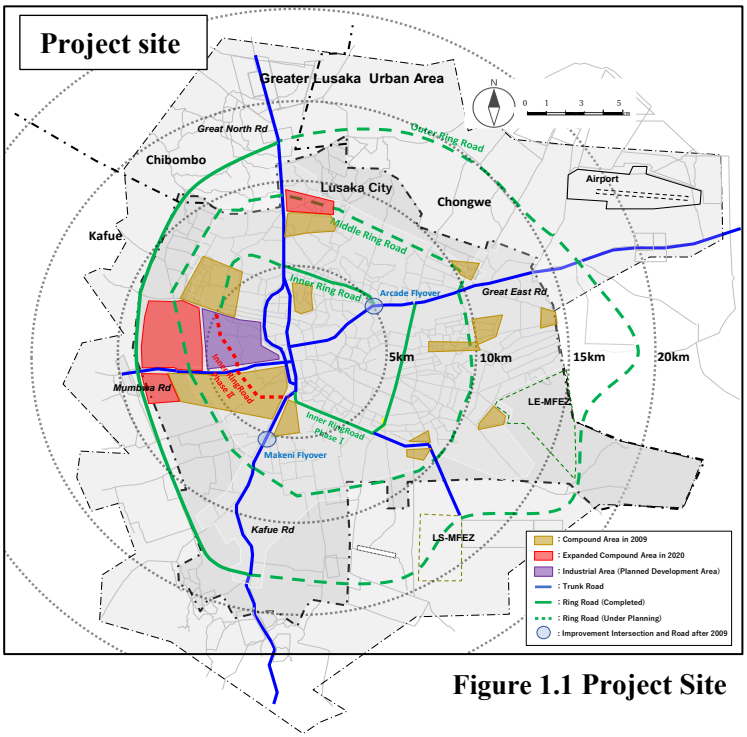
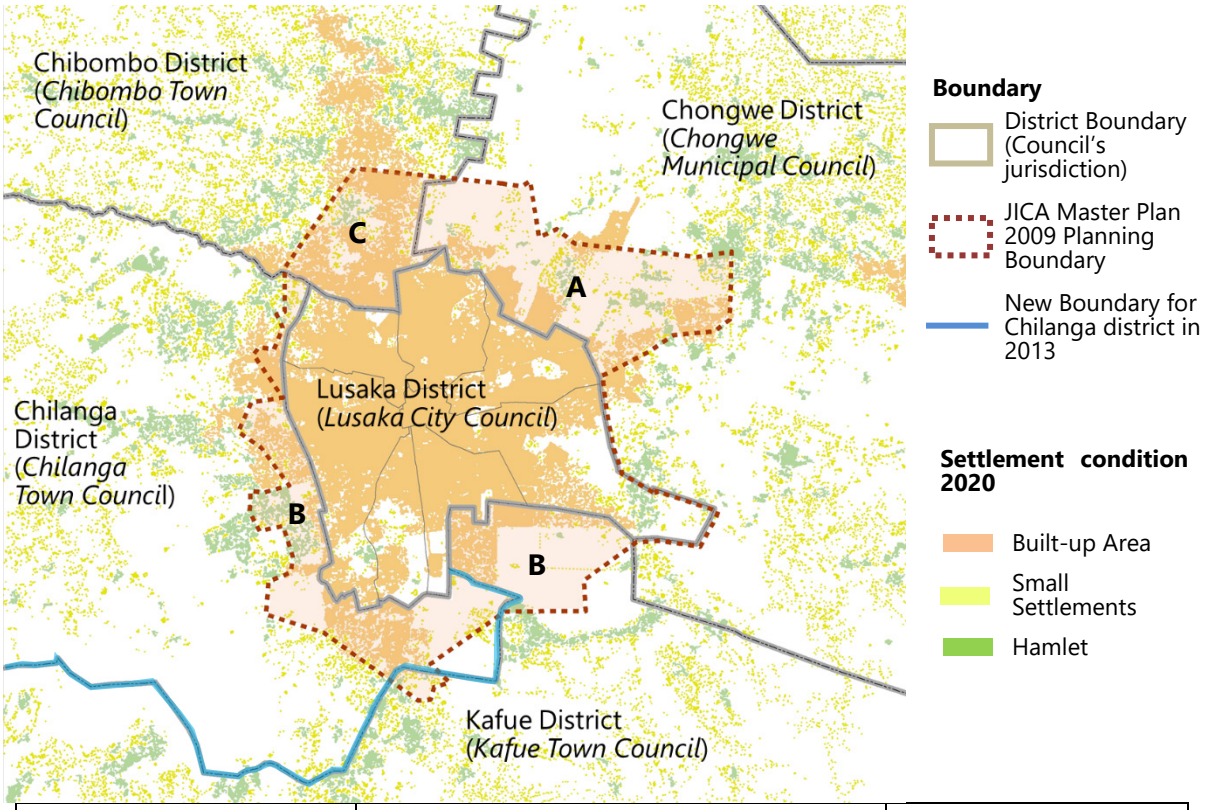


Figure 1.1 Project Site

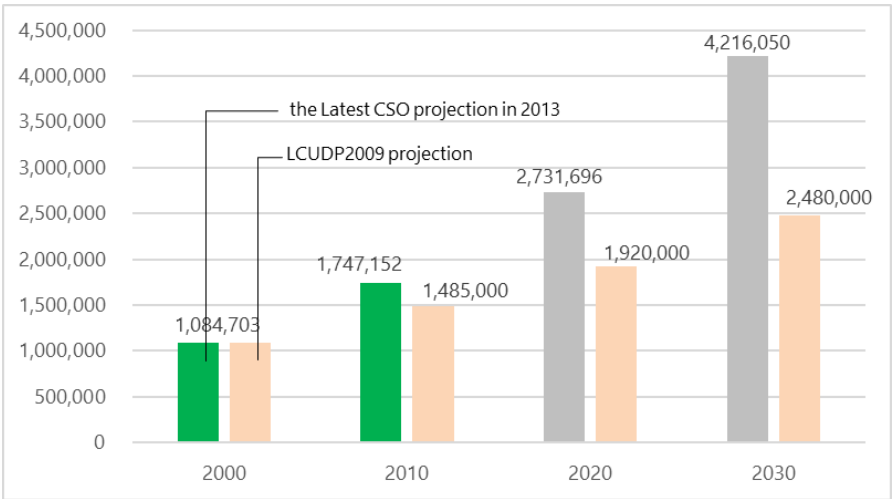
Source : edited by JST based on Zambia Statistics Agency



Planning Area of JICA2009MP	Key Figures in JICA Master Plan (,000 population)				Target Density (pop/km2)	
	Area km2	2010	2020	2030	2010	2030
Lusaka City	423	1,485	1,920	2,480	4,539	5,863
A area: in Chongwe District	162	27	100	160	617	988
B area: in Kafue District	200	37	100	190	500	950
C area: in Chibombo District	75	16	30	70	400	933
Sub-total (surroundings)	437	80	230	420	526	961
Total	860	1,565	2,150	2,900	2,500	3,372

Note:JICA2009MP: Lusaka Comprehensive Urban Development Plan 2009 (JICA)
Source ： edited by JST based on Open Source Data (GRID3)

Figure 1.2 Luska City and Surrounding Districts (Councils) and the Planning Area of JICA Master Plan 2009 (JICA2009MP)



Source ： edited by JST based on data (Population and Demographic Projections 2011-2035/CSO, and LSDUP 2009/JICA)

Figure 1.3 Comparison with Population Projections between CSO Projection and Future Population in JICA2009MP

1.4 Implementation Schedule

The Data Collection Survey was between February 2021 and February 2022, including several months of extension due to COVID-19. The work process and flow are shown below.

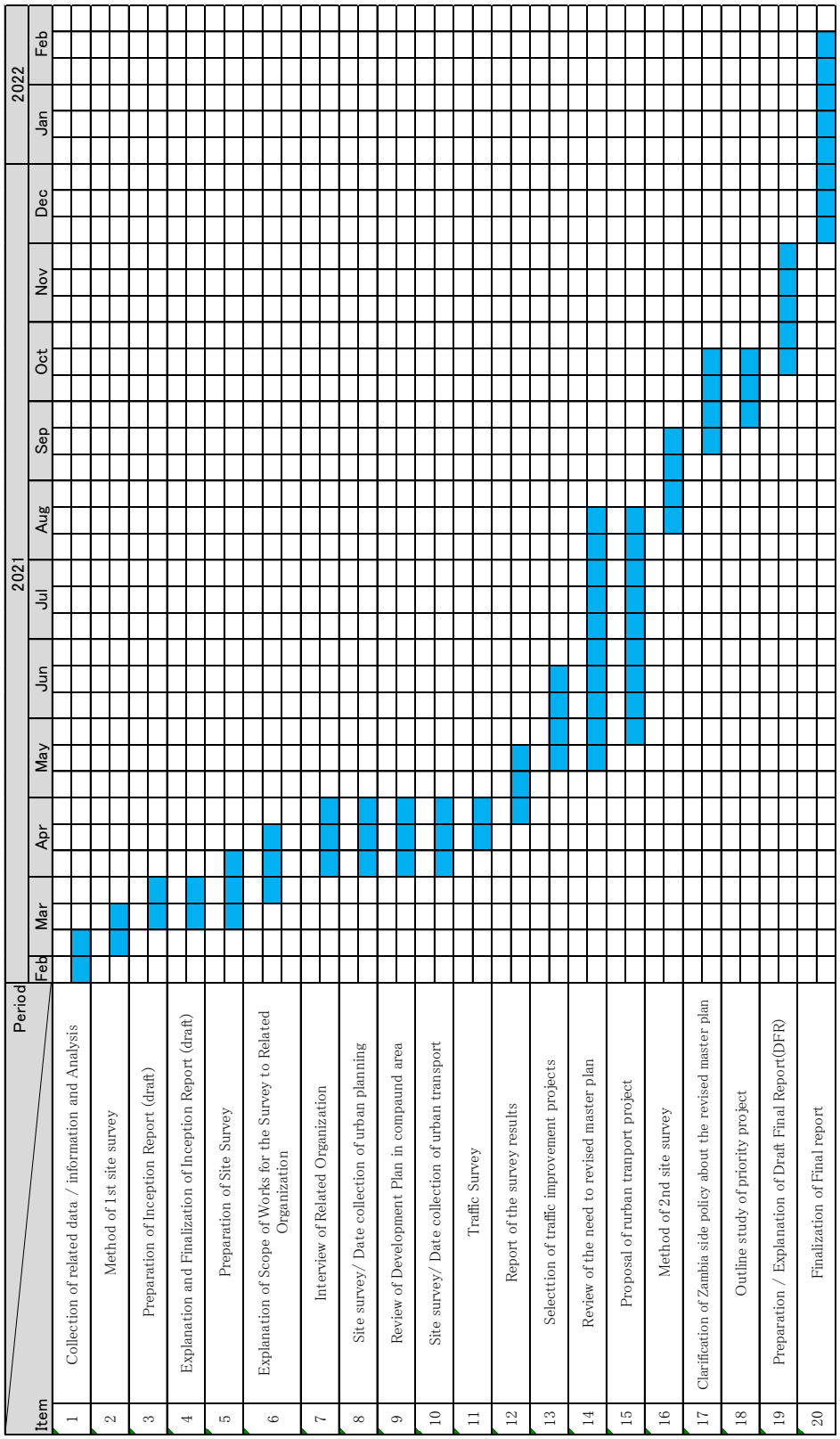


Figure 1.4 Implementation Schedule

1.5 Related Agencies

The related government agencies to the survey are as follows. At the beginning of the survey, the main organizations associated with the survey were MLGRD, MIHUD, MTL, and MWDS in the central ministries, and LCC in the local governments. The name of the ministry is described by the new ministry name due to the reorganization of government ministries after the presidential election in August 2021.

In the process of the survey, the theme of supporting the formulation of IDP beyond the Lusaka city boundary had been highlighted among the Zambian side. As a result, in the latter half of the survey, the organizations for information collection and discussion expanded to the provincial government and neighboring local governments. Through the survey, MLGRD and LCC have been most closely involved in this survey.

Central Government
- MLGRD: Ministry of Local Government and Rural Development
- MIHUD: Ministry of Infrastructure, Housing, and Urban Development
- MTL: Ministry of Transport and Logistics
- MWDS: Ministry of Water Development and Sanitation

Provincial Administration Offices
- LPAO: Lusaka Province Administration Office
- CPAO: Central Province Administration Office

Local Authorities (Councils)
- LCC: Lusaka City Council
- CMC: Chongwe Municipal Council
- KTC: Kafue Town Council
- CLTC: Chilanga Town Council
- CBTC: Chibombo Town Council

1.6 JICA Study Team Member

JICA Study team for the Data Collection Survey consists of the following 9 members.

1）	Atsuyuki NAKASEKO:	Team Leader/Expert of Urban Planning & Transport Planning
2）	Makine KUSANO:	Expert of Urban Planning, Compound Planning
3）	Satoshi MIZUNO:	Expert of Transport & Road Planning
4）	Ryo SAITO:	Expert of Road Design
5）	Keisuke MATSUDA:	Traffic Engineer
6）	Yasunori NAGASE:	Expert of Urban Sanitation & Hygiene
7）	Tatsuo TOMIDOKORO:	Expert of Infrastructure Planning for Water Supply & Sewerage
8）	Naoko KATASHIMA:	Expert of Environmental Consideration
9）	Yukiko OHNO:	Expert of Social Consideration

1.7 Report Structure

The structure of this report is shown in the table below.

Table 1.1 Report Structure

Chapter	Title	Outline
1	OUTLINE OF THE PROJECT	The background, purposes, survey location, process, main related organizations, survey team members, and the structure of this report are detailed.
2	BASIC INFORMATION ON	A) An overview of Zambia and Lusaka City, natural and socio-economic situations, administrative organizations and their respective roles, and a

Chapter	Title	Outline
	LUSAKA CITY AND ZAMBIA	higher-level plan are described. B) The system related to environmental and social considerations in Zambia is described.
3	DATA COLLECTION ON URBAN DEVELOPMENT AND MANAGEMENT	A) Based on the results of the field survey and data collection, trends in urban development were summarized, and challenges and issues extracted from the gap-analysis between the existing urban development plan and the current situation. In addition, based on the survey for the compound area, some issues were also extracted. B) Necessary supports were examined for the extracted issues, and as a result, support for IDP was proposed as a priority project.
4	DATA COLLECTION ON ROAD AND TRANSPORT	A) Based on the results of the field survey and data collection, current traffic situations were summarized, and challenges and issues extracted after analyzing the collected data. In response to the results, necessary supports were proposed. B) Regarding the improvement plan of "Inner Ring Road Phase 2", which is one of the purposes of this survey, an alternative plan was proposed based on the results of the field survey, and a simple environmental impact assessment was carried out.
5	DATA COLLECTION ON URBAN HYGIENE, WATER, AND SEWAGE	A) Based on the results of the field survey and data collection, management and control of water and sewage (including urban wastewater) was summarized, and challenges and issues extracted after analysis of the collected data. In response to the results, necessary supports were proposed. B) In addition, the current situation of urban hygiene, including Covid-19, was summarized, and necessary supports were also proposed.
6	CONCLUSION AND RECOMMENDATIONS	From the results of this survey, as a support project for Lusaka City, IDP creation support that can comprehensively take up the problem solving and direction of urban problems (city, transportation, hygiene, etc.) was proposed as the highest priority project. Based on this proposal, the framework of support for IDP, points to note, and the content (problems and issues) of discussions in each field described in Chapters 3 to 5 are highlighted. At the same time, the outline of the Strategic Environmental Assessment (SEA) system that should be considered when creating an IDP is also described.

CHAPTER 2 BASIC INFORMATION ON LUSAKA CITY AND ZAMBIA

This chapter summarizes the geographical, social, and economic conditions, and administrative organizations of Zambia, Lusaka Province, and Lusaka City. As for the current situation of Lusaka City, detailed information on land use, urban areas, transportation, water and sewage, waste, etc. is described in Chapters 3 to 5.

2.1 Geographical and Climate

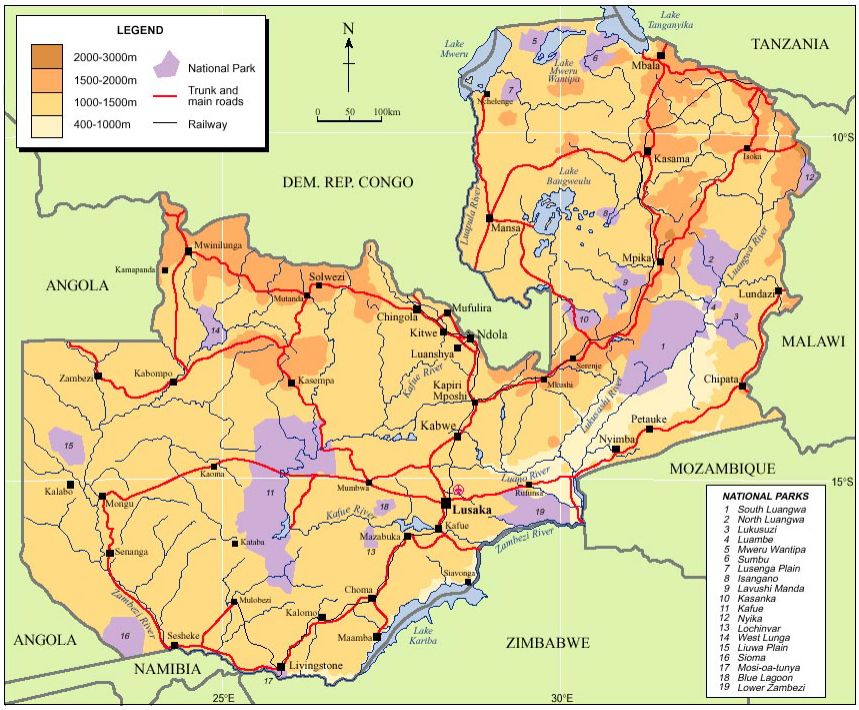
(1) Geography

Zambia is a landlocked country in southern Africa, located between latitude 8°-18° S and longitude 22°-34° east. Zambia has a population of approximately 18.38 million (2020 World Bank estimate) and a land area of 753,000 km^2, nearly twice that of Japan or Zimbabwe, 80% of Tanzania's, and 30% of the Democratic Republic of the Congo's. The land extends about 1,270 km from east to west and about 1,100 km from north to south (see Figure 2.1).

Source: JICA Study Team

Figure2.1 Location of Zambia in Africa

Zambia's terrain is mostly plateau with some hills and mountains. Most of the land is located at an altitude of 1,000 to 1,500 m and generally descends from the Democratic Republic of the Congo in the north toward the Zambezi River in the south. The average elevation of the country is 1,138m; the highest point is the Mafinga Central Hills (2,339m) near the Malawi border; the lowest point is the Zambezi River (329m) (Source: CIA World Factbook). The altitude of Lusaka City is roughly 1,200-1,300 m (see Figure2.2).



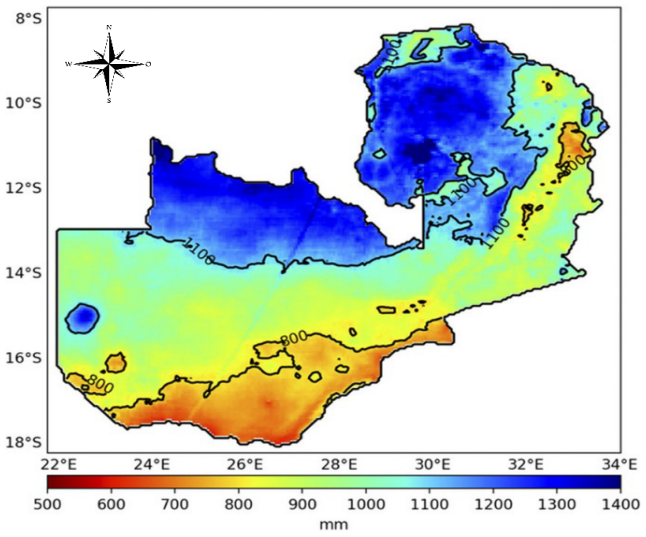
Source: Southern Africa Humanitarian Information Management Network (2005)

Figure 2.2 Terrain of Zambia

(2) Climate

The city of Lusaka has a steppe climate, and the vegetation zone is classified as savanna. The average maximum temperature is between 21°C to 30°C, and the average minimum temperature is 9°C to 19°C, a warm and comfortable temperature throughout the year. October is the hottest and July is the coldest (see Figure2.3).

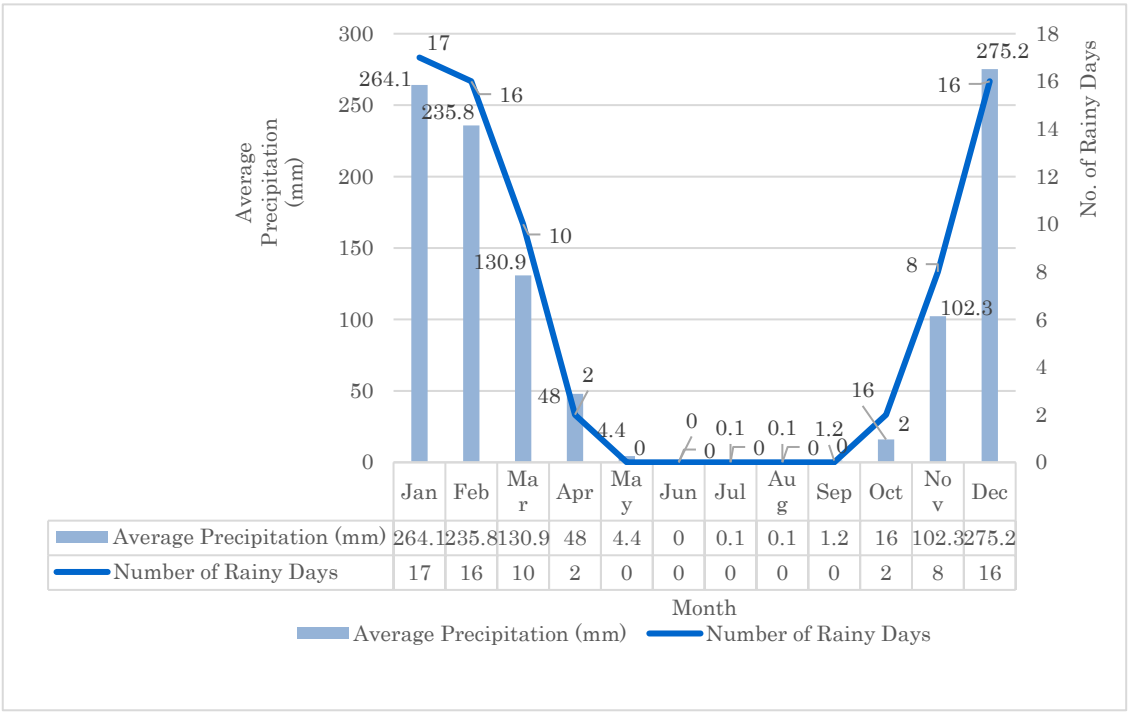
Zambia is divided into three distinct areas from the north to the south based on the amount of rainfall, as shown in Figure 2.3. The average annual rainfall over the past 30 years is about 800 mm in Lusaka City, which is located in the middle area of 800 to 1,100 mm /year of rainfall. The city of Lusaka generally observes the following three seasons (see Figure 2.4).



Source: Waldman et al. 2019

Figure2.3 Average annual precipitation map between 2000~2016

- The light rainy season (October-November): When the temperature is the highest and the rainy season begins, it rains six days per month in November.
- The rainy season (December-April): The full-scale rainy season is from December to February where it rains once every two days with high precipitation; humidity reaches 84% in January.
- Dry season (May-September): There is almost no rain, and the temperature is low.



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Precipitation (mm)	264.1	235.8	130.9	48	4.4	0	0.1	0.1	1.2	16	102.3	275.2
Number of Rainy Days	17	16	10	2	0	0	0	0	0	2	8	16

Source: www.climatemps.com

Figure2.4 Monthly Precipitation and Rainy Days in Lusaka

2.2 Population, Economy, and Society

(1) Population

Lusaka province is the most populous and smallest of the ten provinces. The population of Lusaka province was 2.19 million in the 2010 census, accounting for 16.7% of the population of Zambia, while its area was about 22,000 km^2, accounting for only 2.9% of the area of the country. The second most populous province of Copperbert has a population of 1.97 million and an area of about 31,000 km^2, accounting for 15.1% of the population and 4.2% of the area of the country (see Table 2.1).

The third and fourth are Eastern and Southern provinces, which are adjacent to the east and west of Lusaka province, with a population of 1.59 million, and the population densities are 31/㎢ and 19/㎢, respectively. Central, to the north of Lusaka, has the fifth largest population of 1.3 million and has a population density of 14/㎢. The population density of all three neighboring provinces is much lower than that of Lusaka.

Table 2.1 Area and population in Zambia's provinces

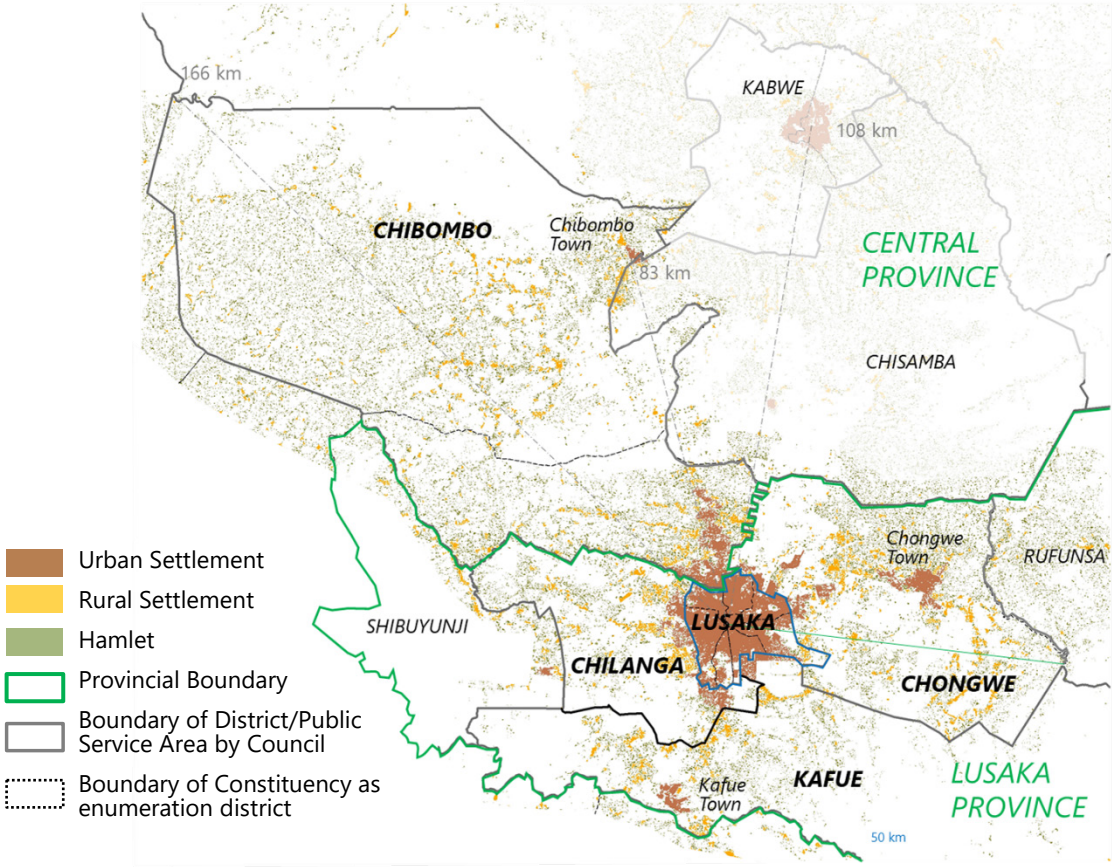
Ref no.	Name of Province	Area (km^2)	Population (2010 census)	Population Density (persons/ km2)	Share of Area	Share of Population
1	Central	94,394	1,307,111	13.8	12.5%	10.0%
2	Copperbelt	31,328	1,972,317	63.0	4.2 %	15.1%
3	Eastern	51,476	1,592,661	30.9	6.8%	12.2%
4	Luapula	50,567	991,927	19.6	6.7%	7.6%
5	Lusaka	21,896	2,191,225	100.1	2.9%	16.7%
6	Muchinga	87,806	711,657	8.1	11.7%	5.4%
7	Northern	77,650	1,105,824	14.2	10.3%	8.4%
8	North-Western	125,826	727,044	5.8	17.1%	5.6%
9	Southern	85,283	1,589,926	18.6	11.3%	12.1%
10	Western	126,386	902,974	7.1	16.6%	6.9%
	Total	752,612	13,092,666	17.4	100.0%	100.0%

Source: 2010 census, and Zambia Central Statistical Office (2013). Data calculated by JICA Study Team

Source: Worldatlas.com

Figure 2.5 Provinces in Zambia

Lusaka city borders the Chibombo district of Central Province on the north side, and is surrounded by the Chongwe, Kahue, and Chilanga districts of Lusaka Province on the east, south, and west sides, respectively (see Figure2.6).



Source: JICA Study Team utilizing Open Source Data (GRID 3)

Figure 2.6 Location of Lusaka City with Neighboring Districts in Lusaka Province and Central Province

As of November 2021, the aggregated results of the Zambia Population Census (census 2020) have not been released, and might not be so until the fall of 2020, according to the Statistics Bureau.

- The population of Zambia in 2020 is 18.38 million (UN estimate, a little more than the Zambia government estimate of 17.89 million).

  According to the UN estimates, the number of people increased by 5.29 million from 13.09 million in 2010 to 13.38 million in 2020 with an annual average increase rate of 3.5%.

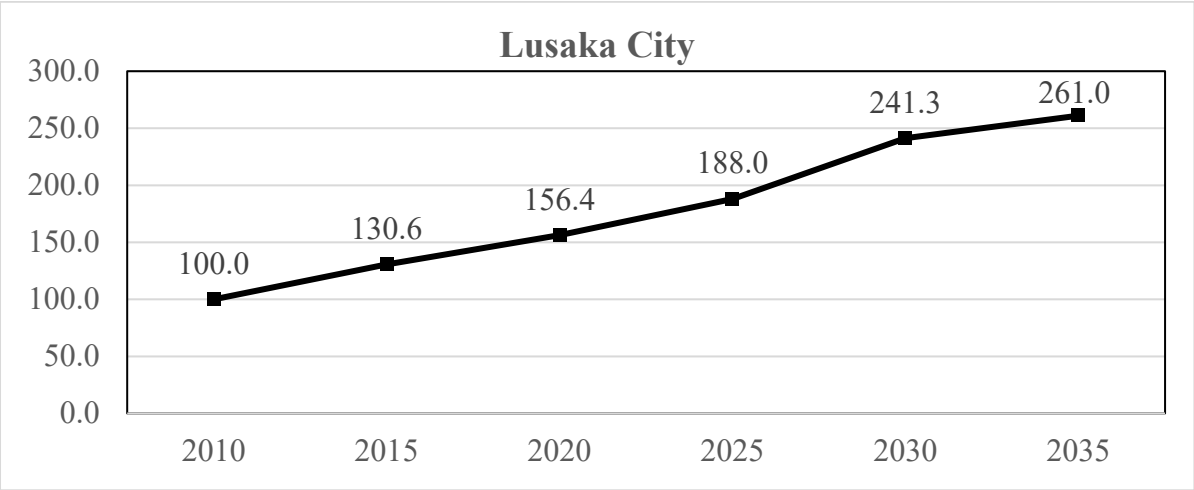
  According to the Zambian government estimates, the number of people increase by 4.8 million from 13.09 million in 2010 to 17.89 million in 2020 with an annual average increase rate of 3.2%.

- The population of Lusaka Province in 2020 is 3.36 million (Zambian government estimate), increased by 1.17 million from 2.19 million in 2010, with an annual average increase rate of 4.4%.

- Lusaka City population in 2020 is 2.73 million (Zambian government estimate), increased by 980,000 from 1.75 million in 2010, with an annual average increase rate of 4.6% (see Figure 2.9)

The population of Lusaka is estimated to more than double in 15 years, and if this trend continues, the population in 2030 will reach 4.22 million. Since the area of Lusaka City is 420㎢, the population density is estimated as follows:

- The population density in 2010: Approximately 4.2 thousand people/㎢
- The population density in 2020: Approximately 6.5 thousand people/㎢
- The population density in 2030: Approximately 10.0 thousand people/㎢



Note: The vertical axis is an index with the actual value in 2010 as 100. The horizontal axis is the year.
Source of data: Zambia Central Statistical Office (2013). Zambia Population and Demographic Projections, 2011-2035.

Figure 2.7 Population Growth Rate Forecast of Lusaka City (Median Estimate)

(2) Economy

Zambia's 2020 GDP is 23.3 billion USD, and its per capita GDP is about 1,272 USD, lower than Botswana's, Namibia's, and Angola's, almost the same as Zimbabwe's, and higher than in Tanzania's, Malawi's, Rep. of Congo's and Mozambique's.

Figure 2.12 shows Zambia's GDP growth rate from 2005 to 2020. The growth rate had been increasing steadily until 2010 when it gradually slowed down. In 2019 and 2020, the growth rate was negative due to the influence of COVID-19.

Source: World Bank Note: 2020 GDP growth rate is 2019/2020 value

Figure 2.8 Zambia GDP Growth Rate Trends Between 1990 and 2020

(2) Society

Zambia is divided into 73 tribes, and the population of Lusaka City has increased rapidly due to the influx of population from rural areas, and there are problems with the urban environment such as compounds. The compound is a common name for unplanned residential areas in Lusaka City. Lusaka's urban area has been expanding. Zambia faces various social problems such as poverty, health, urban hygiene, infectious diseases such as cholera, education, gender, water shortage, and energy (see Table 2.2).

Table 2.2 Social Issues in Zambia

Issues	Situation in Zambia
Poverty	58.7% of people in Zambia survive on 1.9 USD per day or less (absolute poverty line by UN), as compared to 37.1% in Kenya. In 2018, the sub-Saharan Africa area has 40.4% of its people living in absolute poverty, indicating that the poverty rate in Zambia is high.
Hunger	In 2018, Zambia belongs to the group (11 countries) with population undernourishment of 35% or more in the world hunger map released by the United Nations World Food Program (the lowest-performing group).
Health	According to the World Health Statistics published by WHO in 2021, the average life expectancy and healthy life expectancy are as follows as 2019 data, and both indicators belong to the lowest group in the world. - In Zambia, the average life expectancy of males is 59.5 years, and that of females is 65.4 years, and its average is 62.5 years (178th in the world), as compared to Japan's males at 81.5 years and females at 86.9 years old, and its average of 84.3 (ranked 1st in the world), a difference of 22 years. - In Zambia, the healthy life expectancy (duration of independent life) of males is 52.5 years and of females is 56.3 years old, with an average of 54.4 years (178th in the world). In Japan, that of males is 72.6 years, and of females is 75.5 years old, with an average of 74.1 years (ranked 1st in the world), which is longer than Zambia by 20 years. There have often been cholera infections in Lusaka city. The infrastructure for urban hygiene is fragile and with many problems, such as groundwater pollution, consumption of contaminated water, and waste management.
Hygiene	There have often been cholera infections in Lusaka city. The infrastructure for urban hygiene is fragile and with many problems, such as groundwater pollution, consumption of contaminated water, and waste management.
Water	According to WHO statistics in 2015, Zambia ranked 50-75% in terms of the population's access to safe drinking water. In Sub-Saharan Africa, where Zimbabwe and Tanzania rank the same, many countries are in a similar situation.
Education	According to the UNICEF World Children's White Paper 2019, the completion rate of primary education in Zambia from 2012 to 2018 is 73-75%. Although it is higher than the average of 60-63% in eastern and southern African countries, about 30% in Zambia have not completed primary education. The rate of neighboring Zimbabwe is 87-89%, higher than Zambia's.
Gender	Zambia ranked 56th in the Global Gender Gap Index 2021, which assesses gender disparities in economics, education, health, and political power. Among African countries, Namibia is ranked 6th, Rwanda 7th, and South Africa 18th.
Power	According to the World Bank database, the percentage of people who can access electricity in Zambia in 2019 is 43%, slightly lower than the average of 46.7% in Sub-Saharan countries. Zimbabwe is at 41.1%, Tanzania 37.7%, and Malawi 11.2%, which are extremely low.
Conflict	According to the Japan Ministry of Foreign Affairs, there are 73 tribes in Zambia, which are divided into Tongan, Nyanja, Bemba, and Lunda. However, Zambia has never had a war or civil war since its independence from the UK in 1964. The president has been elected democratically. It can be said that it is a peaceful country without the struggle between tribes often seen in other African countries.
Land Ownership	One of the major characteristics of society in Zambia is land ownership. Zambia's territory consists of 6% state-owned land and 94% customary land based on legal land partnerships. The government allowed the ownership of state-owned land by leasehold under the Land Law (1975) and amendment (1995). In many urban areas including the Lusaka city area, there is private land with a land ownership certificate based on the long-term lease of state-owned land. On the other hand, the residents of the customary land can enter into economic activities such as agriculture by securing land and securing funds by allowing the possession by individuals and private companies in the customary land.

2.3 Review of Administration of Zambia and Lusaka City

2.3.1 New Government and Relevant Administrations for Urban Services and Management

(1) New Government Administration

After the general election in Zambia in August 2021, the new President, Hakainde Hichilema, and members of the National Assembly, Mayors, Councilors were elected. As a result, the new government was reorganized by the President in combination with remained ministries, ministries with minor changes, and the establishment of brand-new ministries reflecting the President's agenda. Table 2.3 shows the new government ministries selected in consideration with relevant administrations for urban development and management in comparison with the new ministries and ex-ministries.

Table 2.3 New Government Ministries referring to ex-Ministries to Urban Services and Management

Sector	New Government Administrion	Abbrev.	Note: Ex-Ministry
Administration	Office of the President	OP	same as on the left
	Office of the Vice President	OVP	same as on the left
	Ministry of Finance and National Planning	MFNP	Ministry of Finance
	Ministry of Local Government and Rural Development	MLGRD	Ministry of Local Government
Economy and Industry	Ministry of Agriculture	MOA	same as on the left
	Ministry of Commerce, Trade, and Industry	MCTI	same as on the left
	Ministry of Small Medium Enterprise Development	MSMED	New establishment
	Ministry of Tourism	MOT	Ministry of Tourism and Arts
	Ministry of Mines and Minerals Development	MMMD	same as on the left
Land and Environment	Ministry of Lands and Natural Resources	MLNR	same as on the left
	Ministry of Green Economy and Environment	MGEE	New establishment
Infrastructure	Ministry of Water Development, Sanitation	MWDS	Ministry of Water Development, Sanitation, and Environmental Protection
	Ministry of Energy	MOE	same as on the left
	Ministry of Transport and Logistics	MTL	Ministry of Transport and Telecommunications
	Ministry of Infrastructure, Housing, and Urban Development	MIHUD	Ministry of Housing and Infrastructure Development
	Ministry of Information and Media	MIM	Ministry of Information and Broadcasting
	Ministry of Technology and Science	MTS	New establishment
Education	Ministry of Education	MOE	Ministry of General Education
Health	Ministry of Health	MOH	same as on the left
Social Welfare and Culture	Ministry of Labor and Social Security	MLSS	same as on the left
	Ministry of Community Development and Social Services	MCDSS	Ministry of Community Development and Social Welfare
	Ministry of Youth, Sports, and Arts	MYSA	Ministry of Youth, Sport, and Child Development

Note: Abbreviation of the name of Ministry limits to this report only not as official use
Source : Government Gazette No. 7039/Republic of Zambia, September 2021

(2) Considerable Roles by Relevant Ministries and Organizations

This section briefs key ministries in conjunction with urban development and management in Lusaka City and its surroundings. These have played fundamental roles in the development and management of urban areas in terms of key infrastructure provision such as in road sector and energy sector, and key public services of education and health sector and economic development sector, although decentralization policy and programs have been promoted by the Zambian Government. The Ministry of Local Government and Rural Development has played a primary role in urban and regional

development planning through the formulation of policies, regulations, and local government consultation, while various sector ministries with their parastatal bodies implement and manage sector investments for urban and rural areas in the country. And major infrastructure investments in Lusaka have utilized external funding through international donors.

Table 2.4 Roles and Budgets of Ministries relevant to Urban Services and Management

Sector	Ministry (abbr.)	Considerable Roles (Policy, Standard, Program) in Urban Development and Management	Budget 2021
Administration	OP	・Management of local administration offices (provincial offices and district offices) ・Industrial Development Corporation (MFEZ, etc) ・Lands commission for management	303 mil zmw (only internal affairs)
	OVP	・Smart Zambia Promotion (temporary) ・Disaster management and mitigation (DMMU) ・Resettlement	70 mil zmw Parastatal (DMMU) 70 mil zmw
	MFNP	・National budget and funding management ・National development planning ・Census and statistics (ZAMSTAT) ・National Road Fund Agency	1,834 mil zmw
	MLGRD	・Local government management and consultation ・Urban and regional development planning ・Capacity development of local governments ・Feeder-township roads/fire service/levy and rates, etc ・Solid waste management	1,494 mil zmw / 22 mil zmw for investment
Economy and Industry	MOA	・Agriculture policy, food security, etc ・Field service (e.g. marketing, research, consultation)	7,209 mil zmw
	MCTI	・Commercial, industrial, and trade policy, business registration ・Industry development promotion (ZDA) ・Metrology survey and research (ZMA)	639 mil zmw Parastatal (2019) ZDA 4.5 mil zmw
	MSMED	・Policy for small, medium enterprise development policy ・Cooperatives development	414 mil zmw (2022 estimated
	MMMD	・Mineral exploitation, mines safety, geological survey	466 mil zmw
Land and Environment	MLNR	・Land policy and administration, land commission, survey ・Land survey and registration ・Control of unauthorized settlements	217 mil zmw / 42 mil zmw for investment
	MGEE	・Climate change and forestry policy and control ・Green economy and industrial policy ・Environmental management and assessment (ZEMA)	817 mil zmw (2022 estimated)
Infrastructure	MWDS	・Water and sanitation policy and management (NWASCO) ・Water resource management (WRMA)	2,165 mil zmw 2,018 mil for invest
	MOE	・Policies and regulations for energy and renewable energy ・Generation and distribution of electric power (ZESCO) ・Petroleum policy and provision	845 mil zmw
	MTL	・Land, inland water, air transportation policies, and regulation ・Parastatal agencies (CAA, ZAL, TZRA, ZRL, RTSA, etc)	408 mil zmw Parastatal (2019) RTSA 227 mil zmw (Revenue 1,415 zmw)
	MIHUD	・Building construction industry policy ・Road development policy and provision (RDA) ・Urban and housing development policy (NHA)	212 mil zmw Parastatal (2019) RDA 1,739 mil zmw NHA 2.7 mil zmw
	MTS	・Science and technology policy and regulation ・Telecommunication policy and regulation ・Smart Zambia and e-Government policy and regulation ・Technical and vocational education (TEVETA)	716 mil zmw (2022 estimated)
Education	MOE	・Education policy and management ・Primary, Secondary, and Tertiary education	10,480 mil zmw
Health	MOH	・Health policy and public health management and emergency operation (e.g. communicable disease) ・Building regulation	9,230 mil zmw
Social Welfare and Culture	MCDSS	・Community development policy, social welfare policy ・Non-governmental organization policy	3,667 mil zmw

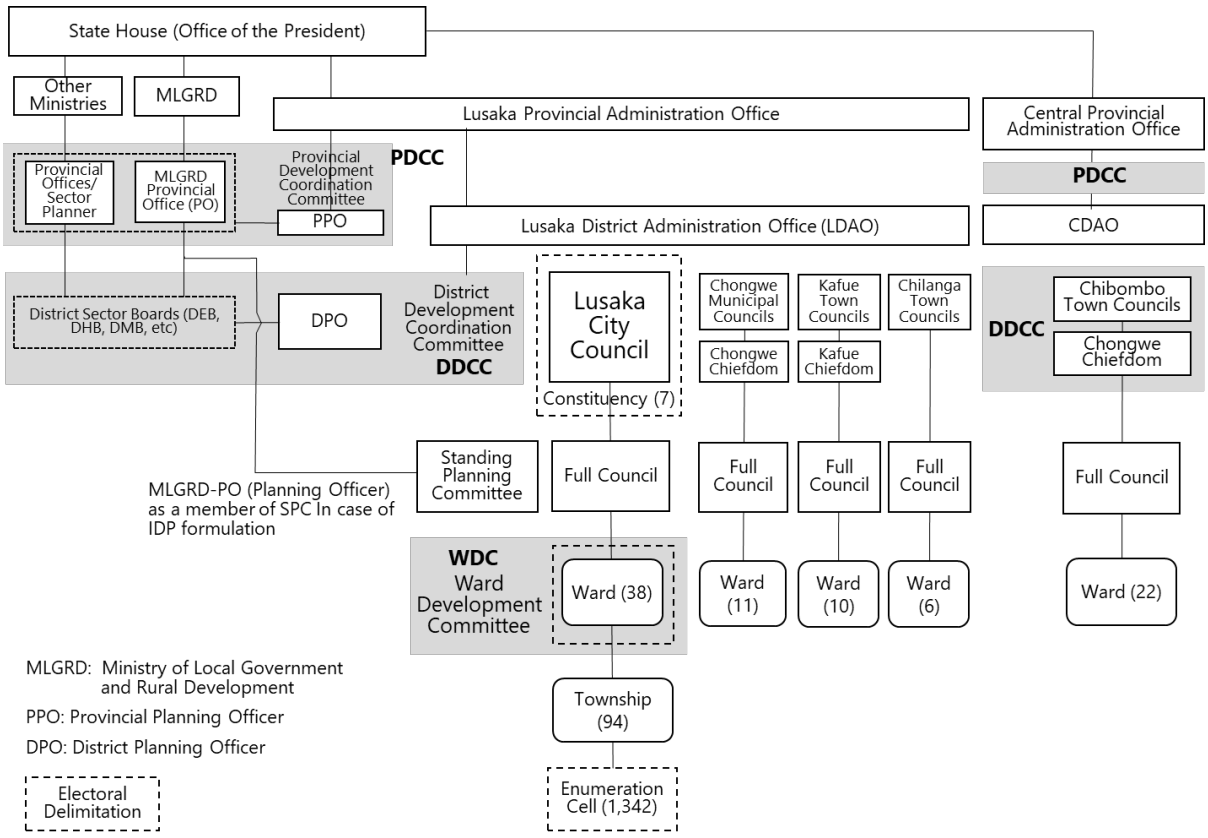
Note: Abbreviation of the name of Ministry limits to this report only, and is not an official use
Source: Estimate of Revenue and Expenditure (Output-Based) Annual Budget for 2022), Ministry of Finance 2021

2.3.2 Urban Service and Management by Local Authorities

(1) Local Administrative System

Local administration in Zambia is managed by two systems of 1) the central government management (de-concentration) through local branch offices at levels of Province and District and 2) local governments (decentralization) organized by elected councilors including their head (mayor and deputy mayor) for local public services. Figure 2.1 illustrates relationships among relevant local administrations and organizations for planning and management in the case of Lusaka City and its surroundings.

As an administrative coordination system, several organizations are functioning at local levels for planning and management within each jurisdiction in Zambia, by Provincial Development Coordination Committee (PDCC), District Development Coordination Committee, Standing Planning Committee in each Council in association with Ward Development Committee at the lowest level in a Council. In this condition, there are no statutory organizations for coordination among different provinces.



Source: JST based on several official website information of the Zambian Government

Figure 2.9 Relevant Local Administrations and Organizations of Lusaka City Council and Surroundings for Planning and Management

(2) Urban Service Delivery and Responsibility by Relevant Administrations

According to the local administration system above mentioned, delivery of urban services by relevant administrations based on the roles and functions stipulated in the Local Government Act (1991~2019) under the decentralization policy of the government is defined and implemented. The council does not have many urban services to address citizens' demands, while the central government plays key roles in the provision of key services and investment for infrastructure, facilities developments, and necessary management of them.

Recently, further devolution has been announced by the new Government Gazette No. 7039 in September 2021, in which some services of the central government were devolved to local authorities (Councils). Table 2.5 illustrates the roles and services delivered by responsible administrations.

Table 2.5 Urban Service Delivery and Responsibility by Relevant Administrations

Category	Urban Service	CG	LG	PO	Category	Urban Service	CG	LG	PO
General Administration	Police	●			Road and Transport	Roads	○	○	●
	Fire protection		●			Transport	○	○	●
	Civil protection	●				Traffic control/parking	○	◎	○
	Criminal justice	●				Urban roads	○	○	○
	Civil status register	●				Railways	○		●
	Statistical office	●				Port (inland water)	○		●
	Electoral register		●	○		Airport	○		●
Education	Pre-school		●		Environment and Public Sanitation	Public sanitation		●	
	Primary school	●				Waste management		●	
	Secondary school	●				Cemetery		●	
	Technical vocation	●		○		Slaughterhouse	○	○	
	Higher education	●		○		Environment protection	○	○	○
	Adult education	●		○	Culture, Sports and Leisure	Theater and concerts	○	○	
Social Welfare	Family welfare	●		○		Museums, libraries	○	●	
	Social welfare home	●		○		Parks and open spaces	○	○	
	Social security	●		○		Recreation and sports	○	●	
Public Health	Primary health care		◎		Infrastructure	Energy and electricity	○		●
	Hospital	●	◎			Water supply, sanitation		○	●
	Caregiving service	○	○			Sewerage system		○	●
	Health protection	○	○			Stormwater drainage		◎	
Housing and Urban Planning, Control	Housing	○	○		Economic Development	Agriculture, forestry, etc	●	△	○
	Urban planning	○	○				●	△	○
	District planning		◎			Trade and industry	●	△	○
	Development control		◎			Tourism	●	△	○

Legend: ●= Main service、○= Common or sharing service、△=discretionary service、◎=service devolution by the Gazette 7039, CG = Central Government, LG = Local Government, PO = Parastatal Organization
Source: JST arranged based on the Country Profile 2017-18 / The Local Government System in Zambia, / Commonwealth Local Government Forum

2.3.3 Local Administrations concerning Lusaka and Surroundings

(1) Provincial Administration Offices with District Administration Offices

The Province Administration Office (PAO) under the Office of the President, plays key administrative roles in supervising and managing services and developments for the provincial entity, where the office administration is headed by a Permanent Secretary under a minister of the line ministries appointed by the President. Also, there is a Deputy Permanent Secretary, heads of departments, and civil servants at the provincial level. Each PAO involves several District Administration Offices (DAOs) as the lowest level administrative management of the central government.

The Lusaka Province Administration Office composes of seven (7) DAOs, namely, Chilanga District (DAO), Chirundu, Chongwe, Kafue, Luangwa, Rufunsat and Lusaka DAO (District) with Lusaka City Council as the capital of Zambia under the Lusaka PAO. This province is the smallest in Zambia, with an area of 21,896 km^2. The province is the most populated and most densely populated province, with a population (2020) of 3,289,132 and a density of 150 persons per km^2 by the population projection 2020[1].

The Central Province Administration Office composes of twelve (12) DAOs, namely, Chibombo,

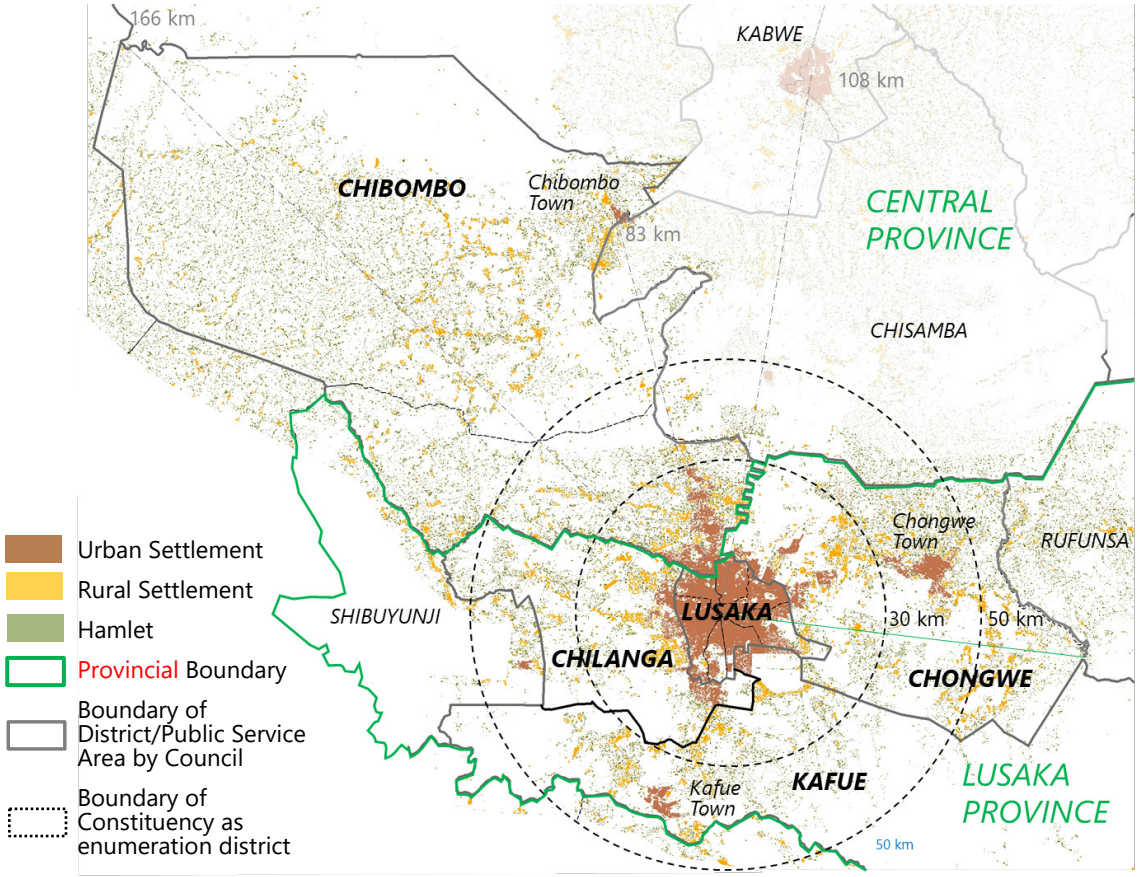
[1] Population and Demographic Projections 2011 – 2035 / Central Statistical Office 2013

Chisamba, Kabwe as the provincial capital, and the other nine DAOs under the Central PAO. This province is the third biggest province in Zambia, with an area of 94,394 km^2. Therefore, the province is one of the lower dense provinces, with a population (2020) of 1,815,801 and a density of 19.2 persons per km^2 by the population projection 2020.

Table 2.6 Current Status of Neighbouring Local Administrations to Lusaka City Council

Central Administration and Relevant Councils	Admin Unit		No. of Admin. Officers	Budget (mil zmw) 2019	Amount per capita		Basic Data		
	District	Ward			Officer /1000 pop	Budget (zmw)	Population 2020*1	Area (km^2)	Density (pop/ km^2)
Lusaka Provincial Administration	8	82	n.a.	86.0	n.a.	26.1	3,289,132	21,896	150.2
Lusaka District (City Council)	--	33	1542	521.0	0.60	203.0	2,567,093	418	6,142.8
Chongwe District (Municipal Council)	--	11	324	39.1	1.56	188.3	207,613	2,505	82.9
Kafue District (Town Council)	--	10	148	n.a.	0.84	n.a.	176,926	4,630	38.2
Chilanga District (Town Council)	--	6	15	34.4	0.10	218.7	157,290	1,370	114.8
Central Provincial Administration	12	153	539	89.2	0.30	49.1	1,815,801	94,394	19.2
Chilbombo District (Town Council)	--	22	n.a.	n.a.	n.a.	n.a.	262,177	8,184	32.0

*Source: Website / Zambia Data Portal, Audit General 2019/, *1: Population Projection and Eligible Voter 2020 / Central Statistical Office,*



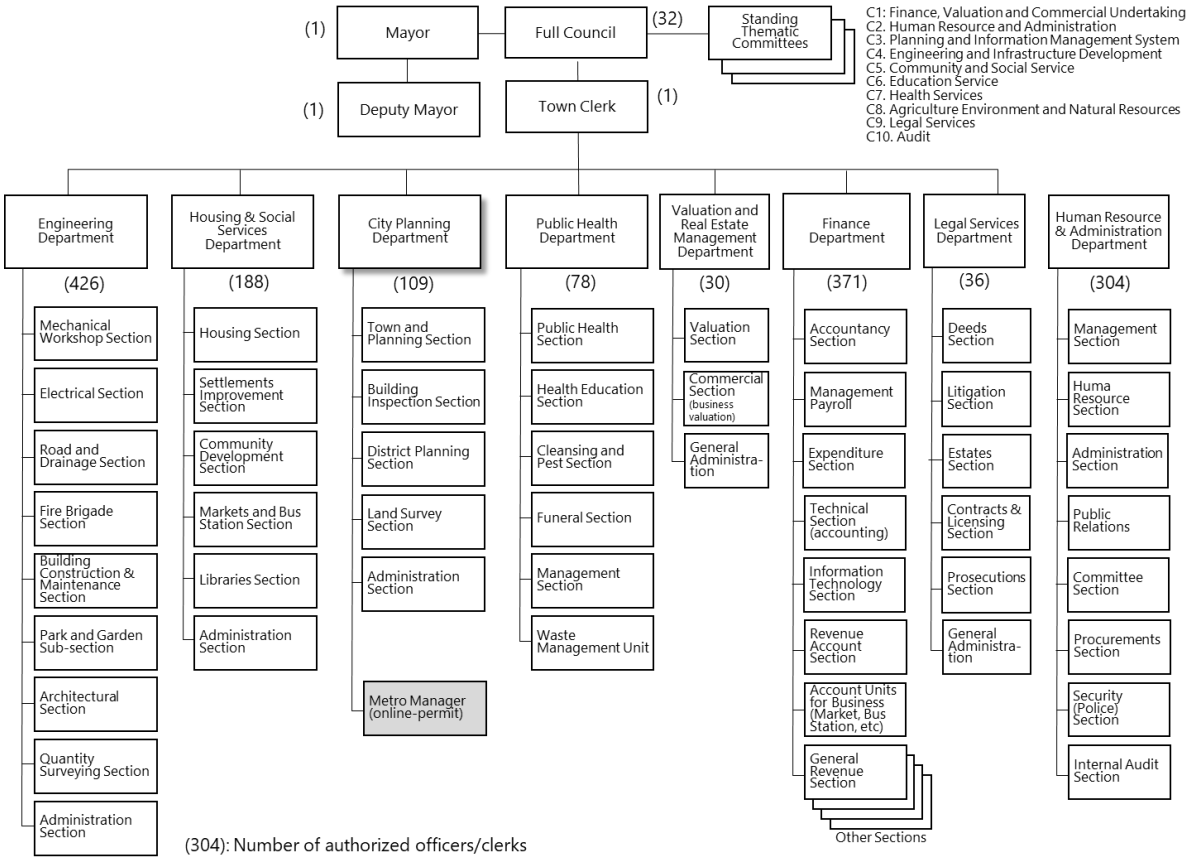
Source: Open Source Geodata edited by JST

Figure 2.10 Lusaka City and Surrounding Administrations

(2) Lusaka City Council

Lusaka City Council (LCC) manages its entity (412 km^2) as the capital and the largest council in Zambia, which is required to serve a population of 2.73 million in 2020[2], presumed the highest population density (6,142 pop/ km^2) in Zambia, while Lusaka District has the same jurisdiction for the central government administration apart from the council's management. The council comprises of a management organization by the full council with a mayor (with a deputy mayor) and councilors as representatives from wards and implementation bodies headed by Town Clerk with eight (8) departments (1,542 employees) including key three departments of City Planning Department (109 employees), Housing and Social Service Department (188 employees), Engineering Department (426 employees) and other five (5) departments.

For urban development planning and management of the entity, there are three important organizations as the planning authority designated by the Minister (MLGRD). The Full Council is to award approvals for development plans and relevant urban-related decision, while the standing committee for planning and information management appraises technically and report them in case of complicated issues to the Full Council. The city planning department as an executive office has responsibilities to provide urban development plans including IDP and manage land developments and constructions through an e-permission system (Metro Manager) in cooperation with the GIS information unit and report to a full council through technical approval by a standing planning committee for decision making in development management.

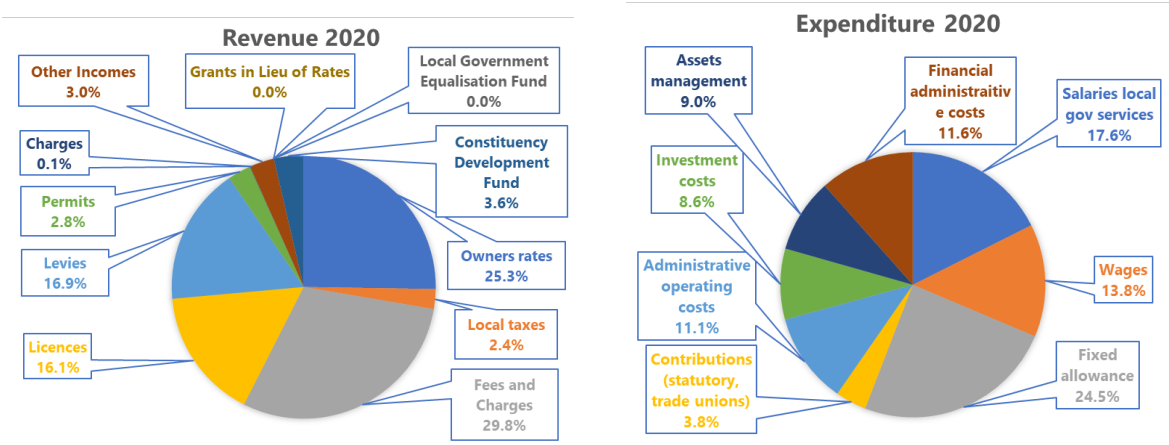


Source: Lusaka City Council edited by JST

Figure 2.11 Organization Chart of Lusaka City Council

[2] Population and Demographic Projections 2011-2035/ Census Statistical Office 2013

Regarding the financial status of LCC, an average revenue in recent years (2018~2020) was 411 million zmw (147 zmw per-capita, as compared to Osaka City with a similar population: 2,823 mil zmw in total, 103,000 zmw per-capita), and the current revenue in 2020 decreased to 307 million zmw (a 41% decrease from 2019). Breakdown of 2020 revenue comprises tax revenue (27 % by local tax, property rates), non-tax revenue (69% by levies, charges, etc.), and inter-governmental transfer (4% by grants). On the other hand, expenditure (320 million zmw) is occupied predominantly by the general administrative expenditure (91%) in comparison with the public investment expenditure (9%).



Source: Financial Data of Lusaka City Council/2020 edited by JST

Figure 2.12 Revenue and Expenditure 2020 of Lusaka City Council

(3) Neighboring Councils to LCC in Two Provinces

As neighboring local authorities of LCC, there are four Councils of Chongwe Municipal Council (Chongwe District), Kafue Town Council (Kafue District) and Chilanga Town Council (Chilanga District) recently established in 2012 under the Lusaka Province, and Chibombo Town Council (Chibombo District) under the Central Province. Each administrative area has a very large jurisdiction with a lower density settlement in comparison with LCC. Although four councils as sub-urban or rural districts are different from LCC as an urban district, indicators for their budget and number of administrative officers per capita are not making big differences as observed in Table 2.6.

2.4 National Development Plans, Policies, and On-going Projects

2.4.1 National Development Plans and Considerable Development Master Plans

With Vision 2030, Zambia aims to become "A Prosperous Middle-Income Nation by 2030," aiming at being competitive, self-sustaining, dynamic, and resilient to any external shocks, supporting stability and protection of biological and physical systems, and is free from donor dependence. In line with this national vision, a successive five (5) years national development program by the 7th plan (7th NDP 2017-2021) has been launched with the theme "Accelerating development efforts towards Vision 2030 without leaving anyone behind."

According to the national development plans, several master plans have been issued to implement the strategies and programs of Vision 2030 and the 7th NDP. Currently, three-sector masterplans have been publicized to the public in the transportation, power (energy), and tourism sectors. Table 2.7 briefs the contents of those plans to be considered as upper frameworks for future planning.

Table 2.7 Key Development Plans and Master Plans at National Level

Plan	Planning Term	Key Contents of Plan or Program	Major Development Indicators
Vision 2030	2016~ 2030	• Vision： A Prosperous Middle Income Nation by 2030 • Policy：1) gender-responsive sustainable development, 2) democracy, 3) respect for human rights, 4) good traditional and family values, 5) a positive attitude towards work, 6) peaceful coexistence, 7) private-public partnerships	• GDP: 6% (2006-2010), 8% (2011-2015), 9% (2016-2020), 10% (2021-2030) • Infration rate: under 5% • Poverty rate: under 20% of nation total • Gini coefficiency :under 40% • Safe water and sanitation achievement: 100% of the national total
7th National Developm ent Plan	2017~ 2021	• Theme: Accelerating development efforts towards Vision 2030 without leaving anyone behind • Growth Strategy: Creation of decent, productive jobs and increased incomes, climate-smart and organic agriculture, sustainable forestry and construction, and small-scale mining sectors for economic resilience • 5 years investment：2,840 billion zmw (domestic procurement rate 80%) • Implementation (Strengthen coordination and implementation processes, Strengthen capacity on planning, implementation, monitoring, and evaluation)	Key performance indicators • GDP: 2017 (3.9%), 2018 (4.2%), 2019 (5.2%), 2020 (5.4%), 2021 (5.5%) • Infration rate: under 6.8% • Poverty rate: under 50% of nation total • Gini coefficiency :under 50%
National Transport Master Plan	2018~ 2037	Objectives: To develop the country's national transport infrastructure Master Plan aligned to addressing the country's transport requirements in the short-, medium-, and long-term periods beyond 2030 Key road sector development • Central Corridor development, Public Transportation improvement, Toll Road development, Strengthen freight railway • Establishment of the public transportation agency, department of public transportation, urban transportation, centralized traffic management, etc.	Action Pan in Road Sector: • Project continuation（Lusaka Decongestion Project, MFEZ access roads, Lusaka Bypass Road, Inter-city Bus Stations • The proposed project（Traffic Safety Control Center, Urban Transport MP formulation, Inter-modal Logistic Center, Green Freight Railway）
Power System Developm ent Master Plan	2010~ 2030	• Modern electricity service delivery in the rural area • Integration of power system for sector development • Shifting from conventional energy production to renewable energy system • Sub-sector (expansion of transmission, power distribution improvement for sectors of SME, agriculture, manufacturing, tourism, improvement of investment environment for the energy sector)	• Expansion of 330 kV transmission and distribution system coping with 3 times demand increase (1GW-2030) • Expansion of 132/88 kV transmission and distribution system coping with demand increase
Zambia Tourism Master Plan	2018~ 2038	• Vision 2038: a great place to visit. It has a strong, well-planned, accessible economy with less dependence on international aid, and its nature and cultural heritage fully protected in a welcoming environment • Formulation of Tourism Development Area for development action • Formulation of the tourism circuit • Promotion of Zambia Culture Tourism • Utilization of National Parks and Environmental Protection Areas	Lusaka as Action Area • Phase 1：National MICE Hub • Phase 2：Southern MICE Hub promotion • Phase 2：Expansion of tourism facilities and market • Tourism information program, Art and Culture Village, Access Improvement to Lusaka National Park, Urban Design improvement

Source: Relevant Development Plans summarized by JST

2.4.2 E-Government Master Plan (Smart Zambia) with Smart City Solutions

The government launched the SMART Zambia Agenda in 2015, the goal of which is to achieve social and economic transformation by adopting a paradigm shift from traditional approaches of service delivery. By leveraging Information and Communication Technologies (ICT), it aims to modernize and simplify the governance and service delivery systems in the public service, to create a conducive environment for business investment, and to enhance the welfare of people. In this context, the SMART

Zambia Electronic Government Master Plan (2018-2030) has been launched in 2019. The key contents of this master plan are briefed in Table 2.8.

Table 2.8 Brief of SMART Zambia e-Government Master Plan 2018-2030

Vision	A prosperous and globally competitive knowledge-based developed country by 2030			
Major Outcomes	Improved Country Competitiveness	Improved ICT infrastructure	Strengthened Legal, Regulatory & ICT Policy	Better public services for improved quality of life
Key Programs and Projects	• National Backbone • Universal Access • National Data • Centre District Metro Fiber Networks	• E-Tourism System • E-Agriculture • Integrated GIS • Economic Analysis & Forecasting System • Natural Resources Monitoring System • Cloud Services	• ICT Legal Review • Smart Institutions • Data Sharing Policy • Standards, laws & regulations	• E-Education • ICT Device Assembly • Photovoltaic power generation • Smart city • E-Health
Key Enablers	• Robust Legal and Institutional Frameworks • Change Management & Capacity Building • Interoperability, Shared Services and Standardization for Cloud Computing & Big Data • Innovation Infrastructure			

Source: SMART Zambia e-Government Master Plan 2018-2030 summarized by JST

The Government of Zamia has started to implement *smart city solutions* that incorporate information and communication technologies (ICTs) to enhance the quality and performance of urban services such sectors on energy, transportation, and utilities to reduce resources consumption, wastage, and overall costs. The Smart City Solution aims to promote local authorities to enable them to provide core infrastructure and services with smart solutions, for which the SMART Zambia Institute coordinates to provide a digital platform and technologies for infrastructure, integration, IoT, data mining, and forecasting & modeling.

2.4.3 Housing Policy and Relevant Plan

(1) National Housing Policy and its Implementation Plan 2020-2024

The housing sector development goal in the Vision 2030 states “Increase the number of people accessing planned urban and rural settlement to 50 percent of the population by 2015 and 75 percent by 2030”, through developing an appropriate, affordable and accessible mortgage system by 2015 and putting in place efficient and transparent procedures for securing title deeds by 2015. After 22 years of the previous National Housing Policy (1996), the new National Housing Policy 2020-2024 and its implementation plan was launched in 2018, to materialize the sector goal of Vision 2030.

According to the new housing policy, housing projects and programs are based on seven (7) objectives for 1) promotions of informal settlement improvement, 2) effective management of urbanization, 3) facilitation of affordable housing development, 4) promotion of equitable access to land for housing, 5) increase of affordable housing finance, 6) increase of disaster management capacity on housing, and 7) mainstreaming cross-cutting issues (climate change, gender, etc) were planned by the proposed cost of 2,628 million zmw, In comparison with 2021 budget of MIHUD as a leading authority of the projects, the proposed cost would be only 11% of possible investment budget (61 million zmw) in case of equitable distribution into five years of the proposed cost of 525 million zmw.

(2) Housing Sector Programs of Lusaka City Council

LCC has implemented several housing projects and programs in recent decades focused on living environmental improvement mainly for unplanned urban settlements (UUSs) including international organization (e.g. UNHABITAT) support programs. Table 2.10 briefs the projects and programs for living condition improvement in the LCC.

Table 2.9 Programs for Living Conditions Improvement of LCC

Project Program	Brief of Projects	Implementation Area	Reference
Participatory Slum Upgrading Program (PSUP)	• Urban profile formulation (done) • Formulation of Action Plan and Program • Implementation of projects and programs	Kanyama, John Laing	A part of the Government Land Program (UN-Habitat support)
Social Tenure Domain Improvement Model	• Normalization of land tenure in Unplanned Urban Settlement（issuing OCL） • Promotion through community capacity development for issuing OCL	Kanyama Pilot (done in 2017/18)	In addition to UN-Habitat/GLTN supports
Know Your City Project)	• Formulation of strategy without SLUM • Implementation of program in cooperation with NGO	10 Compounds	--
Habitat for Humanity Program	• Housing construction project • Acquiring OCL through supports	Linda, Bauleni, Kamanga, Chainda, Chazanga	--
Proposed Project for Informal Settlement Improvement (2018)	• Infrastructure project in Kanyama (road, water supply, drainage, etc) • Program for normalization of land tenure • Improvement of commercial and business areas	Kanyama Pilot (done)	MLG proposal

Note: GLTN = Global Land Tool Network with UNHABITAT, OCL = Land Occupancy License, NGO: Peoples Process on Housing and Poverty in Zambia (PPHPZ), Zambia Homeless and Poor People's Federation (ZHPF), and Shack/Slum Dwellers

2.4.4 Development Programs of LCC

The Strategic Plan 2017-2021 for LCC as one of the statutory plans in line with the national medium-term expenditure framework (three/five-year budgetary plan) aims to achieve required actions in line with overall priorities of actions to be implemented over the medium term. The plan is summarized in Table 2.10.

Table 2.10 Strategic Plan 2017-2021 for LCC

Pillar	Key Strategies	Major Project and Programs	Budget mil. zmw
Socio-economic Development	• Income generation for poverty and low-income group • Enhancement of public hygiene	• Improvement of markets and trading places • Improvement of the water supply system • Promoting food security and generating a variety of livelihoods	9.7
Environment Management/ Public Hygiene Recreation Development	• Mitigation of disaster risk • Climate change adaptation • Promotion and sensitization of public hygiene	• Improvement of waste disposal and 3R waste reduction • Securing safe water and quality control	551.1
Neighborhood Community Development	• Enlightenment of community/CBO improvement • Information management of CBO • Promotion of community participation • Improvement of unplanned urban settlements	• Bylaw establishment for community promotion • Establishment of land management information system • Participatory planning for WDC • Framework for Unplanned Urban Settlement improvement (	15.9
Public Service Development	• Promotion of ICT • Governance and public participation • Capacity development of administration	• Promotion of system for e-procurement/bidding and e-payment and ICT communication • WDC enhancement, others	326.8
Infrastructure and Land Use Planning	• Integration of urban transportation system • Gentrification by urban redevelopment • Slum improvement, disaster management • Increase urban settlement density • Securing financial access	• Road maintenance (160 km） community road pavement (200 km), Construction of BRT, and road lighting system • Formulation of IDP and WDP in association with land use plans • Chibolya Development Plan formulation and approval from the Council • Establishment of Bylaw for Mixed Land Use and building code or building guideline • Establishment of the e-permission system	4,241.6
		Total	5,145.2

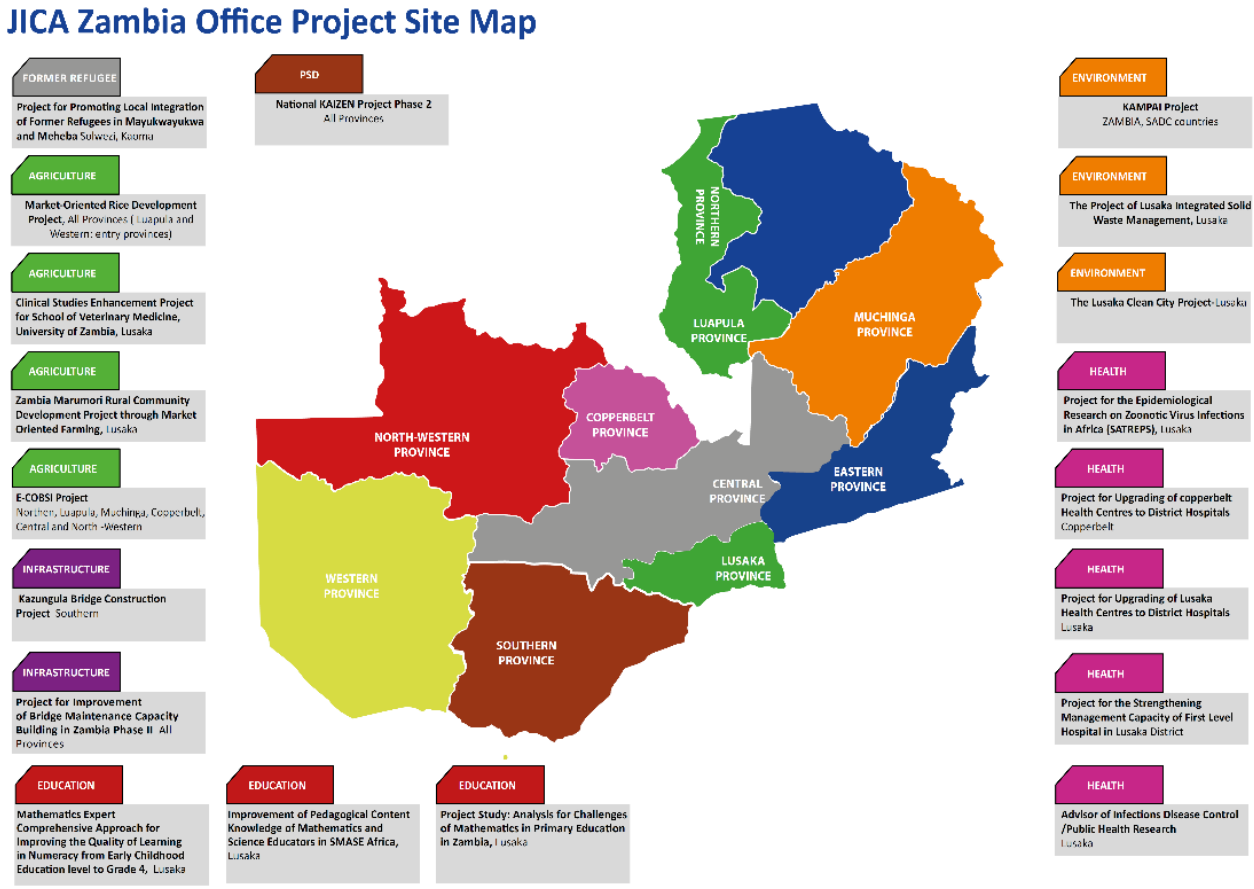
Source: Lusaka Strategic Plan 2017-2021

International (SDI), Typical compounds: Chazanga, Mtendere East, George, Chaisa, John Laing, Kanyama, Kuku
Source: Lusaka City Council compiled by JST

2.5 Projects and Programs Supported by Donors

2.5.1 Ongoing Projects and Programs Supported by JICA

Figure2.11 shows the ongoing project by JICA.



Source： JICA Zambia

Figure2.13 On-going Project by JICA

2.5.2 Projects and Programs in Urban Development and Management Sector

(1) Major Projects and Programs Supported by JICA

Japan International Cooperation Agency (JICA) has supported various projects and programs in the urban development and management sector for decades. Not only Lusaka City Council as the capital of Zambia but also other major cities such as Livingstone, Ndola, Kitwe were covered by technical assistant projects in urban planning, capacity development of central and local administration in several sectoral administration and for industrial developments, and grant projects for roads, infrastructure (water supply) and urban public facilities of schools and hospitals.

About the projects in LCC, the Living Environmental Improvement Project of Unplanned Urban Settlements in Lusaka" was implemented during the year 2001 to 2003 as a technical assistant project including grant project elements targeting three compounds of Ngombe, Kalikiliki, and Freedom. On the other hand, "The Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia" was one of the flagship projects of JICA to assist urban master planning in African major cities, which was implemented during the year 2007 to 2009.

Recent projects in LCC are soft components by "Lusaka Clean City Project (2021-2025)" and "Infectious Disease Prevention Activity for Children in Vulnerable Areas in Lusaka through Hands

Washing Dance Song" against COVID 19 pandemic. Table 2.11 briefs major projects assisted by JICA concerning urban development and management of LCC.

Table 2.11 Major Projects and Programs Supported by JICA in LCC

Category	Project Name	Brief of Projects	Location	Year
Urban Planning and Management	1. Living Environmental Improvement Project of Unplanned Urban Settlements in Lusaka	• Improvement plan • Water supply, sanitation facility, others as a grant aid project	Lusaka City	2001-2006
	2. Comprehensive Urban Development Plan for the City of Lusaka (JICA2009MP)	• Master plan formulation • PreF/S for road and water sector • Technical cooperation project	Lusaka City &surroundings	2007-2009
	3. Urban Planning Advisor t to LCC for following JICA2009MP up	• Assisting activities for land use planning, redevelopment, etc	Lusaka City	2012
Industrial Development	4. Zambia Investment Promotion Project	• Technical assistance for investment promotion for ZDA	Zambia	2009-2012
	5. Lusaka South MFEZ Master Plan Project	• Master plan formulation of LSMFEZ in cooperation with Malaysia	Lusaka City	2009
Public Facilities Development with Capacity Development	6. The Project for Construction of Basic Schools in Lusaka, Phase I/II	• Construction of new primary and secondary schools • Grant aid project	Lusaka City	2006-2007
	7. The Project for the Improvement of the Medical Equipment of the University Teaching Hospital	• Upgrading old medical equipment for the hospital in Zambia University • Grant aid project	Lusaka City	2009-2011
	8. The Project for Upgrading Lusaka Health Centres to District Hospitals （Phase 2）	• Health Center in Kanyama township • Grant aid project	Lusaka City	2018-2021
Infrastructure Projects and Programs	9. The Urgent Water Supply Project in Satellite Area of Lusaka	• Urgent water supply for George compound against communicable disease • Grant aid project	Lusaka City	1993-1998
	10. The Project for Improvement and Maintenance of Lusaka City Roads-Phase I/II (2nd and 3rd projects)	• Road improvements in compounds, Greater East Road • Grant aid project	Lusaka City	1999-2006
	11. The study for power system development master plan in Zambia	• Formulation of the master plan for the power system in Zambia • Technical cooperation project	Zambia	2008/09
	12. The project for the improvement of the living environment in the southern area of Lusaka	• Inner-ring Road project (Phase I) • Grant aid project	Lusaka City	2011-2014
	13. The project for strengthening the capacity of urban water supply infrastructure	• Enhancement of management capacity of Four Water Supply and Sanitation Companies • Technical cooperation project	4 Companies including LWSC	2017-2019
	14. The Lusaka Clean City Project	• Enhancement of management capacity for newly establishing solid waste management company • Technical cooperation project	Lusaka City	2021-2025

Note: GLTN = Global Land Tool Network with UNHABITAT, OCL = Land Occupancy License, NGO: Peoples Process on Housing and Poverty in Zambia (PPHPZ), Zambia Homeless and Poor People's Federation (ZHPF), and Shack/Slum Dwellers

(2) Major Projects and Programs Supported by Other Donors

Recently, several large infrastructure projects in the water sector and road sector have been implemented as international funding projects in Lusaka city, where the improvement projects for water supply, sanitation, and drainage targeting several compounds were financed by Millennium Challenge Company (USA) and donor's co-financing scheme (AfDB, GDB, EIB) and China's finance for Kafue water supply project. The details of those projects will be described in later sections.

On the other hand, several capacity developments projects have been also implemented such as "Strengthening Local Government in Zambia," including a technical assistance program for formulation of IDP and other development plans in several local authorities in Zambia. EU, Germany, and the United

Kingdom (including Common Wealth Local Government Forum / CLGF) assisted and financed these programs. Table 2.12 describes briefly these projects.

Table 2.12 Major Projects and Programs Supported by Other Donors in LCC

Category	Project Name	Brief of Projects	Location	Year
Governance Enhancement	1. Integrated Development Plan Guidelines Formulation	• Technical assistance for the formulation of IDP Guidelines	CLGF / EU-DFID	2019
	2. Strengthening Local Government in Zambia (SLGZ III) (Phase III)	• Capacity development of the investment management for 23 Districts and Councils in feasibility studies of road projects • 1.7 million €	KfW	2018-2024
	3. Enhancing Local Government Capacity for Development Proje	• Capacity development for 10 Councils for development • Assistance of IDP/SD (LED) formulation • 2.1 million €	CLGF / EU-DFID	2017-2021
Urban/Land Management	4. Zambia Urbanization Review	• Analysis of urbanization trend in Zambia • Identification of urban issues and priority projects • 0.1 million us$	World Bank （WB）	2022
	5. Transforming landscapes for resilience and development in Zambia	• Integrated land management project for Luapra Province • Assistance of development plans in the Province, Districts, Ward • Infrastructure project: 75 million us$	WB	2018-2021
Infrastructure Development	6. Lusaka Water Supply, Sanitation, and Drainage (LWSSD) Project	• Formulation of Master Plans for water supply, drainage, and sanitation • Water supply, sanitation, and drainage improvement for eight compounds • Grant aid project: 292 million us$	MCC	2012-2020
	7. Lusaka Sanitation Programme	• Water supply, sanitation, and drainage improvement for seven compounds • Outreach for urban hygiene, administrative capacity development • Loan project: 127 million us$	AfDB, GDB, EIB,	2015-2020
	8 Kafue BulkWater Project	• Water intake, treatment plant, booster pump, etc • Loan project: 150 million us$	Exim Bank of China	2015-2018

Note: CLGF: Common Wealth Local Government Forum, DFID: Department for International Development, IDP: Integrated Development Plan, SD: Strategic Development Plan LED: Local Economic Development, MCC: Millenium Challenge Corporation (USA), GDB: German Development Bank, EIB: European Investment Bank, CCECC: China Civil Engineering Construction Corporation

2.6 Social Environmental Considerations for Infrastructure Sectors

2.6.1 Institutional Arrangement of Environmental and Social Considerations in Zambia

In Zambia, the line ministry of environmental considerations is the Ministry of Green Economy and Environment (MGEE), and Zambia Environmental Management Agency (ZEMA) is in charge of the implementation of EIA procedures. Table 2.11 presents key institutions related to environmental and social considerations in Zambia.

Table 2.13 Key Institutions related to Environmental Management and Resettlement Issues

Institution	Responsibilities
Ministry of Green Economy and Environment: MGEE	The ministry in charge of Environmental management in Zambia, newly funded in September 2021.
Zambia Environmental Management Agency : ZEMA	ZEMA is the independent authority to implement EIA procedures, funded by Environmental Management Act No.12 (2011)
Impact Assessment Association of Zambia: IAAZ	Zambian branch of International Association for Impact Assessment, which provides technical information related to impact assessment.
Ministry of Lands and Natural Resources	The ministry is in charge of land tenure/ownership database management and land acquisition.
Ministry of Transport and Logistics (former Ministry of Public Works and Supply	The ministry is in charge of land and property valuation and survey. Government Land Valuer is in charge.
Implementing agencies	In case of land acquisition through negotiation with landowner and property owner by market price called "willing buyer willing seller", the project implementing agency will oversee land acquisition.

Source: Government Gazette No. 7093(24th September 2021) https://www.zema.org.zm/, interview to related officials by JST

2.6.2 Legislative and National Policy related to Environmental and Social Considerations

In Zambia, the line ministry of environmental considerations is the Ministry of Green Economy and Environment (MGEE), and Zambia Environmental Management Agency (ZEMA) is in charge of the implementation of EIA procedures presents key institutions related to environmental and social considerations in Zambia. In addition, practical environmental and social consideration surveys are conducted by consultants (see attachment E1 the list of consultants provided by ZEMA).

(1) Legislative System

Legal foundation of Environmental Impact Assessment (EIA) procedures, the foundation of Environmental Council of Zambia (ECZ, predecessor of ZEMA), are set forth by the Environmental Management Act, EMA, 2011. Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulation (1997) (EIA Regulations) stipulates the necessary procedures followed by projects that may cause a significant impact on the surrounding environment. Based on the interview with ZEMA, EIA regulations are currently under revision to fit the current situation of development activities. In addition to those acts, the Environmental Management (Strategic Environmental Assessment) Regulations, 2021 (SEA Regulations 2021) has been promulgated in May 2021 (see Table 2.12 for key acts and regulations).

Table 2.14 Key Acts and Regulations related to ESIA

Act, regulations
Environmental protection
Environmental Management Act (EMA), 2011
Environmental Impact Assessment) Regulations, 1997 (Statutory Instrument No. 28 of 1997)
The Environmental Management (Strategic Environmental Assessment) Regulations, 2021
Involuntary Resettlement and Land Acquisition

Constitution of Zambia (amended by Act No. 2 of 2016)
Lands Acquisition Act, 1970
Land Act, 1995
Land Survey Act, 1960, Cap 188
National Resettlement Policy, 2015
National Lands Policy, 2021
Valuation Surveyors Act, Cap 207

Source: edited by JST based on original acts and regulations

(2) National policy framework

The policy framework by the central government is National Policy on Environment, 2009, which aims at achieving sustainable use of natural resources and economic development, public involvement in the implementation of development projects, and so on.

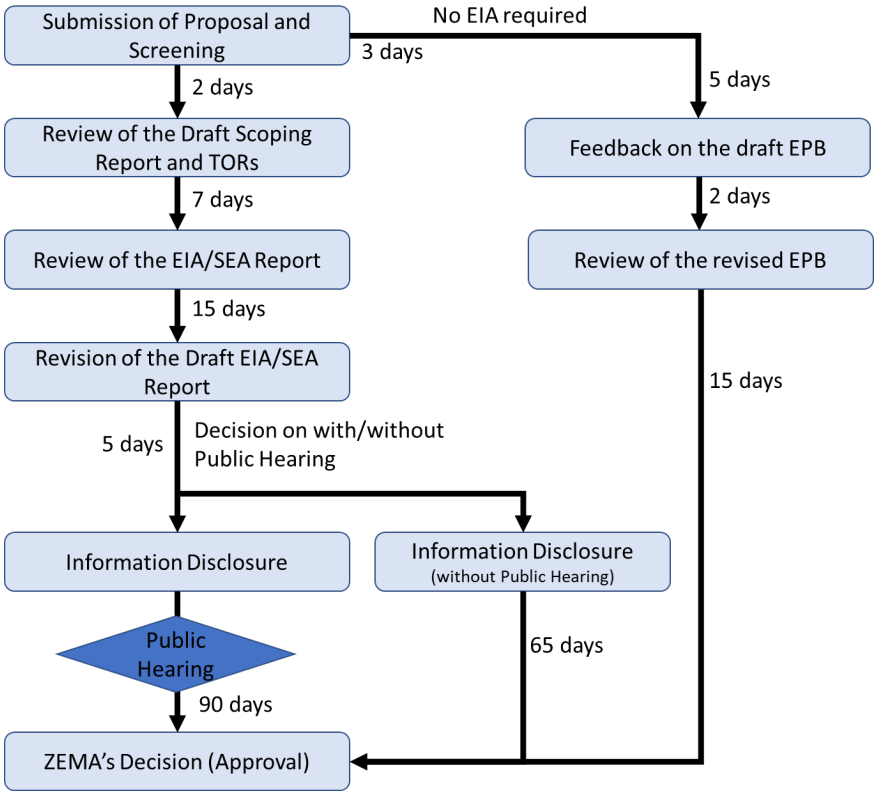
National Resettlement Policy, 2015, aims to achieve sustainable development activities while securing the improved livelihood of project-affected people and providing compensation in fair and transparent manners.

National Gender Policy, 2014, mandates gender mainstreaming led by line ministries. It also prohibits violence between gender, feminization of HIV/AIDS, and climate change.

2.6.3 Environmental and Social Consideration Procedures in Zambia

(1) EIA procedures for development activities

As mentioned above, EIA regulations specify the procedures to be followed by each project implementation as summarized in Figure2.12. The procedure is initiated by submitting an Environmental Project Brief (EPB), which describes the outline of the project as well as expected environmental and social impacts, mitigation measures, and environmental management plans. The project implementing agency submits EPB to ZEMA for review and evaluation. ZIMA decides if the project needs to follow the EIA process or revising EPB is sufficient to manage its impacts. After proceeding with all steps decided by ZEMA, approval will be given to project implementation, which is valid for 3 years since approval. All documents are treated as public documents and publicized on ZEMA's website or disclosed upon request. The provision duration of each step is also presented in Figure2.12. In general, the approval of EPB takes at least 25 working days for non-EIA-required projects, 109 days for EIA-required projects without a public hearing, and 134 days for EIA and public hearing-required projects.



Source: EIA regulations

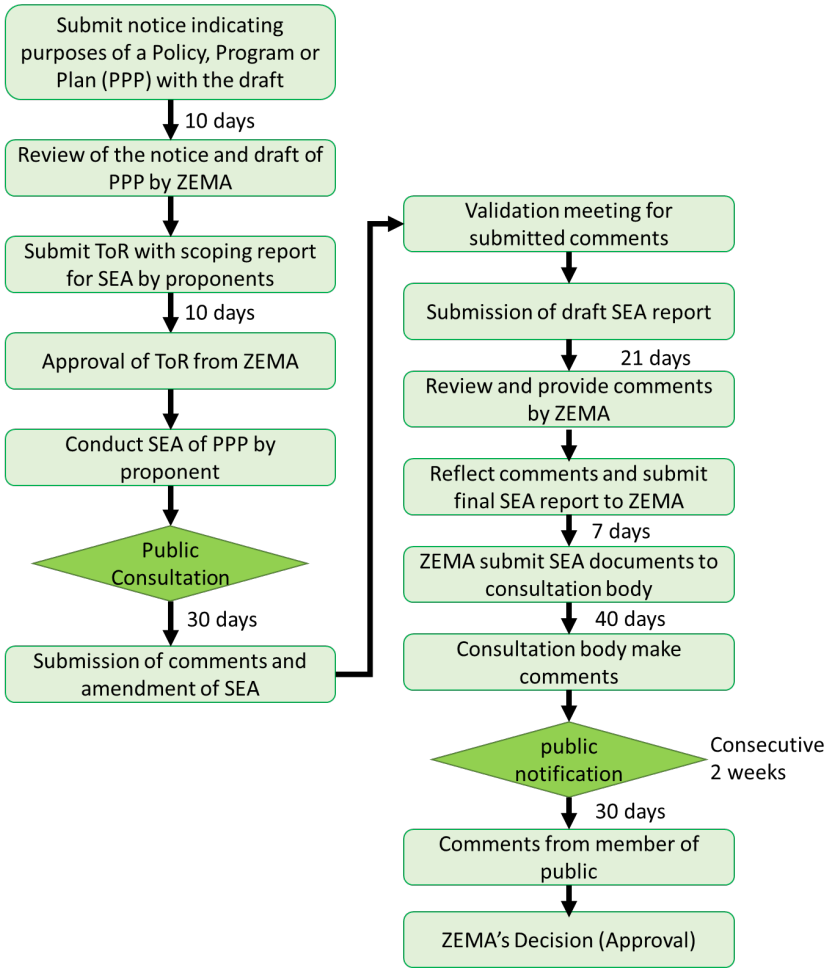
Figure2.14 Approval process of EPB or EIA reports by ZEMA

(2) Requirements related to EPB and EIA for Road and Infrastructure Projects

Types and scales of the projects required to conduct and submit EIA or EPB are stipulated in EIA regulations. In transportation and related infrastructure projects, the followings are main descriptions: a) area development of the area larger than 5ha or under which more than 700 people are resettled; b) development of special industrial zone; c) development of golf course which attracts more than 200 vehicles; and d) development of Shopping centers and complexes with a floor area of 10,000 m^2 and above.

(3) Strategic Environmental Assessment

Development policies and master plans are assessed by ZEMA following the procedures stipulated in SEA Regulations, 2021. SEA is the process to assess the contents of development-related Policy, Plan, or Program (PPP) as presented in Figure2.13. As it involves a broader range of stakeholders and wider spaces including transboundary effects, the entire process usually takes longer than EIA report approval mentioned above. The project proponent is responsible for the monitoring of environmental impacts of PPP within 36 months from commencement of PPP and submitting environmental monitoring reports to ZEMA, and implementing improvements and/or mitigation measures in case they are deemed necessary.



Source: SEA Regulations (2021)

Figure2.15 Approval process of SEA by ZEMA

2.6.4 Gap Analysis between Zambian legislation and JICA Environmental Guidelines

(1) Gap analysis from Bio-Physical Environmental aspects

Gaps between JICA environmental guidelines, World Bank safeguard policy, and Zambian national legislations were observed and summarized in Attachment E9.

(2) Gap analysis on involuntary resettlement and land acquisition

Gaps given resettlements and land acquisition has been analyzed and in case there are gaps to be filled, countermeasures are proposed in Attachment E10. It should be noted National Resettlement Policy does not specify the measures to be taken in the case of non-international infrastructure development projects, therefore, the applicability of the policy is not clear.

CHAPTER 3 DATA COLLECTION ON URBAN DEVELOPMENT AND MANAGEMENT

3.1 Urban Planning System in Zambia

Urban development planning and management have been strengthened recently by the Urban and Regional Planning Act No.3 (URPA2015) promulgated in 2015 as the upgraded Act of the previous Town and Country Planning Act No.21 (TCPA1997), and some articles (Improvement Area) of the Housing (Statutory Improvement Areas) Act No.30 in 1975 (HSIAA1975) were incorporated to the UPRA2015. The UPRA 2015 is considered to reflect the decentralization process for local authorities with more responsibilities primarily in development planning and management within their jurisdiction. Another distinct difference from the TCPA is inferred by the integration of a spatial framework plan (TCPA mainly) and a socio-economic development plan as a mid-long-term plan, meanwhile, a strategic plan as the short-mid-term expenditure framework (three-five years plan) is leveraged for the local authorities.

There is a three-tier planning system at the local level stipulated in the URPA 2015 by 1) a regional development plan that has not been issued yet in Zambia, 2) an integrated development plan (IDP) at the level of the local authority which several local authorities have formulated already, and 3) a local area plan (LAP) as a binding plan still no plan yet in Zambia.

3.1.1 The framework of Integrated Development Plan Formulation

(1) Contents and Period of Activities of IDP

The IDP Guidelines describe key contents of the plan and their required activities from the stage of preparation to the approval of a plan as shown in Table 3.1.

Table 3.1 Planning Activities with Standard Period in the IDP Guidelines

Steps of Activities	Major Item of Planning Activities	Reference	Standard Period
0. Preparation of Planning Program	i Establishment of implementation bodies	Planning Committee Approval	3.0 month
	ii Determination of stakeholders for the participatory planning process		
	iii Planning scope (range of planning, period, budget)		
	iv Formulation of Planning Program and its authorization		
1. Undertaking Survey and Data Collection	1-1 Collection of physical and spatial data (natural conditions, land use)	Stakeholders byWDC, NGOs, CAG, DDCC	3.3 month
	1-2 Plans and statistical data and information (population, employment, socio-economic, plans, projects, etc)		
	1-3 Collection of opinions: stakeholders, local communities, etc		
2. Analyses and Issues Identification	2-1 Analyses on socio-economic trends and issues identification	Demand and Supply analyses and examination of its projections	
	2-2 Analyses on spatial conditions and trends and issues identification		
	2-2 Cross-cutting issues identification (climate change, gender, etc)		
	2-3 Sector analyses on infrastructure (water, energy, road, transport, etc) and issues identification		
	2-4 Macro-framework analyses (demand & supply) target examination		
	2-5 Demand and supply analyses for key infrastructure		
	2-6 Demand and supply analyses for the social sector (education, health)		
3. Development Framework and Plan Formulation	3-1 Setting development vision, goals, and objectives	・10 yeas for IDP ・Strategic Environmen t (SEA)	4.5 month
	3-2 Development framework and strategy (economic, spatial options)		
	3-3 Environmental assessment and climate change adaptation		
	3-4 Formulation of plans and projects and priority identification		
	3-5 IDP outputs editing		
	3-6 Public consultation by stakeholders, local communities, etc		
4. Implementati on Plan	4-1Financial analyses of the local authority: expenditure, revenue, budget	・5 years ・Evaluation indicators for MEP	5.5 month
	4-2 Action plan for implementation through budgeting analyses		
	4-3 Capital Investment Plan (CIP) and Financial Plan (FP)		
	4-4 Monitoring and Evaluation Plan (MEP)		
5. Plan Approval	1 Planning Committee and Council Approval		2.0 month
	2 Final Approval by Minister (MLGRD) for Statutory Plan		
			Total 18.3 month

Note : WDC: Ward Development Council, DDCC: District Development Coordination Committee, CAG: Cluster Advisory Group, MLGRD: Ministry of Local Government and Rural Development
Source : Guidelines for Integrated Development Planning (vol1/vol2/vol3/vol4) compiled by JST

(2) Implementation Bodies for IDP Formulation

The implementation structure for an IDP formulation is composed of four groups 1) IDP Team by key planning experts from a local authority, 2) Technical Support Group by internal and external technical experts and advisors from relevant sector ministries and their parastatal bodies, Provincial and District planning officers, 3) existing Planning Coordination Organizations to be utilized as advisors, 4) stakeholders for participatory planning process by the local community, private sectors. Table 3.2 shows key members to be involved in the four groups and approval of a plan. It should be noted that the UPRA2015 stipulates a case of IDP formulation covered by multi-local authorities requiring the establishment of "a joint planning committee (ad hoc)" for technical approval of the IDP.

Table 3.2 Implementation Bodies and Relevant Organizations for IDP Formulation

Category		Administrative Organization							Private Organization		
	Implementation Bodies	LGA	PAO	DAO	CGM	PPO	CF	WDC	PE	CBO	CTZ
Planning Formulation	IDP Team	●	--	--	--	--	--	--	--	--	--
	Technical Support Team	●	--	--	●	--	--	--	--	--	--
	Advisory Support Team	--	○	○	●	○	--	--	--	--	--
	Planning Agreement	--	--	--	--	--	○	--	--	--	--
Public Opinion	Hearing through media	--	--	--	--	--	--	--	--	--	●
	Hearing through community	--	--	--	--	--	--	●	○	○	--
Coordination	CAG	--	○	○	●	--	--	--	--	--	--
	DDCC	○	--	●	○	--	--	--	--	--	--
	WDC	--	--	--	--	--	○	●	○	○	--
Planning Committee within LGA		●	○	--	--	--	--	○	--	--	
Planning Approval	Full Council of LGA	●	--	--	--	--	--	--	--	--	--
	Minister of MLGRD	●	--	--	--	--	--	--	--	--	--

Note：●= key target member, ○= supplemental, -- = not involved, LGU=Local Government Authority: PAO=Provincial Administration Office, DAO= District Administration Office, CGM= Central Government Ministry, PO=Parastatal Organization, CF=Chief of Customary Land, WDC= Ward Development Committee, PE=Private Enterprise, CBO=Community-based Organization, CTZ=Citizen, DDCC: District Development Coordination Committee, CAG: Cluster Advisory Group, MLGRD: Ministry of Local Government and Rural Development
Source： Guidelines for Integrated Development Planning (vol1/vol2/vol3/vol4) compiled by JST

(3) Process of IDP Formulation and Approval

The key process for IDP formulation is to manage building consensus among relevant organizations and citizens not only in technical coordination and cooperation among experts from different organizations but also in getting opinions or suggestions through public consultation including local communities as a part of participatory planning processes. Finally, the plan is approved by the full council through the technical approval (validation) by the standing planning committee of the local authority, and it becomes a legitimate plan by the minister's approval of the Ministry of Local Government and Rural Development.

3.1.2 Lands and Natural Environmental Management

The lands in Zambia consists of two types: the state lands (around 6% of the country) and the customary lands (96%), where the state lands have spread over the areas along the national corridors including major urban areas, and the customary lands occupy remained lands including villages, agriculture lands, and natural environment. Several institutional frameworks for developments or changes of lands or conservation stipulate required activities and relevant authorities, meanwhile, management and control of the customary lands entrust chiefs of them. Table 3.3 briefs the current institutional system for land and environmental management. Despite the government efforts on land management, disordered development and utilization of lands have been observed in the urbanized areas with unplanned urban settlements development, and the peri-urban areas or suburban areas including many customary lands.

Table 3.3 Institutional System for Lands and Natural Environment Management

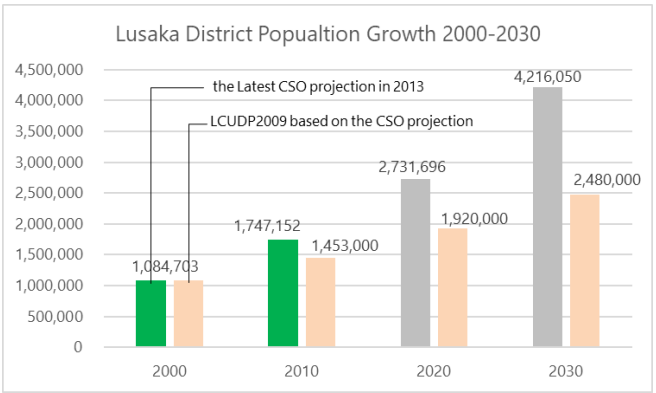
Type of Lands	Category	Document	Legitimate Law	Area / Share	Reference
Leasehold of State Lands	99 years lease	Leasehold by Certificate of Title (CTL)	Lands & Deeds Refistry Act, Common Leasehold Act	45,180 km^2 (6%) / 752,614 km^2 (national lands)	Survey and Registration
	14 years		Lands & Deeds Registry Act		Currently not issued
	30 years				Mapping and registration
Tentative Measures toward Leasehold	30 years permission	Occupancy License (OCL)	Housing Statutory Improvement Area Act	n.a.	Not convertible to CTL within declared areas
	10 years permission	Land Record Card (LRC)	Local government management	n.a.	Convertible to CTL within declared areas
Customary Land	Common land		Constitution, Lands Act, other customary laws	94%	Possible to convert to leasehold land
	Individual (private) land				
National Land Management for Land Protection and Conservation	National Forest Reserves		Forest Act	(7.7%)	Based on the Gazette in 2006
	Local Forest Reserves			(3.0%)	
	Botanical Reserves			n.a.	
	National Parks		Zambia Wildlife Act	(8.0%)	
	Game Management Areas			(22.1%)	
	Wildlife Sanctuary			n.a.	
	Natural and Cultural Heritage Sites		Natural and Historical Monuments and Relics Act	n.a.	--
	Ramsar Sites		Convention on Wetlands (Ramsar)	n.a.	
	Fishery Areas		Fishery Act	n.a.	
Others	30 years rent for agriculture		Agricultural Lands Act	(32.1%)	Based on the FAO report

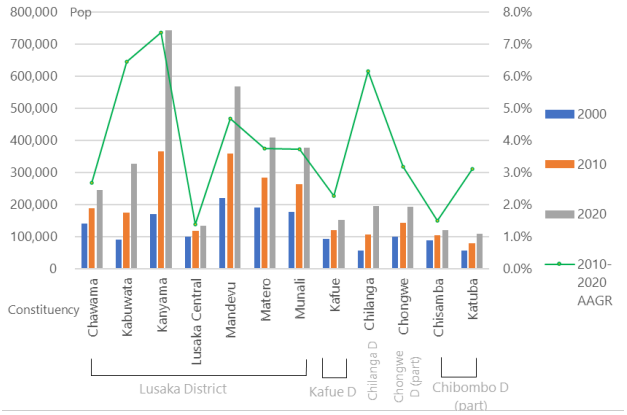
Source : various documents simplified by JST

3.2 Current Urban Development Status in Lusaka City and Surroundings

(1) Increased Population in Figures

Population in 2020 for the Luska City and surrounding areas are presumed to be beyond the previous number of the latest population projection[1] by the Central Statistical Office (CSO currently ZAMSTAT) also followed by the LCUDP2009. This presumed population excess from the initial estimation is inferred that the population increase in those urban areas might have been inflated not only by the natural increase but also social increase caused by migration from urban to urban in Zambia according to the statistical report[2]. And this population projection for the Lusaka City (District) indicates 2,730 thousand in 2020 and 4,216 thousand in 2030. On the other hand, the urban sprawls in the surrounding areas of Lusaka City are also indicated by the population increase especially in the three Districts of Chilanga, Chongwe, and Chibombo.





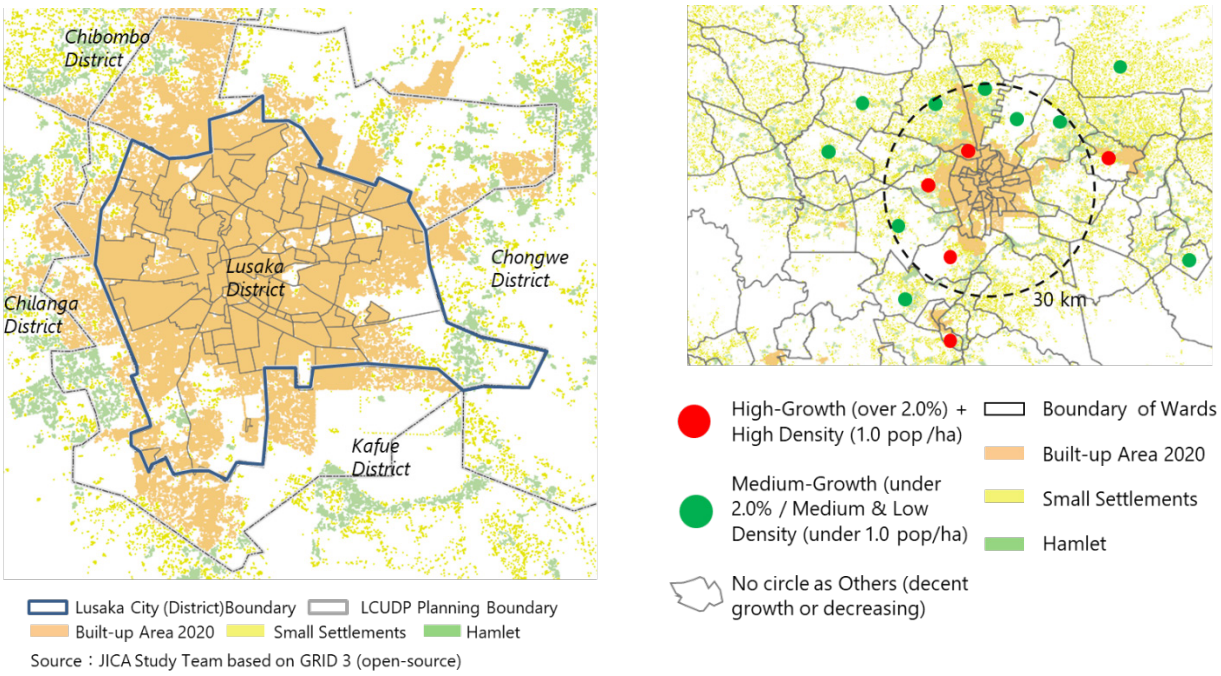
Source: JST based on the statistical reports

Figure 3.1 Population Increase in Lusaka City and Surrounding Areas

1 Population and Demographic Projections 2011 – 2035/CSO2013
2 Migration and Urbanization Analytical Report 2013 / CSO

(2) Spatial Distribution of Urban Sprawls beyond Lusaka City

The planning area of the LCUDP2009 had been considered already by setting the larger area (860 km^2) beyond the city boundary (423 km^2), and the current urban sprawls in every direction (east, north, west, and south) have happened again beyond the planning area at present. The most strenuous sprawls can be seen in the north direction in Chibombo District along the Greater North highway followed by the eastern part along the Nacala Corridor in Chongwe District. These sprawls can be caused by weak land management in the customary land spreading over in both Districts and higher land demand for urbanization. Figure 3.2 indicates the urban sprawl spatially in combination with residential and commercial/industrial uses in Lusaka City and surrounding districts. The left map shows the built-up area expansion and the right map indicates the population increase ratio at the level of wards out of Lusaka City.



Source: JST based on the GRID 3 (open-source) mapping data

Figure 3.2 Spatial Distribution of Urban Sprawls in Lusaka City and Surrounding Areas

(3) Housing Sector Developments

According to the Housing Policy (2018) and its implementation plan 2020-2024, the issue of housing supply toward 2030 was identified to meet the housing sector goal in the Vision 2030, in which the annual house production target for the next 15 years could be 193,000 units. According to the 2010 Census of Population and Housing (CSO), the number of housing units in Lusaka Province was 460,000 units (17.6 %) as the biggest number in Zambia, while Central Province was the fifth position by 250,000 units (9.5%). The estimated number[3] of households in 2020 becomes 3,620,000 households in Zambia. If the number of households in 2020 is close to its housing units, the number of units in Luska Province could be around 734,000 units (58% increase) and 340,000 units in Central Province (36% increase).

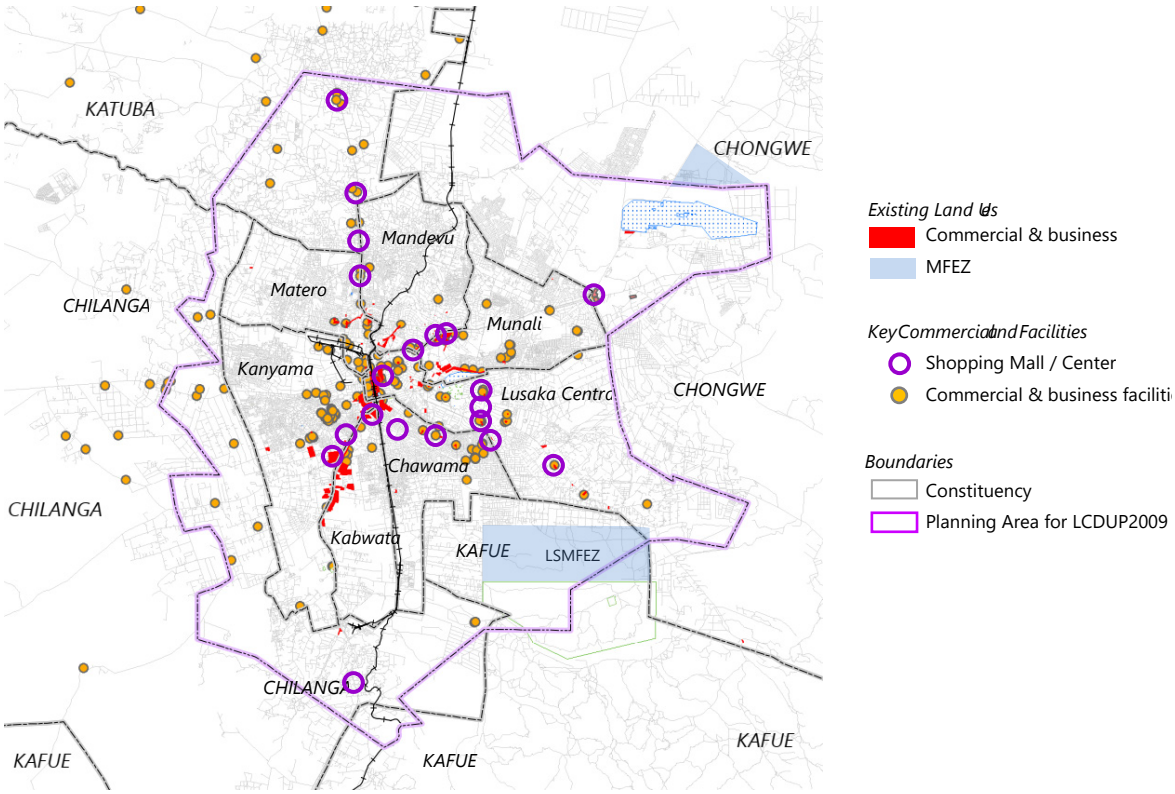
The major supplier of housing in Zambia is the private sector including individual provision utilizing public and private housing finance schemes such as NAPSA (National Pension Scheme Authority) and provisions by real estate companies' housing development in the urban area, while public sector hosing such as National Housing Authority plays small roles in providing public housing in terms of the scale of housing units. On the other hand, NGOs play some roles in providing affordable housing by their projects in Lusaka City, such as 1,000 units project by PPHZ (People's Process on Housing and Poverty

3 2020 Labour Force Survey Report / Ministry of Labour and Social Security 2020

in Zambia) and new 315 units and 9,095 improvements by HHZ (Habitat for Humanity Zambia).

(4) Current Developments in Commercial Facilities and Infrastructure Provision

Current rapid urbanization in Lusaka City and surroundings consists of subdivisions by private sectors on agricultural lands mainly in peri-urban areas, and business, commercial and industrial facilities along the corridors (Greater North Rd., Greater East Rd. and Kafue Rd). The expansion of urban functions of Lusaka City is also identified by the distributions of commercial and business facilities shown in Figure 3.3, where a distinct distribution pattern is observed in the large-scale facilities development by shopping malls or shopping centers spreading over along major corridors (Greater North Road, Greater East Road, and Kafue Road) to suburban areas or peri-urban areas.



Source: JST based on the GRID 3 (open-source) mapping data

Figure 3.3 Commercial-Business Facilities Distribution in Lusaka City and Surrounding Areas

On the other hand, infrastructure developments in Lusaka City are very active by the large-scale projects in the road sector and water sector in Lusaka City. Several road developments projects have been implemented by various implementation bodies with several financial resources including international donors. The Lusaka Decongestion Project funded by the Indian Government (implementation body: MLGRD) takes mainly the main distributor road improvements of Lusaka City, according to the road network of the LCUDP 2009. In the water sector, the project including the master plans formulation for water supply, stormwater drainage, and sanitation has been implemented by LWSC through financial supports of the Millennium Challenge Corporation and other international donors (AfDB, EU, etc). Table 3.4 describes the brief of the projects.

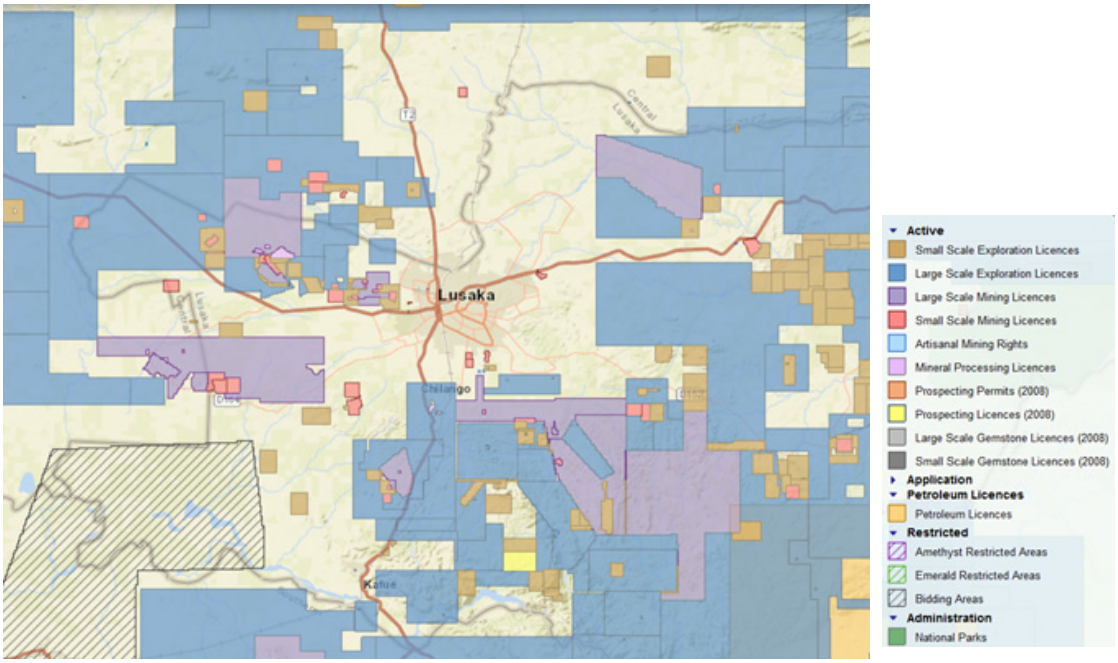
Table 3.4 Major Infrastructure Projects in Road and Water Sectors in Lusaka City

Type	Name of Project	Implementation Body	Project Component	Amount	Term	Cost (mil.us$)
Road Sector	Link Zambia 8000 Project	RDA	Phase-I	2,290 km	2012 ~	1,500
			Phase-II	3,049 km	20xx ~	2,200
			Phase-III	2,862 km	~ 2020	1,760
	Pave Zambia 2000 Project	RDA	Urban roads rehabilitation	2,000 km	2012 ~2015	1,600
	Lusaka Uban Roads Project (L400)	RDA	Phase-I: selected roads	360 km	2013－2017	348
			Phase-II: trunk roads	146 km	2017－2020	241
			Phase-III: minor roads	116 km	2019－2022	241
	Lusaka Decongestion Project	MLGRD	Key roads and junctions	120 km	2018－2021	289
Water Sector	Kafue Bulkwater Project	LWSC	Treatment plant completed	--	~ 2020	150
	Lusaka Sanitation Project	LWSC	Pump stations, trunk & distribution	1,075 km	2016－2020	68
	Climate Resilient Sustainable Infrastructure Project (sanitation)	LWSC	Sewerage rehabilitation and capacity development	ponds and network	2015－2020	128
	Lusaka Water Supply, Sanitation, Drainage Project (MCC)	LWSC /LCC	Networks for water supply & sewage system	317 km	2012－2020	292

Note ： RDA=Road Development Agency、MLG=Ministry of Local Government、LWSC=Lusaka Water Supply & Sanitation Company、LCC= Lusaka City Council、MCC=Millennium Challenge Corporation /USA
Source ： Each project documents for the projects

(5) Considerable Development Projects for Lusaka City and Surroundings

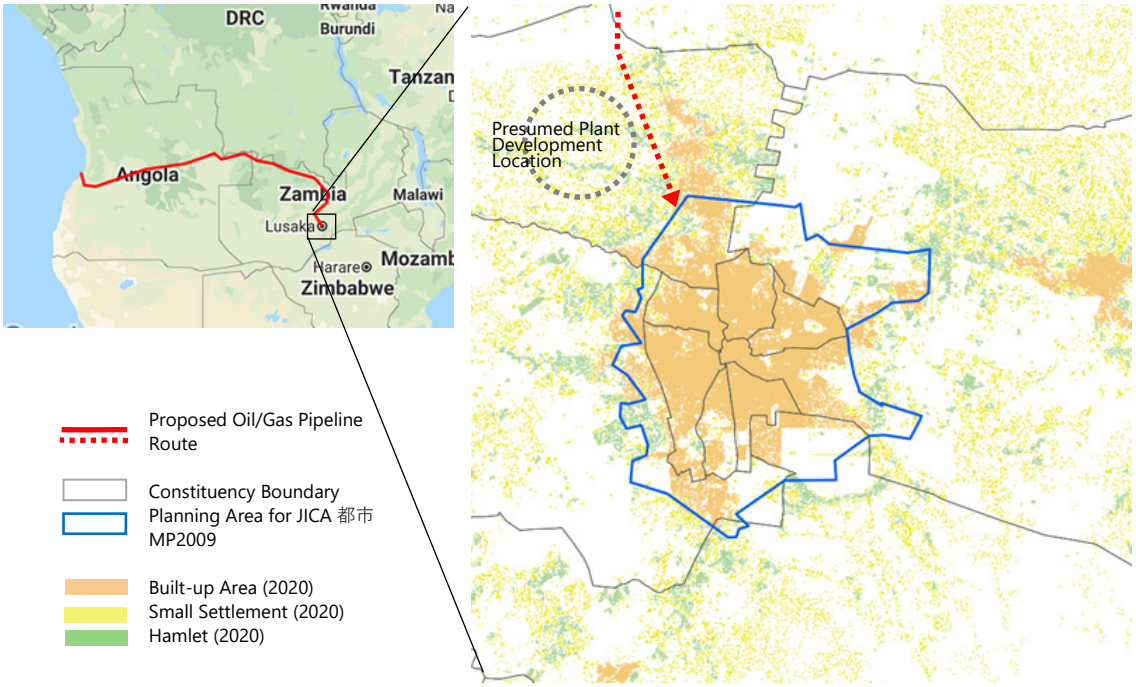
According to the current information of plans and projects concerning Lusaka City and its surrounding areas, two important projects should be highlighted, considering sustainable and harmonized development in future urbanization. One is the potential projects on mining and mineral exploitation in surrounding areas of Lusaka City where a majority of the lands in the surroundings of Lusaka City have been allocated by the licenses to exploit them.



Source: Zambia Mining Cadastral Map Portal

Figure 3.4 Cadastral Map of Mining License in Lusaka City and Surrounding Areas

Another project is the Angola-Lusaka Oil Pipeline Project with the MOU recently between both governments of Angola and Zambia. The planned route is expected to construct along the Lobit development corridor after the feasibility study and its environmental assessment in the year 2022 to address the economic demands of energy resources in Zambia. Figure 3.3 shows these two maps concerning two projects.



Source: JST based on the GRID 3 (open-source) mapping data and Google Map information

Figure 3.5 Angola-Lusaka Oil Pipeline Project in Lusaka City and Surrounding Areas

3.3 Reviews on the LCUDP2009

This section aims to identify development planning and management issues of Lusaka City and surrounding areas through finding gaps between the Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia (2009) (hereinafter LCDUP2009) and current development conditions.

(1) Progress of the planned components in the LCUDP2009

The LCUDP2009 planned six components 1) sustainable urbanization and promotion, 2) urban road and transportation improvement, 3) living environment improvement (mainly compounds), 4) environment conservation and green network, 5) social services and infrastructure, and 6) capacity development on urban growth management.

The planned projects and programs in the six components are assessed qualitatively by their progress in 2021 rather than their achievements because they are still in the middle of the target year of 2030 for the projects and programs. The significant progress can be seen in the road sector and some progress in the water sector, by contrast, less progress or setback in urban growth management. The following Table 3.5 indicates briefly the progress of the planned projects and programs of LCDUP2009.

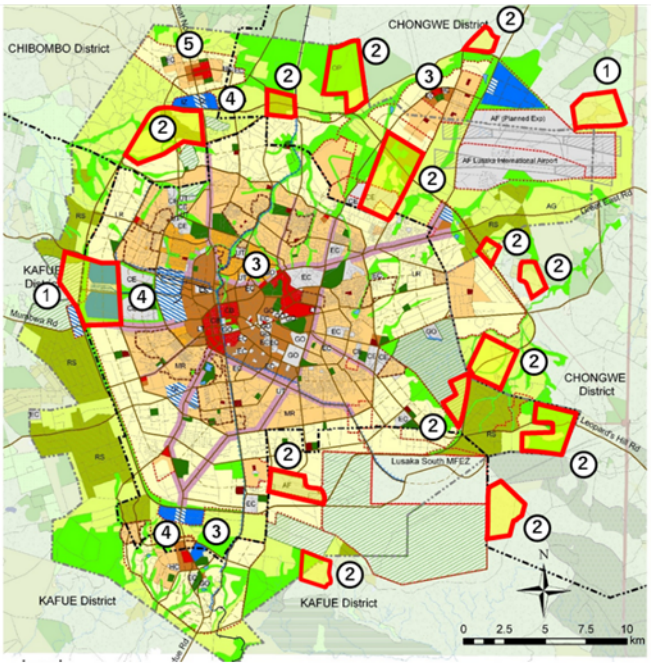
Table 3.5 Progress on the Planned Components of LCUDP 2009

Item	Program Component in LCDUP2009	Assessment	Reference (status or probable causes)
1. Sustainable urbanization and promotion	1-1 Urban growth management (satellite, growth boundaries)		Urban sprawl beyond LCC, no satellites towns
	1-2 Promotion of higher settlement density		Progress in some medium-density of offices dev
	1-3 Formulation of "Urban Cores"		Progress in aggregate business dev in UC
	1-4 Development promotion of industrial estates (MFEZ)		Progress in MFEZs and Roma Industrial Park
2. Urban Road/ Transportation Improvement	2-1 Inner Ring Road・access road development to MFEZ		Progress in Inner Ring Road Phase-I (TokyoWay)
	2-2 Outer Ring Road development		Progress in Outer Ring Road by the LD Project
	2-3 City road improvement to improve traffic congestion		Progress in major roads by the LD Project
	2-4 Establishment and promotion of public transportation		Dominant private sector without proper controls
	2-5 Comprehensive traffic management program		Traffic management by duplicated authorities
3. Living Environment Improvement (Compound)	3-1 Improvements for basic infrastructure (water, sanitation		Progress in water-related projects by MCC
	3-2 Social service development (health, educational facilities)		Progress in health centers project (incl. JICA)
	3-3 Promotion of urban renewal for compounds		No progress despite several investment plans
	3-4 Enhancement of microfinance for housing development		Progress in affordable housing finance (NAPSA)
4. Environment Protection and Green Network	4-1Natural environment and green area protection		Decreasing the protected forest (by subdivision)
	4-2 Securing "Green Buffer"		Decreasing agriculture lands (by subdivision)
	4-3 Promotion of park and green area development		Partially by National Hero's Stadium, others
5. Social Services and Infrastructure	5-1 Water resource development (Kafue river water source)		Progress in water supply, sanitation, drainage projects by MCC and AfDB, EU
	5-2 Improvement of UFW and distribution system		
	5-3 Improvement of drainage system (mobile PST, urgent)		
6. Urban Management Capacity	6-1 Capacity development program for urban management		Partially by Metro Mange (e-application) by LCC
	6-2 Management for living environment improvement		Partially by cadastral database by ZILMIS

Legend:

(2) Alterations or Changes between the Land Use Plan 2009 and Current Conditions

This section aims to identify alterations of the land use pattern between the land use plan of LCDUP2009 and the current developments (2021) by satellite imagery. Although the land use plan does not have a binding power to control developments, it is understood that the statutory land use plan should have a certain norm for development management among relevant authorities. Despite this expected action on administrative management, many alterations of land use have happened until now. The following key alterations of land use are identified as shown in Figure 3.5.



		Existing Land Use 2021				
		Residen-tial		Non-Residen-tial		Rural
		Unplanned Urban Settlement	Subdivision	Commercial & Business	General Industrial	Rural Settlement and Agriculture Lands
Land Use Plan 2009	Agriculture /Green	①	②	③	④	⑤
	number	1	11	0	0	0
	Other Land Uses	①	②	③	④	⑤
	number	1	1	2	1	2

Source: JST utilizing the land use plan of the LCDUP 2009

Figure 3.6 Alterations or Changes by Current Developments overlaid on the Land Use Plan 2009 (LCDUP)

(3) Presumed Causes for Delayed Planned Components of LCDUP 2009

According to the assessment of the progress of planned components of LCDUP 2009, a majority of components have not proceeded well, even if an aspect of intermediate period by the long-term program (20 years) could be forgiven, especially in the components of the urban management sector, transportation sector and environmental sector as described in the previous section.

Based on several relevant research documents, the causes for delayed planned components of LCDUP 2009 are presumed for the delayed or no progress of the planned components as shown in Table 3.5. It is presumed that one of the reasons for the delay or no progress of the components could be the weakness of management caused by lack of effective institutional arrangement in regulations or rules, coordination among various organizations, as a common factor.

Table 3.6 Presumed Causes of Key Delayed Planned Components of LCUDP 2009

Item	Key Delayed Component in LCDUP 2009	Presumed Causes and Issues
1. Sustainable urbanization and promotion	1-1 Urban growth management (satellite, growth boundaries)	• No provision of any biding plans (Local Area Plan) as the implementation of LCUDP 2009 • Lack of urban management capacity in local authorities against urbanization pressures, especially in peri-urban areas involving customary lands • Lack of precise land use plans in surrounding areas outside of Lusaka City
2. Urban Road/ Transportation Improvement	2-4 Establishment and promotion of public transportation	• Inappropriate and inefficient bus service operations by private minibus and various management bodies in public transportation (PTA-transport regulations, MLGRD-bus station, RTSA-traffic regulations, etc) make ineffective management • Less profitable operation (low price bus fare, etc), various low-level service (imbalanced bus route services and unpunctual time operation, etc) causing low-level ridership, etc
	2-5 Comprehensive traffic management program	• Complicated transportation sector management (planning, construction, and operation) by relevant bodies (RDA, RTSA, LCC, NRFA, MIHUD, MLGRD, traffic police) • Low level or priority on traffic management intervention and investment (e.g. control equipment and monitoring)l by relevant authorities
3. Living Environment Improvement (Compound)	3-3 Promotion of urban renewal for compounds	• Lack of basic land tenure data and management as necessary information for compound renewal or improvement (planning and tenure treatment) • Investment amounts for renewal could not meet funding capability and difficult building consensus among residents in compounds • The degrading social environment in compounds gave negative motivation for the improvement or renewal of compounds.

4. Environment Protection and Green Network	4-1Natural environment and green area protection	• Urbanization pressures imposed land-use changes to settlements on Forest Reserved Areas or valuable natural areas in association with political interventions. • Green areas of the natural environment and agricultural lands in peri-urban areas were not taken care of proper land management due to poor institutional system on customary lands • Illegal exploitation of trees for economic use (e.g. charcoal use) were promoted deterioration of natural green areas with the important function of watershed natural areas
	4-2 Securing "Green Buffer"	• River-side areas as one of the elements of «green buffer» have been invaded and occupied by illegal settlements where water hazards happened frequently. • A large scale of plots in the City tends to be divided into smaller plots by developments, where green areas are decreased. • No strict management and regulations to protect open spaces with natural vegetation or greens

Source: JST

3.4 Planning Conditions for Lusaka City and Surrounding Areas

3.4.1 Applicability to the Statutory Plans for Lusaka City and Surrounding Area

Planning for Lusaka City and its surrounding areas requires special attention to its spatial conditions to formulate a statutory plan, where two Provinces by the Central Province and the Lusaka Province are involved as the influenced area of Lusaka City. According to the URPA 2015, there are three statutory plans, i.e. 1) Regional Development Plan (RDP), 2) Integrated Development Plan (IDP), and 3) Local Area Plan (PLA) when an administrative jurisdiction is planned. In the case of Lusaka City and surrounding areas, two statutory plans of IDP or RDP could be applicable to meet target area conditions. The conditions of the two statutory plans are described as follows.

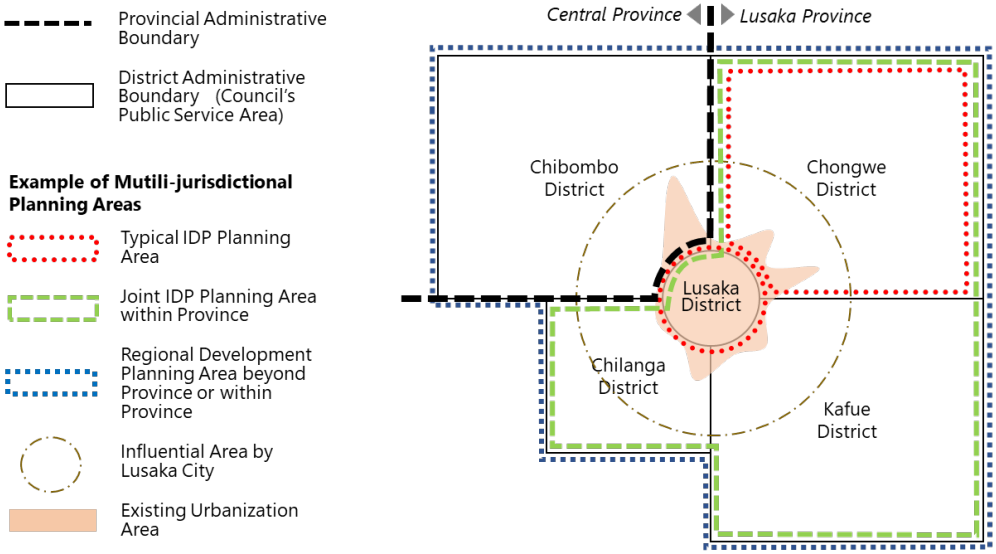
- Regional Development Plan (RDP): This plan aims to formulate a development plan targeting a multi-jurisdictional area such as its planning area necessary to involve multiple provinces or districts through planning socio-economic development framework, spatial framework, etc. However, this plan has not been made before in Zambia because of weaknesses in implementation without operational and management experience.
- Integrated Development Plan (IDP): In principle, this plan applies to a single administrative jurisdiction (District), although there is an exception in case of necessary planning conditions covering multiple districts within a province by Joint Planning Initiative. The planning output requires a more detailed level of analysis and planning for land-use plans, sector plans, financial/capital investment plans, and monitoring plans.
- Common issues for implementation in the case of a multi-jurisdictional plan: There are concerns in implementing multi-jurisdictional plans. For example, RDP may require a further planning formulation to concretize the contents of RDP at the level of a district. On the other hand, efficient implementation of a joint IDP plan may depend on well-organized coordination by DDCC, especially in inter-district facilities development.

When planning for Lusaka City and the surrounding areas, it is necessary to consider the most applicable statutory plan through examination of applicability to the planning area to cope with any likely urban development and management issues caused by the involvement of multiple Zambian stakeholders. Table 3.7 shows an examination of its applicability and implementability.

Table 3.7 Applicability and Implementability of Statutory Plans for Lusaka City and Surrounding Area Planning

Statutory Plan	Applicability to Statutory Plan				Implementability of A Plan		
	Within A Province		Plural Province		Monitoring and Improvement	Integrated Management	Integrated Project Operation
	Single District	Plural Districts	Plural Districts	Plural Provinces			
Regional Development Plan / RDP	--	△	●	●	△1	--	△2
Integrated Development Plan / IDP	●	--	--	--	● (in case of a single jurisdiction)		
Joint IDP Initiative	--	●	--	--	△1	--	△2

Note/Legend: ● = the most suitable, ◎= possible, △ = possible with condition, -- = not suitable
△1: Condition if PDCC and/or DDCC enable to manage well an integrated monitoring and improvement (but difficult coordination in case of plural provinces)
△2: Condition if PDCC and/or DDCC enable to manage well-organized project implementation



Source: JST

Figure 3.7 Spatial Condition of Lusaka City and Surrounding Area and Statutory Plans

3.4.2 Considerations on Target Planning Year

When the LCDUP 2009 was formulated, there were two planning pre-conditions of 1) TCPA 1997 requirement by 20 years target and 2) 2030 target year in line with Vision 2030. In the case of the planning for Lusaka City and the surrounding area, a wider view and long-term view may be required to meet an expected new national development direction (e.g. Vision 2040). Therefore, the study for the target area also would be desirable to examine long-term views (20 years) such as macro analyses and wider spatial framework. On the other hand, the status of an expected IDP formulation for Lusaka City and the surrounding area is interpreted that it could take an intermediate position and timing to succeed and review the LCDP 2009 (20 years) at present.

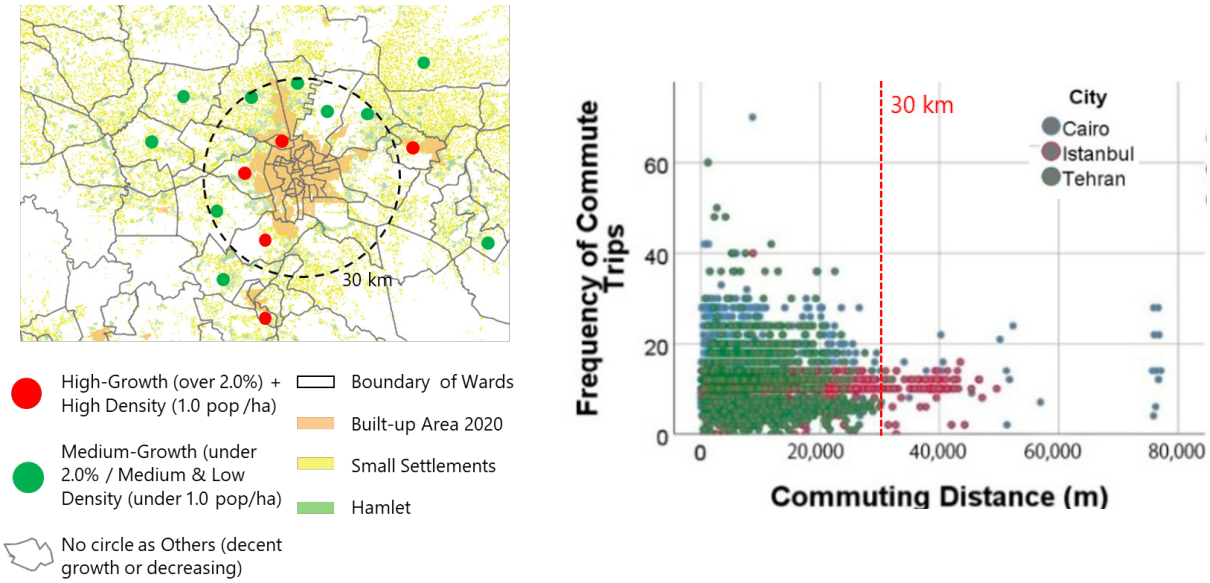
3.4.3 Considerations on Influential Area of Lusaka City

Lusaka City, as the capital having comparative advantages over other cities in Zambia, has expanded continuously not only in its seamless urban area but also in socio-economic activities beyond the city boundary to neighboring four Districts (Chongwe, Kafue, Chilanga, and Chibombo). When the planning area is set for an IDP, it is important to consider the influential areas of Lusaka City through certain analyses of inter-relationship or links to neighboring districts where the development direction (urbanization or non-urbanization/protection) should be set in the influential area toward sustainable development of the capital entity of Zambia.

The influential area can be examined by various socio-economic activities (e.g. population distribution,

commuting range of employees and higher education students, the trading zone for fresh foods, etc), infrastructure service networks, and natural environment ecosystem including the natural hazard-prone area by river catchment areas. Although those parameters should be clarified for the planning area by coming to an expected full-scale study, the following areas can be referred to as examples in setting the planning area.

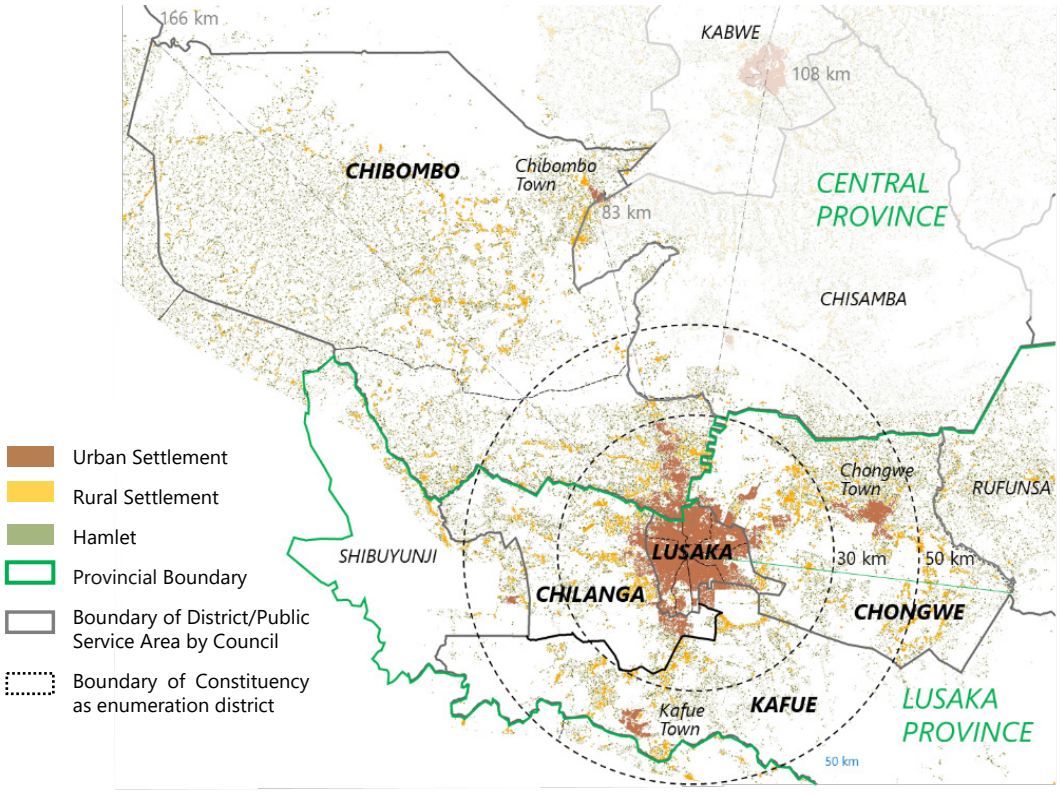
- Desirable future spatial structure of Lusaka City and the surrounding area: As one of the optimum urban structures for sustainable development applied to many cities in the world, a multi-polar urban structure in combination with a core city and satellite towns applies to Luska City and surroundings. Chongwe town and Kafue town could be candidates to promote the satellite town's development, where both towns are located within a 50 km radius range. This range could be fitted with a study area of planning to examine inter-relationship and desirable structure in the future.
- Potential planning area taking account of current development and others: Some indicators of the population (growth trend and density) can be examined in the surrounding areas of Lusaka City. On the other hand, there is an example of the study[4] of the commuting range of the capital cities of Cairo, Istanbul, and Teheran. Those indicators suggest a benchmark for an influential area to be a planning area.



Source: Left diagram by JST, Right diagram extracted from the study of Urban Commute Travel Distances in Teheran, Istanbul, and Cairo 2020 / Houshmand Masoumi

Figure 3.8 Spatial Condition of Lusaka City and Surrounding Area and Statutory Plans

4 Urban Commute Travel Distances in Teheran, Istanbul and Cairo 2020 / Houshmand Masoumi



Source: Left diagram by JST, Right diagram extracted from the study of Urban Commute Travel Distances in Teheran, Istanbul, and Cairo 2020 / Houshmand Masoumi

Figure 3.9 Spatial Condition of Lusaka City and Surrounding Area and Statutory Plans

3.5 Unplanned Urban Settlement Improvement and Challenges

3.5.1 Current Conditions of Unplanned Urban Settlements (UUS) in Lusaka City

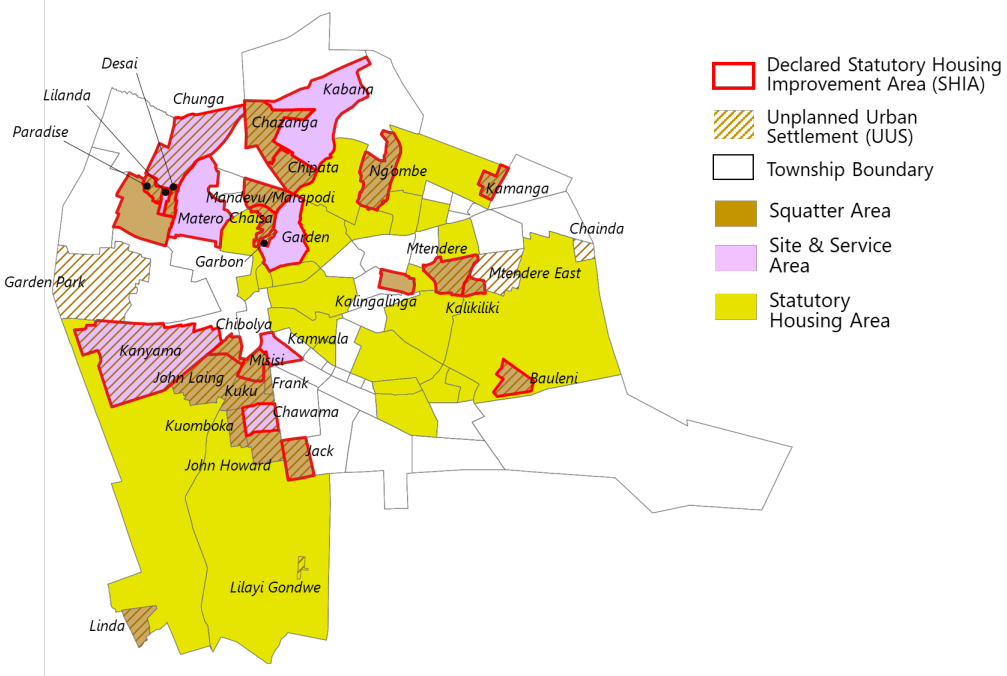
The urban settlements in Lusaka City consist of three types of settlements 1) statutory housing areas including private sector subdivisions and public housing areas associated with land titles, 2) quasi-housing areas developed by site and service settlements with minimum infrastructure services and with or without titles, and 3) unplanned urban settlements (UUSs) including squatter settlements without minimum infrastructure and land titles by Zambia Data-Hub (GRID 3)-MLNR-ESRI (2021) data.

Table 3.8 Types of Urban Settlements in Lusaka City

Category	Development Status of Settlement Type	Land Tenure	Legal Basis	Range of Designation (declared)	Proportion of Type		Density person/ha
					Area	Population 2020*	
1. Statutory Housing Area	1-1 Public housing area	CTL	TCPA 1962-1997 and URPA2015	--	40.9 %	15.1 %	24.7
	1-2 Private housing area						
2. Quasi-Housing Area	2-1 Site & Service Development Area			Declared Area 16.2% out of Total Lusaka City	4.8 %	11.2 %	155..4
		OCL	HA 1974/1994		5.0 %	15.4%	204.8
3. Unplanned Urban Settlement Area (UUS)	2-2 Voluntarily Settlement including Squatter	OCL			12.2 %	41.2 %	226.6
		LRC	Not applied by above Acts	---			
Other Land Use Area (commercial, business, public, etc)				---	37.1%	17.1%	30.8
Total				---	100.0 %	100.0%	66.9

Note: CTL: Certificate of Title, OCL: Occupancy License, LRC: Land Record Card,
Source: JST based on GRID 3 geo-database (UNEFA, ZAMSTAT, Several Universities of USA, UK) 2020.

Based on this geo-database, the unplanned urban settlement (UUS) areas with population data are estimated by the mixed types in combination with "site and service without title" and "squatter area". Three settlements of Lusaka City are shared by 1) statutory housing areas (40.9%), 2) quasi-housing areas (4.8%) and 3) UUSs (17.2 %), while the population of UUSs is presumed to occupy 56.6 % of the total population[5] in the city (refer to the table in Table 3.8). And "UUSs" settlements are commonly called "compounds" with poor living conditions, while "township" areas are used as community areas under the boundary of "Ward".



Note: The figures of population and area in the table do not include other land use data such as commercial, business, industry, and others with population.
Source: JST based on the data of Zambia Data Hub (GRID-3) - MLNR-ESRI 2021 including area-based population projection

Figure 3.10 Distribution of Housing Areas by Types

3.5.2 Vulnerable Living Environment of UUS without Sufficient Infrastructure

The UUSs were formed as a majority of settlements in Lusaka during the 1970s-80s due to dysfunctioned land management to meet the demands of large waves of migration. Settlements of these migrants from rural areas were located mostly in low lands areas with fragile groundwater systems. Along with these undesirable natural conditions, consumption of untreated groundwater, into which pit latrines' wastewater has seeped, has caused frequent outbreaks of communicable diseases in the UUSs.

On the other hand, the basic infrastructure and urban services such as water supply, drainage system, sewer, waste collection services, and public services (education, health, etc.) in UUSs are insufficient. Particularly, poor waste management has exacerbated the already poor hygiene. Despite a lack of data on the number of infected persons in UUSs, it might not be difficult to assume a large portion of residents of these areas might have been affected.

3.5.3 Living Environmental Conditions by the Households Interview Survey

Living conditions in Kanyama, Chibolya, and Misisi as a part of the UUSs are grasped through the household survey (sample: 500 households) conducted by JICA Study Team in May 2021, and the key results of the survey are briefed as follows.

5 Zambia Data Hub (GRID-3) - MLNR-ESRI 2021 including area-based population projection

1) Land tenure, water use, and waste disposal

- Nearly half of the respondents of households in three UUSs are rental status, while the households having CTL shared by around 30% and only 10% having OCL or LRC
- Around 40 % in Misisi and 70% in Kanyama use piped water, followed by water kiosk use (approximations are: Misisi 50%, Kanyama 30%, Chibolya 40%), while nearly half of the households discharge wastewater into their living space and/or have the pit latrine installed.
- The households in Kanyama and Chibolya utilize waste collection services, while nearly half of the households in Misisi dump wastes outside of their living space.

2) Mobility, inundation, communicable diseases, hygiene conditions

- The majority of the households walk and use public transport (at different rates for each mode) among three UUSs
- Regarding inundation frequency, 10% of the households in Kanyama and Chibolya and 40% of those in Misisi suffer those once/twice per month.
- About communicable diseases, around 60% of households do not have waterborne diseases, and around 10% of households experienced several times in the past five years, and around 50% with unknown cause, and answering around 20~30% caused by dysfunction of discharge after inundation.
- Regarding the treatment of drinking water, the majority of the households in Chibolya use untreated water (90%), while in Kanyama, Misisi about 70% use untreated water (the rest 30% boil water before consumption).
- Around 40% of the households without toilets directly dispose of feces and urine in their living space while 40~50% dispose of them in ditch or drainage channels.
- For "washing hands", the majority of the respondents carried out some form of handwashing. For respondents answering 'no', 10-30% put it down to lack of water. For 'washing hand after using the toilet," around 80~90% answered "yes," and up to 60% used soaps.
- Regarding necessary improvement for urban hygiene within a household, around 70% of the households take some form of "actions following the government incentives (mask, washing hands, etc), and around 60% follow community requirements "to improve waste management in public open spaces" and "drainage system improvement to mitigate inundation."

3) Understanding, negative impacts, and countermeasures on COVID19 pandemic

- Although nearly half of the respondents understood COVID19 and its countermeasures, around 20~30% knew only the name.
- Regarding the negative impacts of COVID19 on daily life, the majority of respondents answered "yes". Some specific difficulties experienced by respondents include general difficulties in health care, maintaining distance in public space, and financial problems, such as "decreasing revenue and losing job opportunities."
- About countermeasures against COVID-19, the majority go with "washing hands, stay-home, avoiding close-contact, etc" while fewer respondents go with 'wearing masks.' The reasons for not following these countermeasures include "monetary burden", and "lack of water for handwashing" by around 30 % in Misisi.

4) Priority measures for living environment improvement in community

- For COVID19, nearly 70% of the households answered "basic measures by the government incentives".
- For areas without piped water, the majority answered "having an own well" followed by "getting private water tank service".
- In the case of the areas without waste collection services, each UUS requires different priorities (Chibolya has higher needs to secure places for dumping; Misisi has higher needs to dispose of

them by truck to remote disposal sites.)

- Regarding the possibility of resettlement due to road development, Chibolya expresses desires of "no resettlement", while Misisi will consider relocation "possible with reasonable compensation".

3.5.4 Considerations on Applicable Approaches to Improve UUSs

Despite past efforts to improve UUSs, a large portion of UUSs without sufficient improvement in Lusaka City remain. The project financed by the World Bank in 1985 was the last full-scale improvement project, while small-scale improvement projects by NGOs including tenure normalization or house environment betterment have been continuously implemented. In this context, some strategic approach needs to be taken into consideration with a preferable "Program-based Approach" encompassing a wide array of different programs (or projects) and expecting synergy effects within limited resource provision, or other approaches step-by-step improvement utilizing effective development control or function of guidance. The followings are examples of applicable approaches for UUSs.

1) Strategic approaches for UUS improvement

The following strategic improvement approaches could be applied to UUSs' improvement of its large target settlements and can be desirable measures to promote effective improvement.

- Strategic planning to identify and seek strategic improvement measures combining solutions with multiple effects through overall assessment of needs for improvement in UUSs
- Multi-effect urgent project or program taking account of not only coping for urgent matter but also a measure with certain term improvement (e.g. strategic location of water supply project for urban hygiene improvement)
- Multi-effect urban utility corridor project or program focusing on road development strengthened by as multi-function utilities by trunk water supply and main sewerage and drainage system to connect to inner area improvement of UUS rather than an ordinal standard road.
- Urban renewal or rehabilitation program by public-private partnership utilizing potential financial resources for the improvement of UUS and business area development of private sectors based on a certain future urban development image (land use plan of IDP)

2) Step-by-step approaches for UUS improvement

The following step-by-step approach considers another ordinal measure to guide developments in UUSs, where a lot of renovation and expansion of houses are observed despite narrow access roads and fewer infrastructure services. It is presumed that daily improvement by each house would be increased continuously with the improvement of income in some households.

- Introduction of development control plan or guidelines to enable officials to control such daily construction activities and to guide them toward desirable future development which is depicted by the certain plan (e.g. a local area plan) or strategic guidelines.

3.6 Challenges in Urban Development and Management in Lusaka and Surroundings

Taking into account the current development conditions (e.g. population growth, urban sprawls, current development projects, and programs) in Lusaka City and surrounding areas, and the gaps identified through the comparative assessment between the LCUDP 2009 and existing development conditions, development issues against the effective and sustainable urban development planning and management in Lusaka City and surrounding areas are briefed below and summarized by Figure 3.11 in 2 main aspects: 1) urgent development issues facing Lusaka City and surrounding areas, and 2) urban planning and management issues from long-term views and workability.

1) Urgent development issues facing Lusaka City and surrounding areas

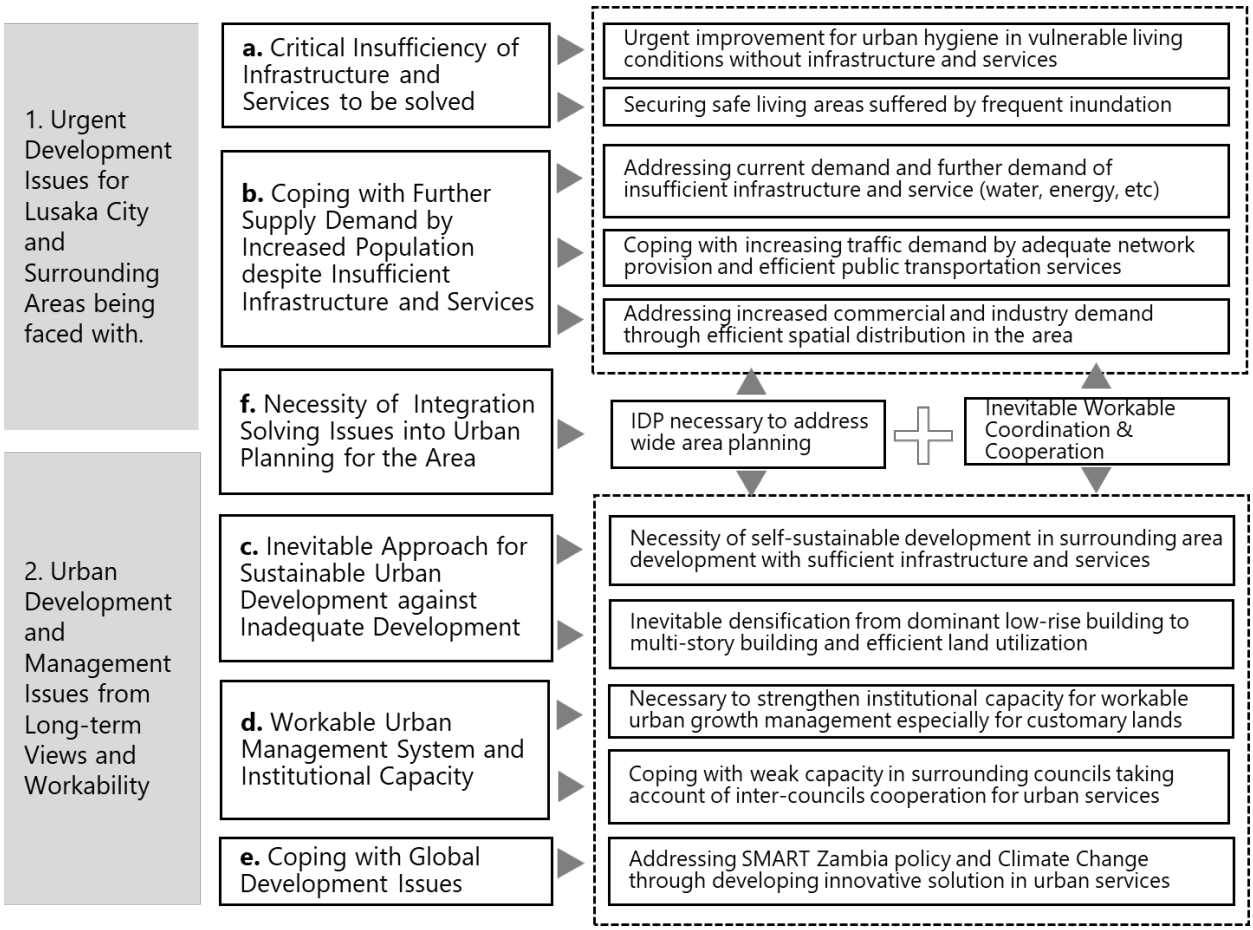
- A. Critical insufficiency of infrastructure and services in UUSs to be solved immediately
- B. Coping with further supply-demand by increased population despite current insufficient infrastructure and services

2) Urban Development and Management Issues from Long-term Views and Workability

- C. Necessary approach for sustainable urban development against inadequate development
- D. Workable urban management mechanism and institutional capacity
- E. Coping with global development issues

And the two groups of the development issues above needs to be rolled into the following issue;

- F. Necessity of integration solving issues into urban planning for the Lusaka City and surrounding areas



Source: JST

Figure 3.11 Development Issues of Lusaka City and Surrounding Area

3.7 Approach to Development Assistance in Urban Development and Management in Lusaka and Surrounding Areas

3.7.1 Assistance Needs on Urban Development and Management

Table 3.9 describes the assistance needs by category of development issues previously identified for urban development and management in Lusaka City and the surrounding areas. In the case of needs in the road sector and water sector, those needs are reflected by the sector programs described in Chapters 4 and 5 in detail. On the other hand, development assistance is categorized by two schemes 1) technical cooperation programs (institutional building, capacity development, planning formulation), and 2) financial aid (grant scheme, loan scheme). Which of these schemes to be selected to address the issues and challenges for urban development and management should be considered with the importance of support needs.

Table 3.9 Types of Urban Settlements in Lusaka City

Development Issues on Urban Development and Management in Lusaka City and Surrounding Areas		Needs for Development Assistance (Referring to proposed programs in the road sector and water sector in Chapter 4 and 5)	Technical Cooperation			Financial Aid	
			Institutional Building	Capacity Development	Planning Formulation	Grant Scheme	Loan Scheme
1. Urgent development issues facing Lusaka City and surrounding areas	A. Critical insufficiency of infrastructure and services in UUSs to be solved immediately	Urgent needs for urban hygiene improvement	--	✔	--	✔	--
		Needs for sanitary facilities improvement in focused areas of UUSs	--	--	--	✔	✔
		Needs for drainage facilities improvement in focused areas of UUSs	--	--	--	✔	--
	B. Coping with further supply-demand by increased population despite current insufficient infrastructure and services	Needs for water supply capacity improvement	--	✔	--	✔	--
		Needs for remained road development or improvement of planned roads of LCDUP	--	--	--	✔	✔
		Needs for strengthening traffic management	--	✔	--	--	--
		Needs for enhancement of public transportation management	--	✔	--	--	--
	F. Necessity of integration solving issues into urban planning for the Lusaka City and surrounding areas	Needs for formulating area-wide IDP covering Lusaka City and surrounding areas	✔	✔	✔	--	--
2. Urban Development and Management Issues from Long-term Views and Workability	C . Inevitable approach for sustainable urban development against inadequate development	Needs for development of technology for low-cost collective housing construction	--	✔	--	--	✔
		Needs for applicable land consolidation measures of UUS improvements	--	✔	--	--	✔
		Needs for enhancement of planning standards and norms for urban sustainability	✔	✔	--	--	--
	D. Workable urban management mechanism and institutional capacity	Needs for enhancement of institutional mechanism of urban growth management	✔	✔	--	--	--
		Needs for enhancement of capacity for land management	✔	✔	--	--	--
		Needs for development of urban information management through ICT technology	--	✔	--	✔	--
		Needs for strengthening coordination committees of area-wide planning and implementation	✔	✔	--	--	--
		Needs for formulating Local Area Plans	✔	✔	✔	--	--
	E. .Coping with global development issues	Needs for technological development of Smart City	✔	✔	--	--	--
		Needs for technological development of Green Infrastructure	✔	✔	--	--	--

Source: JST

3.7.2 Candidates (Long List) of Potential Projects and Programs by Development Assistance

Based on the needs identified in Table 3.9, the candidates for potential projects and programs by the development assistance are listed as a “long list” in Table 3.10, of which some options to be modified may be involved in further stages for the development assistance process. The proposed candidates for the road sector and water sector are excluded as to be described in Chapter 4 (Survey and Analysis on

Road and Transport) and Chapter 5 (Data Collection on Urban Hygiene, Water, and Sewage in Lusaka). Among those candidates of development assistance projects and programs, the item of F1 "Technical cooperation for enhancement of wider area development planning of the capital of Zambia" shown in Table 3.10 could be considered as one of the most important candidates for a development assistance project, given the following status of the project environment.

- The request of the Technical Cooperation Project by Lusaka City Council to JICA: After a decade from LCDUP 2009 assisted by JICA at the intermediate time of the planning period (20 years), Lusaka City Council requested the technical cooperation for the formulation of IDP (10 years planning term) in 2021 as successive assistance.
- Timing enabling to address agenda and policies of the new regime of Zambia: The President Hakainde Hichilema expressed new development agenda in his inauguration speech, of which relevant agenda for urban development and management are stated by improvement of the cost of living, land tenure security, digital revolution, environmental sustainability, etc. The formulation of a new IDP for Lusaka City and surrounding areas could take this timing to reflect and concretize the development agenda of the new government.

Table 3.10 Long List for Development Assistance for Urban Development and Management in Lusaka City and Surrounding Area

	Potential Project/Program		Brief of Assistance	
		Reason/Background	Purpose	Recipient
C	C1 Technical cooperation for construction technology on low-cost collective housing	High-cost housing and dominant low-rise housing in Lusaka	To contribute to densification by developing a low-cost housing technique	MIHUD / NHA
	C2 Land consolidation project for UUSs improvement	Lack of basic infrastructure with the fragile tenure system	To readjust land tenure with basic infrastructure, public spaces, and facilities in UUSs	MIHUD / LCC
	C3 Technical cooperation for enhancement of rules and norms for development control and management	Dated regulations and planning standards by several authorities	To formulate an integrated building code and contemporary planning standards	MLGRD / LCC
D	D1 Technical cooperation for enhancement of urban growth management	Lack of mechanism to prevent disordered urban sprawl	To enhance institutional mechanism to enhance development control system	MLGRD / Relevant Councils
	D2 Technical cooperation for peri-urban land tenure management	Disordered land development in customary lands	To enhance the management capacity of stakeholders in customary lands	MLGRD / MLNR / Relevant Councils
	D3 Technical cooperation for enhancement of urban information management	Lack of baseline information for urban development and control	To establish an urban information system with ICT for rational urban planning and development control	LCC
	D4 Technical cooperation for enhancement of inter-province development coordination mechanism	Lack of coordination mechanism with two provinces in the surroundings of Lusaka City	To enhance coordination mechanism for the integrated management and monitoring in Lusaka City and Surroundings	MLGRD / Relevant Councils
	D5 Technical cooperation for Local Area Planning (LAP) as IDP implementation	Lack of a binding plan for development control (LAP)	To develop techniques and skills for LAP formulation and its dissemination	MLGRD / LCC
E	E1 Technical cooperation for promotion of Smart City development	Inadequate technology application for Climate Change Adaptation into urban development	To introduce applicable technologies to formulate Smart City	MGEE / MLGRD
	E2 Technical cooperation for applicable technologies to introduce Green Infrastructure		To introduce applicable technologies to formulate Smart City	
F	F1 Technical cooperation for enhancement of wider area development planning of the capital of Zambia	Lack of integration of wide-area development for Lusaka City and Surroundings	To formulate Joint IDP for Lusaka City and Surrounding Areas	MLGRD / Relevant Councils

MLGRD: Ministry of Local Government and Rural Development, MIHUD: Ministry of Infrastructure, Housing, and Urban Development, NHA: National Housing Authority, LCC: Lusaka City Council, MLNR: Ministry of Land and Natural Resources, MGEE: Ministry of Green Economy and Environment
Source: JST

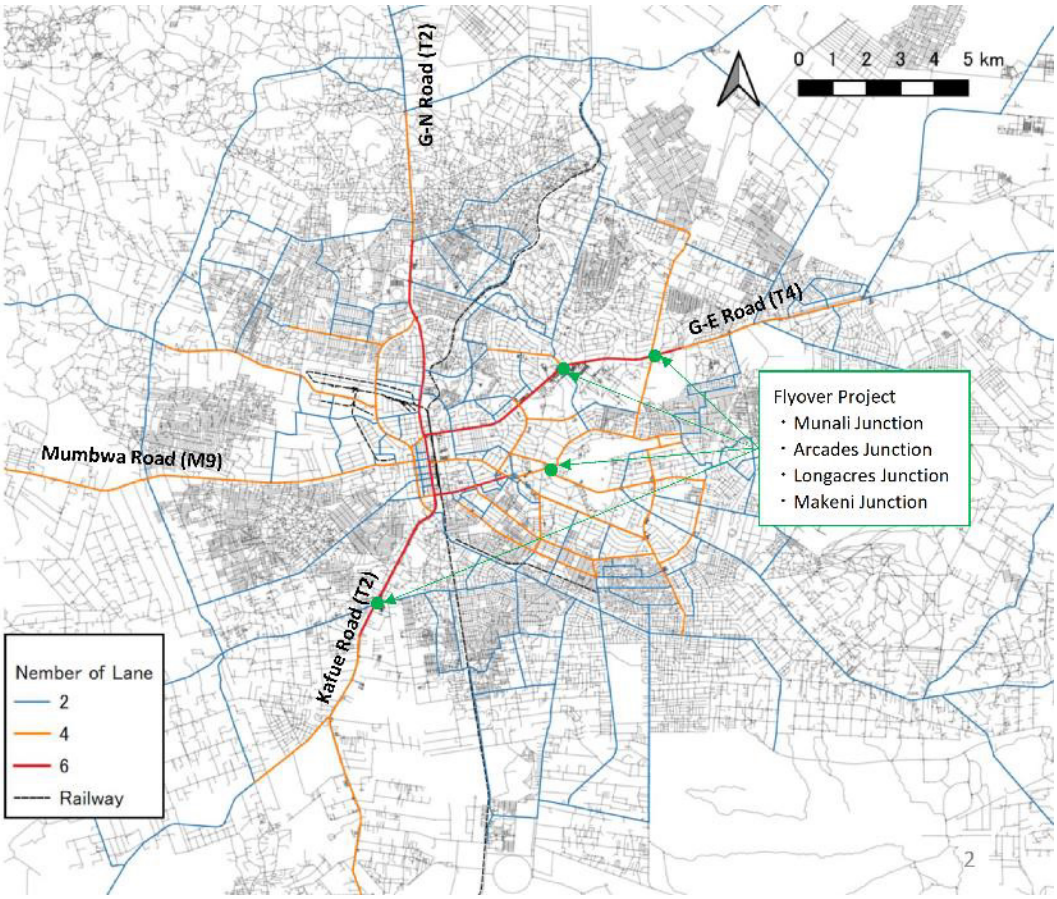
CHAPTER 4 DATA COLLECTION ON ROAD AND TRANSPORT

4.1 Present Condition of Road and Traffic

4.1.1 Road Network

(1) Present Road Network

The city of Lusaka has a skeletal road network consisting of the North-South Corridor (T2), the Nacala Corridor (T4), which leads to the port of Nacala in Mozambique, and the Western Corridor (M9), which leads to Angola in the west. This skeletal road network is complemented by a radial network of roads. Four flyovers have been completed on major arterial roads in the city. In addition, there is a railway along the north-south corridor that connects Dar es Salaam Port in Tanzania and Durban Port in South Africa. In Lusaka City, there are three grade separations at the intersection of roads and railways. The main transportation network of Lusaka City is shown in Figure 4.1.



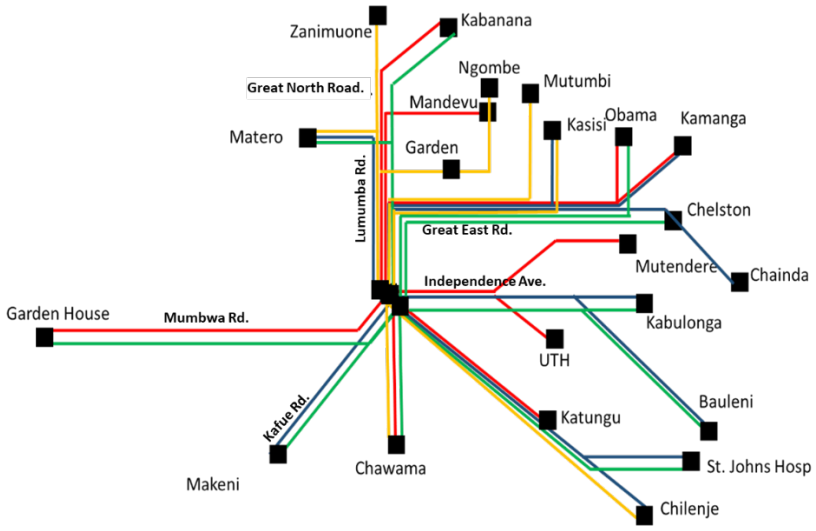
Source: JST

Figure 4.1 Major Roads in Lusaka City

(2) Public Transportation

1) Mini Bus System

The overall route map for buses in Lusaka is shown in Figure 4.2. The highest observed flow is on the Great North Road, with 4,850 passengers per hour inbound in the morning peak hour, carried in a total of 253 vehicles at an average occupancy of 19 passengers each. However, typical volumes are of the order of 2,000 to 3,000 passengers per hour on the main arterial routes.

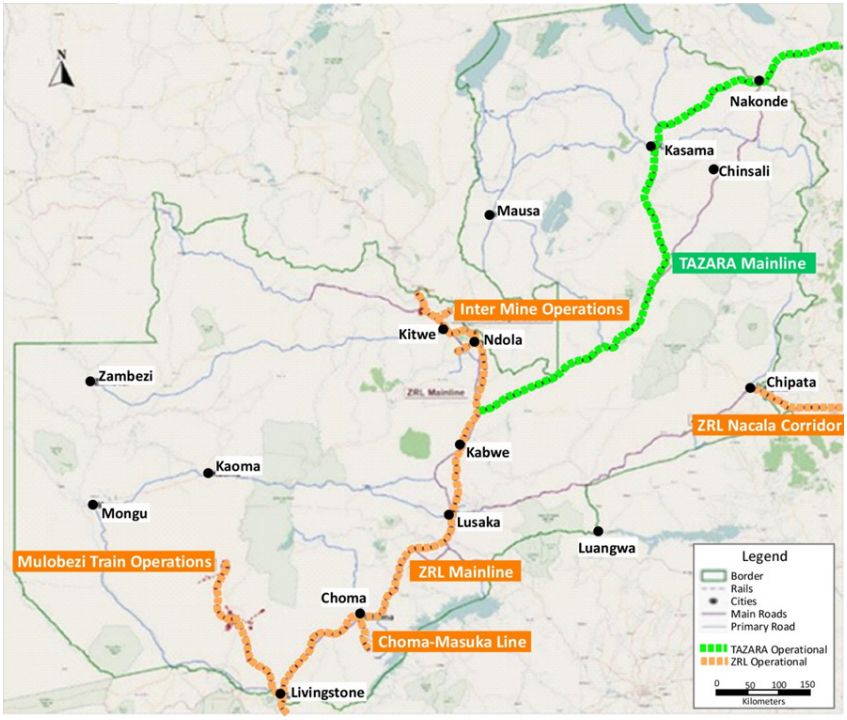


Source: Feasibility Study and Proposed Solutions for Decongestion of Traffic in the City of Lusaka, 2019, LCC/ AfDB

Figure 4.2 Overall Bus Route Diagram

2) Railway System

The main railway lines are Zambia Railways Limited (ZRL) is owned by the Government, and the TAZARA line, which links Zambia with Tanzania, is jointly owned by the Zambian and Tanzanian governments. The overall route map for Railway in Lusaka is shown in Figure 4.3. The rail network remains the dominant mode of transportation for goods on local and international routes.



Source: ZNTMP

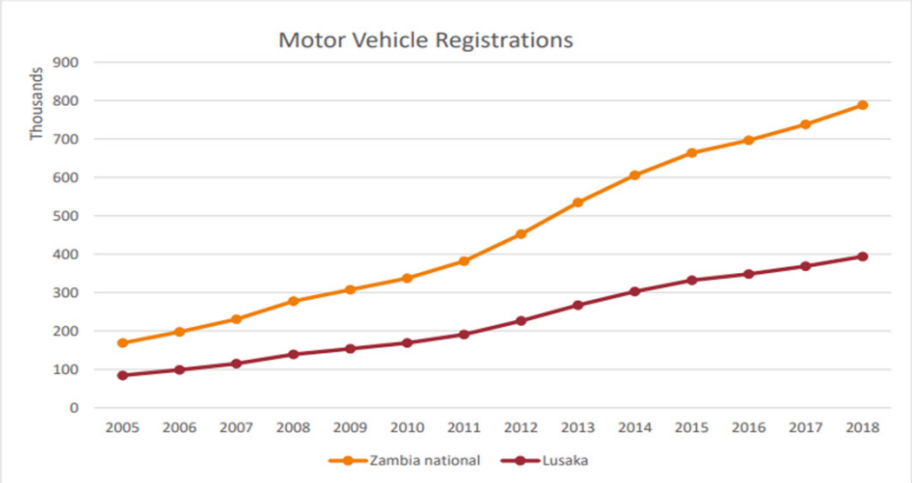
Figure 4.3 Railway Network in Zambia

4.1.2 Present Conditions of Road Traffic

(1) Motor Vehicle Registrations

In 2018 Zambia has about 800,000 cars, Lusaka Province accounting for 400,000 (about 50%). In the 13 years since 2005, the number of vehicles has increased almost four-fold, at the average annual

rate of about 11%.

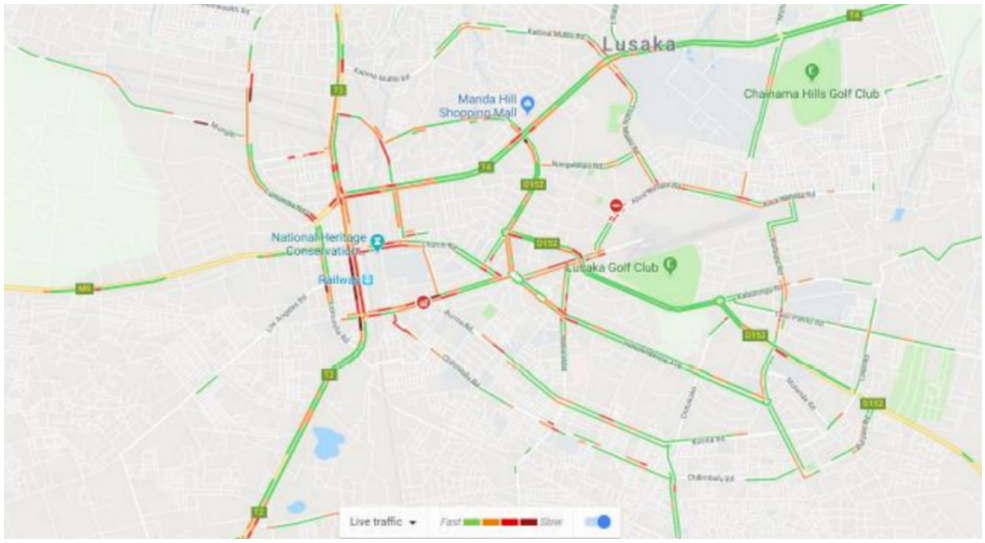


Source: Feasibility Study and Proposed Solutions for Decongestion of Traffic in the City of Lusaka, 2019, LCC/ AfDB

Figure 4.4 Number of Motor Vehicle Registrations

(2) Traffic Congestion on Roads

In the CBD, traffic congestion occurs mostly at peaks of mornings and evenings on Lumumba Road and Cairo/Kafue Roads. The results of the survey conducted by MTC also replicate the situation of traffic concentration in the city center (CBD) and congestion on the Cairo Road. On these roads, besides concentrated traffic, there are also problems of jaywalking, and on-street and sidewalk illegal parking, reducing the width of the lane for traffic.



Source: Feasibility Study and Proposed Solutions for Decongestion of Traffic in the City of Lusaka, 2019, LCC/ AfDB

Figure 4.5 Visual of Live Traffic in Google Maps for Lusaka City

4.1.3 Traffic Survey

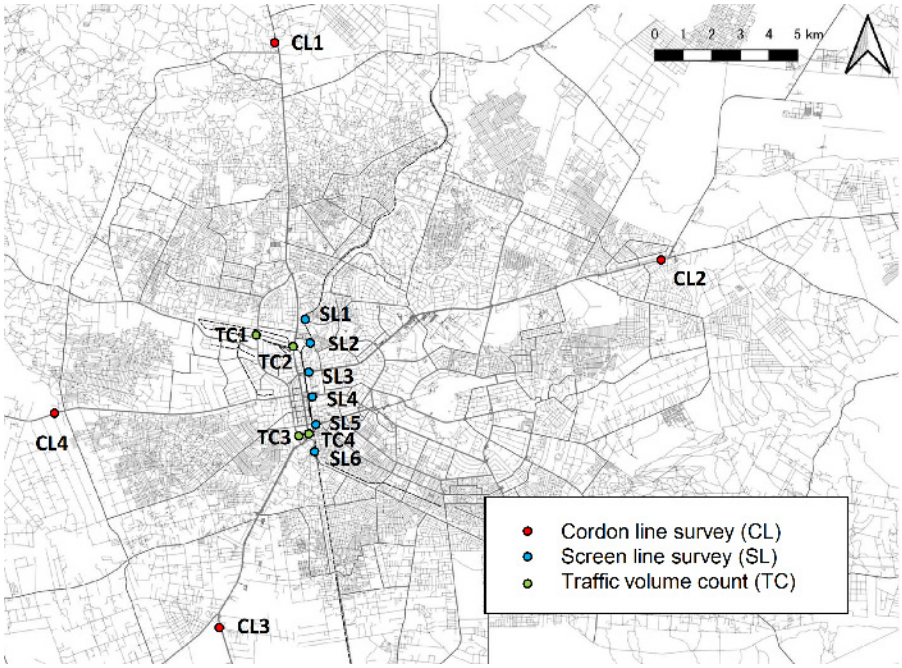
(1) Traffic Survey

A cordon line survey, a screen line survey, and roadside traffic volume counts were conducted to grasp the traffic conditions in the survey area and to forecast traffic demands. Travel speed surveys on major routes and interviews with distributor companies and factories were also conducted. The purpose and quantity of each survey are shown in Table 4.1.

Table 4.1 Traffic Surveys Conducted in the Survey

Name of survey	Method	Number	Purpose
Cordon line survey (CL)	Traffic volume count by type of vehicle; Roadside interview	4 points	・ Inflow volume and through volume of the city area ・ Increase rate of traffic to/from city area ・ Conversion traffic to Inner Ring Road
Screen line survey (SL)	Traffic volume count by type of vehicle	6 points	・ Increase rate of inner traffic volume ・ Reproduction of traffic volume by simulation (Screen line: rail line)
Traffic volume count (TC)	Traffic volume count by type of vehicle	4 points	・ Vehicle type composition in the urban area ・ Major flow of freight traffic
Carrier interview survey		5 distributors, 4 manufacturers	Hearing about the possibility of conversion when the ring road is developed.
Vehicle speed survey		7 routes	Peak travel speed in the mornings and evenings.

Source: JST



Source: JST

Figure 4.6 Location of Traffic Survey Points

(2) Outline of Traffic Survey Result

1) Cordon Line Survey

At all the survey points, traffic volume has increased 3 to 10 times, with an average annual growth rate of over 7%. Most prominently, in CL4 in the west of Lusaka City, the average annual growth rate is over 17%. Generally, the growth of Bus is low while that of Car is remarkable.

2) Screen Line Survey

The Screen Line was set along the railway line that runs north-south through Lusaka City. The total traffic volume has remained unchanged since the previous survey in 2007. By location, the traffic volume decreased at SL3, SL4, and SL5 where the traffic volume had been high in 2007, and increased at SL1, SL2, and SL6, where the traffic volume had been low at that time. Among them, SL5, which had the highest traffic volume in 2007, saw a decrease of nearly 20,000 PCUs. By type of vehicle, the number of cars and buses has decreased in some locations, and only that of truck has increased in all locations.

4.2 Status of JICA Master Plan

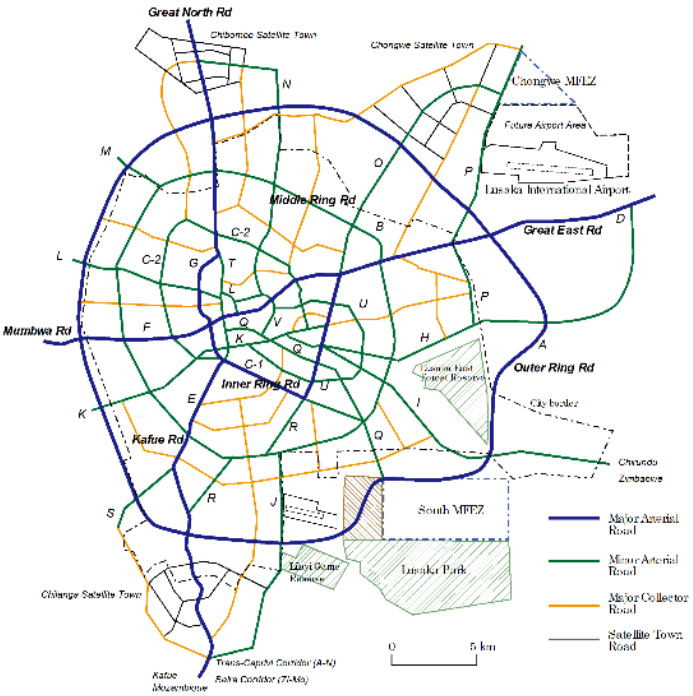
4.2.1 Strategy for Urban Transportation Facility Development

The transportation plan of Lusaka in the 2009 Master Plan is summarized in table 4.2.

Table 4.2 Strategy for Urban Transportation Facility Development

Road Network	The proposed road network in 2030 consists of three (03) ring roads, 12 radial roads, and seven (07) other major roads.
Public Transport	The modal shift from car to public transport will be necessary for 2030. **Bus transit:** In the short term, the present bus system will continue since public transport has to rely on the private sector under the national policy of liberalization and the weak financing situation of Lusaka City. The Bus network will be expanded through the improvement of roads, construction of bus stops, and designation of new bus routes. Scheduled bus services on a fixed-route system will be introduced in the mid-term. Priority or exclusive lane system for scheduled buses as shown in Figure 4.7 will be introduced in 2030. **Rail transit:** Considering investment cost, rail transit should be introduced only when it is economically feasible in terms of energy consumption and the reduction of traffic congestion on roads. Further study will be needed to determine whether the railway should be included in the master plan or not. At present, rail transit is proposed as the project beyond 2030, when Zambia becomes a middle-income country.
Freight Traffic	Outer Ring Road will serve as the freight corridor connecting the future industrial zones such as MFEZs and logistics centers.
Air Transport	Lusaka International Airport will deal with air cargo and both international and domestic passengers. The new passenger terminal for international flights and the new building for cargo flights will provide high-quality services.

Source: The Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia, Volume II, JICA, Mar. 2009



Source: The Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia, Volume II, JICA, Mar. 2009

Figure 4.7 Road Network Plan for 2030 by the 2009 Master Plan

4.2.2 Progress of Urban Transport Development proposed by MP

(1) Road Development

Regarding the development status of the road network proposed in the 2009 MP, the development status up to the medium-term target (2020) was reviewed. The results are shown in Table 4.3. The progress of the inner ring road, 12 radial roads, and other major roads exceed 50%, and that of the 12

radial roads is particularly high at 66%. On the other hand, the development of the middle ring road is severely lagging.

Table 4.3 Progress of Road Development

Road	Short-term: 2015		Mid-term: 2020		Progress	Long-term: 2030
	Plan	Actual	Plan	Actual		Plan
Outer Ring Road	9.4km	0.0km	58.7km	30.6km	45%	85.7km
Middle Ring Road	5.1km	0.0km	29.1km	11.3km	33%	16.3km
Inner Ring Road	18.1km	10.2km	4.6km	2.0km	54%	15.7km
12Radial Roads	58.7km	47.3km	51.9km	26.0km	66%	77.4km
Other Major Roads	44.2km	28.2km	13.9km	5.0km	57%	142.0km

Source: JST

(2) Other Development Project

The progress of other urban transport subprograms is low, and only airport facility improvements are being implemented. As such, programs on public transport and road safety should be emphatically promoted.

4.3 Proposals for Support Projects

4.3.1 Challenges of Urban Transport

(1) Organizational Challenges

I. Public Transport

The main barriers to the successful implementation of public transport policies are uncoordinated institutional obligations, inadequate organizational capacity, and complex institutional frameworks. As such, it is appropriate to give the city of Lusaka, a local government, the authority to plan/manage/regulate public transport.

II. Road Traffic

As the city of Lusaka grows rapidly in size and complexity, the demand for mobility is also growing rapidly. Due to the lack of regulations on road management and operation, and the inadequate network of public transport, the city of Lusaka needs to have a short-term organization dedicated to road transport.

III. Integrated Urban Transport Institution

In the medium to long term, it is proposed to establish the Lusaka City Comprehensive Urban Transport Countermeasures Organization as an independent organization to centrally manage the planning/implementation/management of integrated and consistent urban transport.

(2) Challenges in CBD

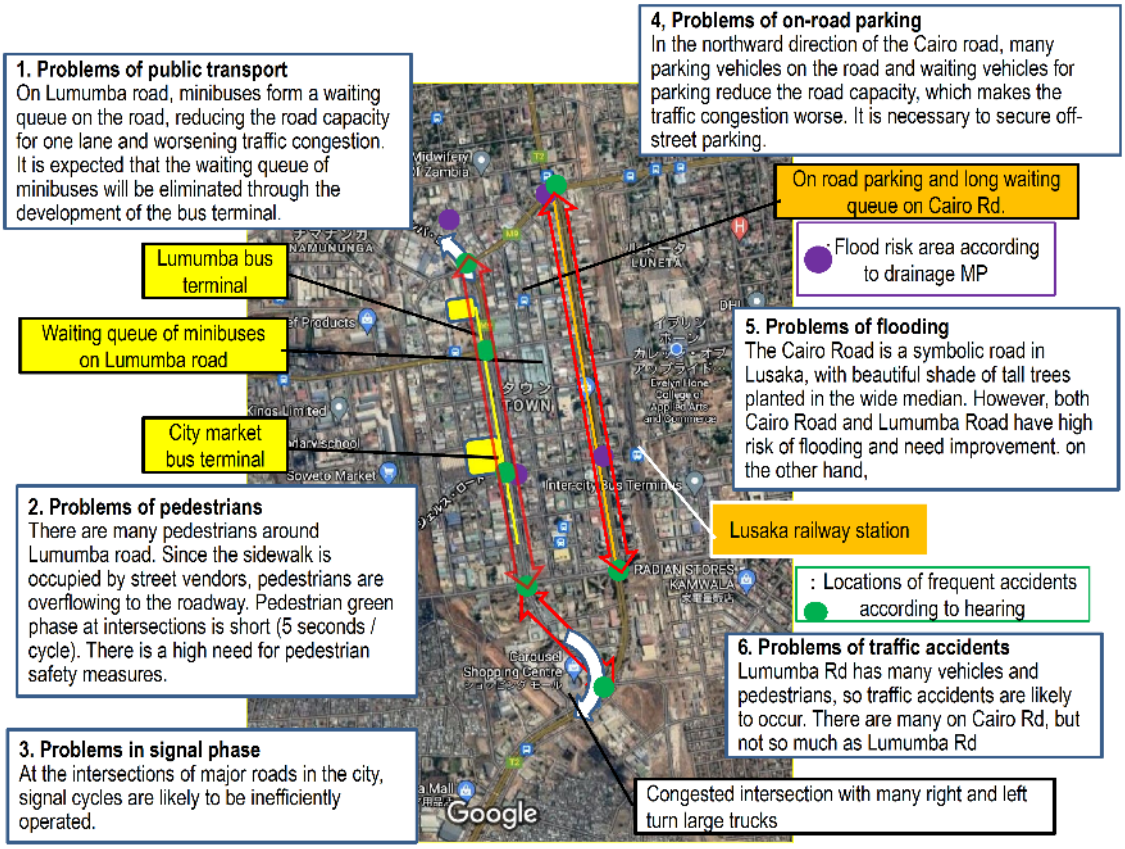
I. Traffic Congestion on Roads

Based on the results of the speed survey, the most serious congestions are on Cairo and Lumumba roads in the city center. Large cargo is prohibited on Cairo road, and all of it flows into Lumumba road, causing heavy congestions. In addition, the importance of Cairo Road and Lumumba Road in the Lusaka urban transportation system can be confirmed in results from other surveys.

II. Multiple Challenges

In the city center (CBD), there are issues such as pedestrian safety measures and flooding measures as well as congestion reduction. The Cairo Road and Lumumba Road can be said to have triple burdens of traffic congestion, accidents, and flooding.

Also, programs for traffic signals are not operating properly to meet demands. Therefore, it is necessary to take comprehensive measures to realize efficient traffic flow by combining bus terminal maintenance and parking measures.



Source: JST

Figure 4.8 Traffic Problems in City Center

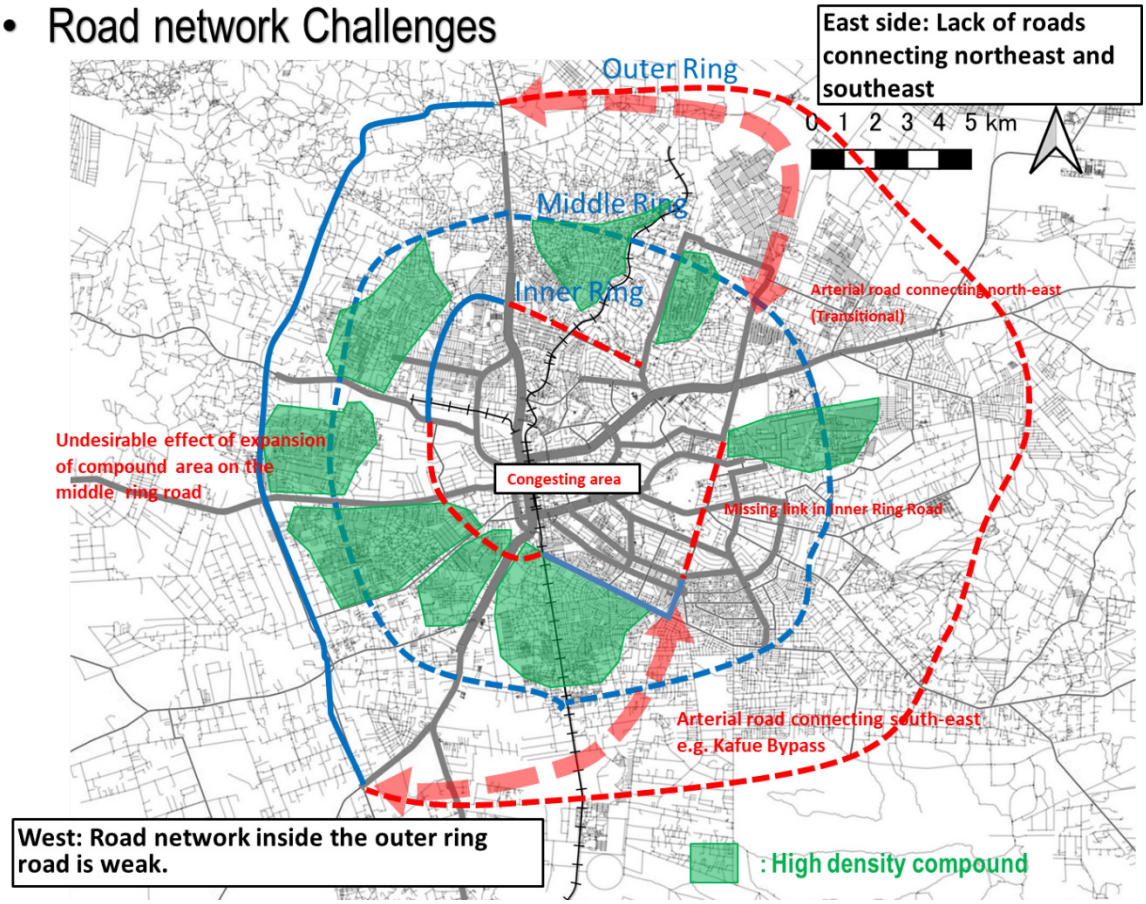
III. Inner Ring Road Phase II

Inner Ring Road Phase 2 section is located through the compound and requires a large-scale relocation of residents. The middle ring road also needs to pass through some compounds, and although the number of affected houses is different, it can be said that early project implementation is difficult. Therefore, as an alternative, improvement of the function of the Lumumba road is proposed. However, since the inner/middle ring road is an important framework of the urban road network, it is necessary to continue to leave it as a planned route.

(3) Road Network Challenges

I. Inefficient Road Network

In Lusaka City, road development is being promoted in sequence based on the proposal for road network development by JICA MP. However, as with the inner/middle ring road, there are issues of relocation of residents, budget problems, and a rapid increase in road traffic demand that exceeds the expectations outlined in the MP, so efficient network formation is insufficient. Therefore, it is necessary to plan an efficient road network in the short/medium term.



Source: JST

Figure 4.9 Road Network Challenges

II. NMT Network

More than 60% of the means of transportation in Lusaka is walking (including public transport users), but about 75% of the road network lacks sidewalks, prompting pedestrians and cars to share space. At the same time, there is a shortage of facilities for bicycles and other forms of non-NMT. In an urban environment where pedestrian traffic is dominant, this is an issue that needs improvement.

III. Insufficient Road Facilities

In Lusaka City, there are no lanes for turning left and right at intersections (insufficient road design), signal systems that do not reflect demand, and lighting facilities installed only in a limited part of the road network. There are few lights in residential areas to ensure safety and security.

(4) Other Challenges

Since there are no appropriate design standards applicable to urban road development in Zambia, the design of intersections and safety facilities may not be carried out properly. In addition, the unified design standards of Zambia were created by SATCC in the 1980s, and there are problems that the effects of climate change, the latest technology, and new knowledge are not reflected.

Against this background, MTL requested support for creating design standards for urban and local roads using Japanese knowledge.

4.3.2 Proposals for Other Support Projects

For the city of Lusaka to successfully address a wide range of urban transport challenges, it needs to have a good understanding of all aspects of urban transport, not just road congestion. The expected support projects are listed below.

Table 4.4 Proposed Support Project

No.	Project Name	Proposed by	Beginning	End	Number of lanes	Length (km)	ROW constraints
Decongestion Projects							
a1	Carousel Jct. Flyover	Proposed in this report by JST	Lumumba/ Tokyo way	Kafue Road			Low
a2	Improvement of Kafue Roundabout	Decon	Independence Ave	Cairo Road			Low
a3	Improvement of Kabwe roundabout	Decon	Great East Road	Cairo Road			Low
a4	Mumbwa Viaduct	Proposed by JST	Mumbwa Road	Lumumba Road			Middle
a5	Improvement of High Court Junction	Decon	Independence Ave	Haile Salassie Ave			Low
Ring Road Projects							
Outer Ring							
b1	North Section	JICA MP	Airport Road	Great North Road	2 or 4	17.2	Low
b2	East Section	JICA MP	MFEZ	Airport Road	2 or 4	24.3	Low
b3	South Section	JICA MP	MFEZ	Kafue Road	2 or 4	13.2	Low
Middle Ring Road							
b4	Great East - Great North Bypass	JICA MP	Chongwe Road	Great North Road	2	11.5	Middle
b5	East-South Section	JICA MP	Great East Road	Kafue B.P.	2	15.4	Low
b6	West -Section	JICA MP	Los Angels Road	Mungwi Road	2	23.6	High
Inner Ring Road							
b7	Missing link in East Section	JICA MP			2	2.6	High
b8	West Section	JICA MP	Kafue Road	Great North Road		14.7	High
Other Road							
b9	Upgrading of Chawama Road	JICA MP	Inner Ring Road	Kafue Road	2 or 4	9.5	High
b10	Kafue Road Bypass	JICA MP	Inner Ring Road	Kafue Road	2	6.5	Low
Radial Road Projects							
c1	Chibombo Access Road	JICA MP	Manchichi Road	Outer Ring Road	2	12.0	Middle
c2	Haile Selassie Avenue Extension	JICA MP	Haile Selassie Avenue	Kudu Road	2	14.0	High
c3	Widening of Twin Palms Road / Inner Meanwood Road	JICA MP	Twin Palms Road	Great North	2	20.0	Low
c4	Chunga Access Road	JICA MP	Inner Ring Road	Outer Ring Road	2	4.6	Low
Other Projects							
d1	ITS – Intersection Improvements	AfDB	Major Junctions (60)				Low
d2	Improvement of the Drainage System in the CBD	MCC	CBD Area				Low
d3	Parking Strategy; Capacity Building and Implementation	AfDB	CBD Area (along Cairo Road)				Low

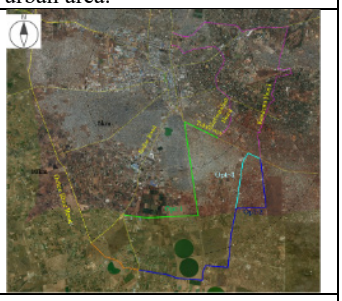
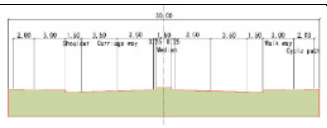
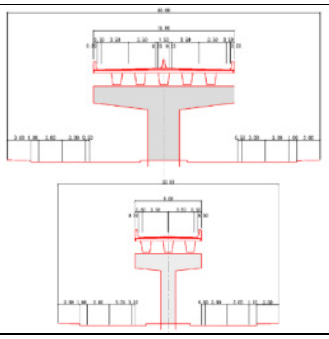
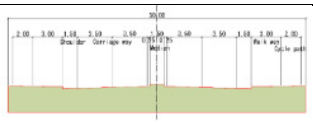
Source: JST

4.4 Alternative Plans for Inner Ring Road Phase 2

4.4.1 Formulation of Alternative Plans

Phase 2 of the Inner Ring Road, a project requested by Zambia, needs to pass through a compound with a high residential density. From the viewpoint of road network formation, this road has a high development priority. However, due to the large number of house relocations that the project requires, early implementation of this road is difficult. Therefore, two alternatives will be analyzed: 1) a flyover at the Carousel intersection and 2) a road connecting south to east.

Table 4.5 Outline of Alternative Plans

Plan	Inner Ring Road Phase 2	Alternative 1 Carousel Intersection Flyover	Alternative 2 South to East Road
Outline	Road development plan for the west section of the Inner Ring Road connecting Tokyoway and Mumbwa Road. The Mumbwa Road-Great North Road project has been excluded from the Decongestion Project financed by India due to land constraints.	The flyover on the Carousel intersection (crossing of Kafue, Cairo, and Lumumba Road), which has become a bottleneck for inflow and outflow from the southern part of the urban area, is planned as a plan to contribute to the elimination of road congestion in the city center.	This is a road plan for the outskirts of the city, where the urban area has not progressed and the arterial roads have not been developed, as an effective and feasible plan from the viewpoint of the future road network formation for the entire urban area.
Layout			
Road length	6.7km		
Cross section			

Source: JST

4.4.2 Analysis on Alternative 1: Carousel Intersection Flyover

(1) Options for Alternative 1

Two options are established for Carousel Intersection Flyover as shown in Table 4.6.

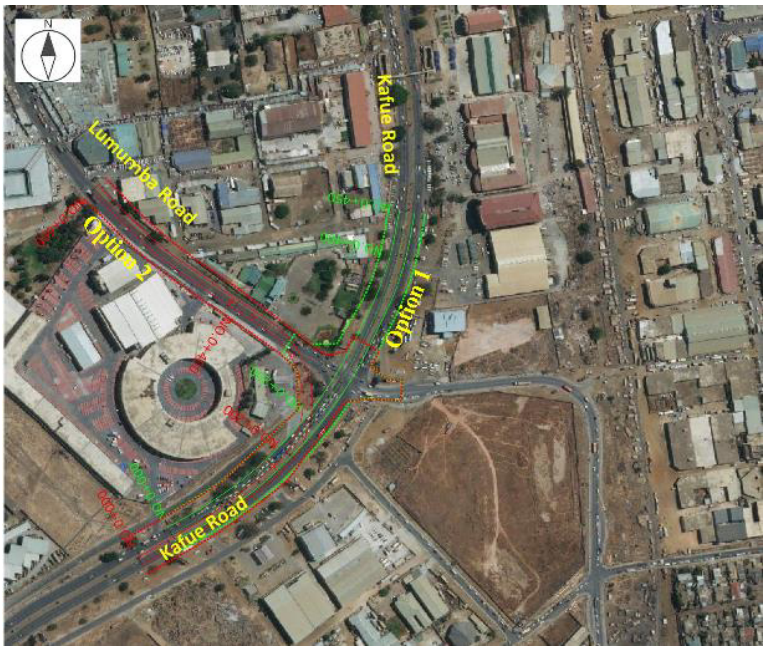
Table 4.6 Options for Alternative 1: Carousel Intersection Flyover

	Option-1 Straight flyover from Cairo to Kafue	Option-2 Right turn flyover from Lumumba to Kafue	(Reference) Inner Ring Road Phase-2
Outline	Plan to overpass the intersection by the straight direction of Cairo to Kafue, which has a high traffic demand among the traffic	Plan to alleviate intersection congestion caused by diverted heavy vehicles from Cairo Road	Road development plan for the western section of Inner Ring Road

	Option-1 Straight flyover from Cairo to Kafue	Option-2 Right turn flyover from Lumumba to Kafue	(Reference) Inner Ring Road Phase-2
	passing through the intersection.		
Length	L=450m	L=600m	L=6700m
Width	W=40m	W=30m	W=30m
No. of Lanes	Flyover section: 4 Ground level section: 4	Flyover section: 2 (right turn) Ground level section: 4	4
Length of bridge structure	L=200m	L=300m	-
Width	W=18m	W=9.0m	-
Structure type	PC post-tension T-girder bridge (maximum span 40m)	Steel box girder bridge (maximum span 60m, curved bridge)	-
Design speed	V=60km/h	V=40km/h	V=60km/h
Radius	Straight	R=100	R=120
Vertical gradient	5%	5%	5%
Remark		4-lanes flyover on Lumba Rd. is not feasible due to land constraints, so only 2-lanes right-turn flyover is installed to turn onto the Kafue Rd.	

Source: JST

+



Source: JST

Figure 4.10 Layout of Alternative 1: Carousel Intersection Flyover

(2) Technical Evaluations: Carousel Intersection Flyover

Traffic simulations were conducted for three cases at the Carousel intersection: Opt. 1: straight flyover, Opt. 2: right turn flyover, and Opt. 3: Without project. Comparing the three options, Option-1, Straight Flyover, is most effective in terms of delay time, passing vehicle volume, congestion queue length, and average speed. Also, the intersection demand ratio is less than 0.9 only for Option-1, which will contribute to the reduction of intersection congestion. The results of the traffic demand analysis are shown in Table 4.7.

Table 4.7 Results of Traffic Demand Analysis

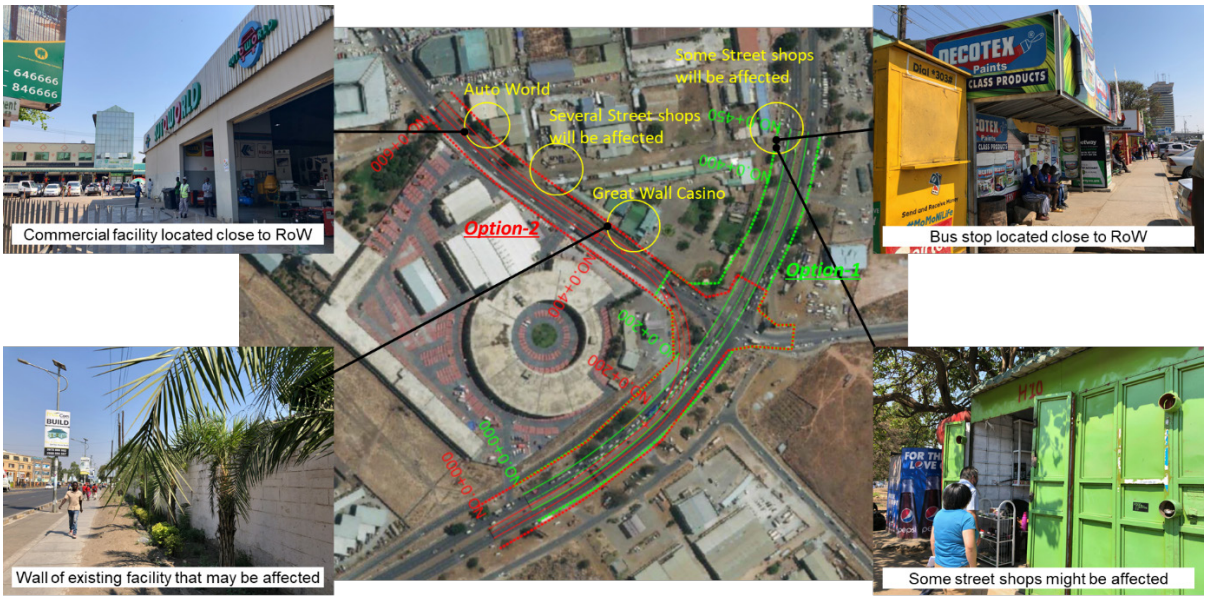
	Option-1 Straight flyover	Option-2 Right-turn flyover	Without project
Delay Time(s/km)	104.81	343.95	417.46
Traffic volume (veh/h)	6,374	3,829	3,355
Speed(km/h)	39.6	21	9.83
Saturation Degree	0.62	1.33	1.87
Project Cost (Million JPY)	2,300	3,200	-

Source: JST

(3) Environmental and Social Impact Analysis of Proposed Projects

- Alternative 1: Flyover at Intersection of Kafue Rd. and Lumumba Rd.

Both alternatives of Option-1 and 2 as discussed earlier may cause relocation of fewer than 200 people, which is categorized as B under JICA's environmental guidelines. Although both options may require land acquisition partially affecting the outer facilities of existing buildings, the alternative basically would be the least impactful because of involuntary resettlements and overall social impacts. Figure 4.11 presents land use conditions of the surrounding area for the options that are mostly business and amusement with facilities such as Carousel Shopping Complex, Great Wall Casino, and gas station. In addition, it is expected that small mobile shops and container shops along Kafue Rd may be affected by the project implementation, but the number of affected businesses is limited (further details will be added after obtaining the results of the environmental survey).



Source: JST

Figure 4.11 Land Use around the Site for Alternative 1

- Comparison of Options for Environmental and Social Impacts

Without Project, Inner Ring Road Phase 2, and Options of Alternative 1 were compared and examined from the aspect of environmental and social considerations based on the information obtained through the work in Zambia. The comparison results are summarized in Table 4.8.

Table 4.8 Comparison of Alternatives and Options from Environmental and Social Aspects

Plan	Environmental impact	Social Impact (resettlement, land acquisition, economic impact)
a. Case where the project is not implemented	- No change in land use will occur because the project will not be implemented. - Traffic congestion will become chronic due to the inability to meet traffic demand. - Concerns about the deterioration of air quality due to increased exhaust gas from idling	- No land acquisition or resettlement will occur. - No project impacts will occur, but environmental and social impacts to the environment due to traffic congestion and economic losses are expected to accumulate.
b. Inner Ring Road Phase-2	- Since the area has already been developed as an urban area, no loss of biodiversity is foreseen. - The impact of land clearing and land-use change is expected to be the largest compared to Alternative 1.	- Resettlement and land acquisition equivalent to Category A as defined by the JICA guideline are expected to occur, and a significant social impact is expected (PAPs are expected to be 1,700-2,100). - The effect of road development on reducing traffic congestion and its contribution to the economy is significant.
c. Alternative 1		
Option-1: Cairo-Kafue straight flyover	- Since the area has already been developed as an urban area, no loss of biodiversity is foreseen. - The impact of land clearing and land-use change is expected to be the smallest compared to Inner Ring Phase 2 development.	- Retailers and small-scale commercial facilities are expected to be affected (55 structures), but no resettlement will occur, and social impacts equivalent to Category B as defined by JICA guideline are expected. - Compared with new road construction, a high level of congestion reduction effect can be expected in a short period.
Option-2: Lumumba-Kafue right turn flyover	- Same as Option-1	- Compared to Option-1, the impact on the exterior of the commercial facilities (Carousel Shopping Center and Great Wall Casino) is expected to be large. (27 structures would be affected)

Source: JST

(4) Result of Comparison of Options

The Inner Ring Road Phase 2 and Options of Alternative 1 were compared and examined based on the information obtained through work in Zambia. The comparison results are summarized in Table 4.9.

Table 4.9 Evaluation of Options of Alternative 1

	Option-1 Straight flyover	Option-2 Right turn flyover	Inner Ring Road Phase-2
Reinforcement of road network	-	-	++
Elimination of congestion	++	+	++
Environmental impact	++	++	-
Resettlement	+	++	-
Project cost	++	+	+
Evaluation	++	+	-
Remark			Estimated resettlement houses: 421 (estimated PAPs: 1,700-2,100)

Source: JST

4.4.3 Analysis on Alternative 2: South to East Road

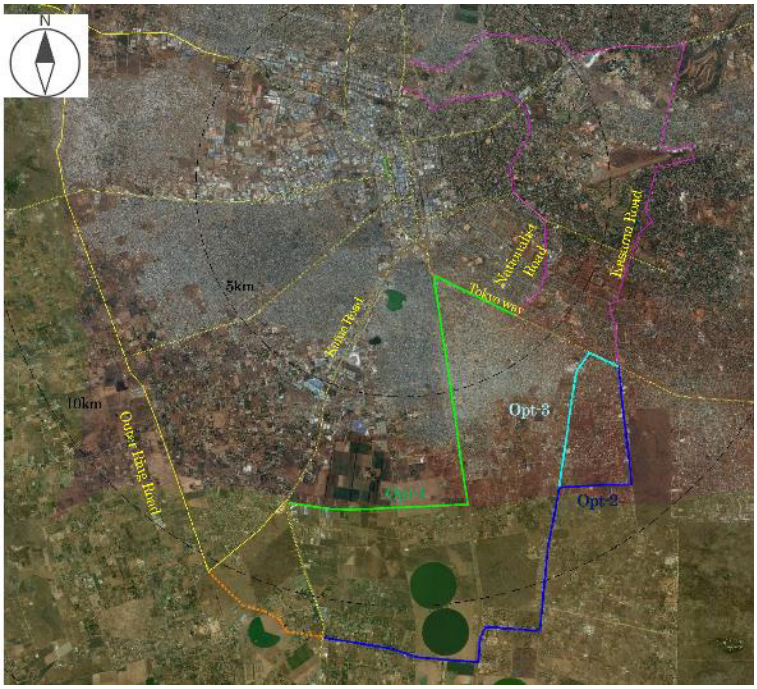
(1) Options for Alternative 2

Three options are established for South to East Road as shown in Table 4.10.

Table 4.10 Options for Alternative 2: South to East Road

	Option-1 (Green route)	Option-2 (Blue route)	Option-3 (Blue and light blue route)
Outline	Roads from outer ring road intersection to Nationalist Road	Road to connect the outer ring road intersection (planned site) to Kasama Road	
East section	Development of farmland	Widening of existing road	Widening of existing road
West section	Widening of road along the railway, widening of Tokyo Way	Widening of existing road, partly development of farmland	Widening of existing road, widening of Tokyo Way
Total length	12.0 ㎞	14.0 ㎞	13.5 ㎞
Overlapping length with existing road	9.5 ㎞	12.2 ㎞	13.5 ㎞
Width	W=30m	W=30m	W=30m
No. of lanes	4	4	4
Design speed	V=80km/h	V=80km/h	V=80km/h
Minimum radius	R=300	R=400	R=400

Source: JST



Source: JST

Figure 4.12 Layout of Alternative 2: South to East Road

(2) Technical Evaluations: South to East Road

Traffic demand forecasts were conducted for three options of Alternative 2. The construction of the southeast road will not only facilitate traffic between east and south but also reduce the traffic volume on Kafue Road by approximately 5%. The results of the traffic demand forecast are shown in Table 4.11.

Table 4.11 Results of Traffic Demand Analysis

Road		Option-1	Option-2	Option-3	Without project
Target Road	1.West Section	4,800	4,700	4,800	-
	2.East Section	13,500	6,000	9,600	-
3. Kafue Road (Carousel JCT.)		61,600	62,500	61,800	65,200
		(0.94)	(0.96)	(0.95)	(1.00)
Tokyo Way	4. Opt-1 JCT.	35,400	28,300	28,600	30,300
		(1.17)	(0.93)	(0.94)	(1.00)
	5. Opt-2 JCT.	4,400	4,800	7,600	3,900
		(1.13)	(1.23)	(1.95)	(1.00)
Project Cost (Million JPY)		4,200	4,600	4,600	-

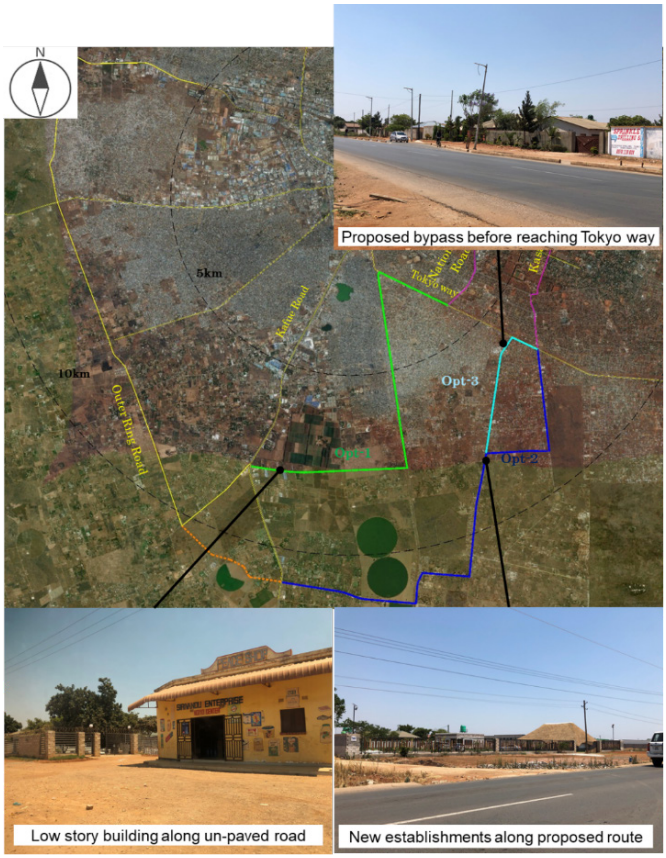
Unit: PCU
Source: JST

(3) Environmental and Social Impact Analysis of Proposed Projects

- Alternative 2: South-East Outer Ring Road

There are 3 options for alternative 2, all of which may involve the resettlements of between 15 and 25 households, based on satellite image count, which is categorized as B under JICA's Environmental guidelines. In addition, there are no protected areas or cultural heritage in and around the project sites.

The land use of options is mostly of residential areas or small-scale farming, especially the southern part of Option 2 and 3 as indicated in Figure 4.13. Most routes are flat and unpaved, therefore the driving condition during rainy seasons is expected to be worse. Air condition is expected to be fair, as there is not so much traffic in current condition, and the project implementation may cause an increase of dust during the dry season due to heavy machineries' operation during construction phase.



Source: JST

Figure 4.13 Land Use around the Site for Alternative 2

- Comparison of Options for Environmental and Social Impacts

Three Options of Alternative 2 were compared and examined from the aspect of environmental and social considerations based on the information obtained through the work in Zambia. The comparison results are summarized in Table 4.12 below.

Table 4.12 Comparison of Options from Environmental and Social Aspects

Option	Environmental impact	Social Impact (resettlement, land acquisition, economic impact)
Option-1 (Green route)	- Since the area has already been developed as an urban area, no loss of biodiversity is foreseen. - Partial vegetation and land-use changes are foreseen as the project passes through some agricultural and green areas.	- Retailers and small-scale commercial facilities are expected to be affected, but no resettlement will occur, and social impacts equivalent to Category B as defined by JICA guideline are expected. - Concerns about traffic accidents due to the proximity of roads to residential areas.
Option-2 (Blue route)	- Compared to Option-1, the unpaved section is longer, so an increase in dust is expected during construction. - The conversion of green and agricultural land to road land is expected to reduce vegetation, but the extent is very limited.	- Compared to Option-1, the overall density of residential and commercial facilities is low, and the social impact is expected to be limited.
Option-3 (Blue and light blue route)	- Same as Option-2	- The impact is expected to be the same as Option-2, but the number of affected houses is expected to be slightly smaller.

Source: JST

(4) Result of Comparison of Options

The options of Alternative 2 were compared based on the information obtained from the work in Zambia. The comparison results are summarized in Table 4.13.

Table 4.13 Evaluation of Options of Alternative 2

	Option-1 (Green route)	Option-2 (Blue route)	Option-3 (Blue and light blue route)
Reinforcement of road network	++	++	
Elimination of congestion	+	+	+
Environmental impact	++	+	+
Resettlement	+ (20 houses)	- (25 houses)	++ (15 houses)
Project cost	+	-	++
Evaluation	+	-	++
Remark	There is a concern that the railroad land (25m on either side of the tracks) will not be available for road due to the railroad widening project.		All sections can utilize the current roadway, but a part of Tokyoway is required to connect the north-south road and Kasama Road.

Source: JST

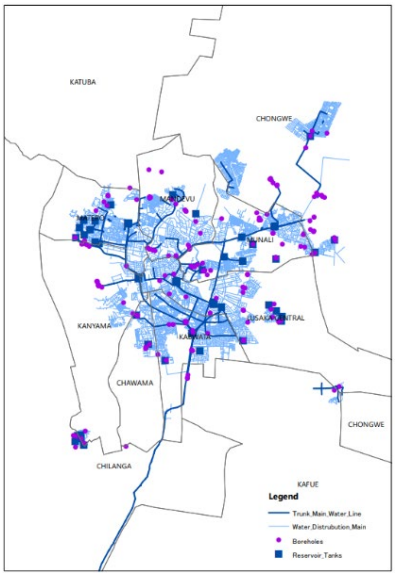
CHAPTER 5 DATA COLLECTION ON URBAN HYGIENE, WATER, AND SEWAGE

5.1 Current Situation and Issues on Urban Hygiene, Water, and Sewage in Lusaka

5.1.1 Water Supply

Lusaka Water Supply and Sanitation Company (LWSC) produces and supplies water to Lusaka Province, including Lusaka District. 60 percent of Lusaka's water supply is from the groundwater aquifer running throughout the city. A total of 107 boreholes are located across Lusaka, though the majority and those with the largest capacity are located to the south and south-west (Lusaka's industrial area).

Only about 48% of the water demand for Lusaka District was met by LWSC in 2019. In addition, water consumption was about 45% of the amount produced and supplied, and there was a large amount of non-revenue water due to leakage.



Source: JST

Figure 5.1 Water Supply Network and Boreholes

Table 5.1 Demand, Production, and Consumption of Daily Average Water Volume of Lusaka District (2019)

Item	Daily Average (m^3/day)		
	Demand*1	Production*1	Consumption*2
	①	②	③
Volume	418,555.00	200,549.29	90,152.33
Ratio		47.91 %②/①	44.95 %③/②

*Source : *1 - LWSC Annual Report and Financial Management Statement 2019*
**2 - LWSC Commercial Services*

The number of registered households compared to the number of households and businesses in the entire city of Lusaka was very low. Among the registered, those with meters installed account for only about 55%. Households and establishments that use water services without a meter are charged a flat rate for water use.

Table 5.2 No. of Registrants and Water Consumption

Item	Unit	2017	2018	2019	2020
Water Consumption	m^3/day	**91,850.48**	**86,367.80**	**90,152.33**	**92,742.04**
No. of Registrants	Person	123,619	123,619	123,619	123,619
Registrant with Meter	Person	68,591	68,562	68,591	68,591
Registrant without Meter	Person	55,028	55,028	55,028	55,028
Consumption with Meter	Person	52,029	52,867	55,282	59,542
Water Consumption	m^3/day	59,140.85	54,704.30	59,070.01	59,637.12
Consumption without Meter	Person	39,209	41,491	44,270	49,092
Water Consumption	m^3/day	32,709.62	31,663.50	31,082.32	33,104.92

Source: LWSC

According to the Lusaka Water Security Initiative, water demand for Lusaka will be about 530,000 m^3/day in 2035.

Table 5.3 Future Water Demand by Classification of Usage Purposes

Classification	Year 2010 (m^3/day)	Year 2035 (m^3/day)
Household Use	136,857	375,747
Public Use	24,460	34,304
Industrial Use	108,000	108,000
Commercial Use	5,328	7,473
Total	276,655	527,559

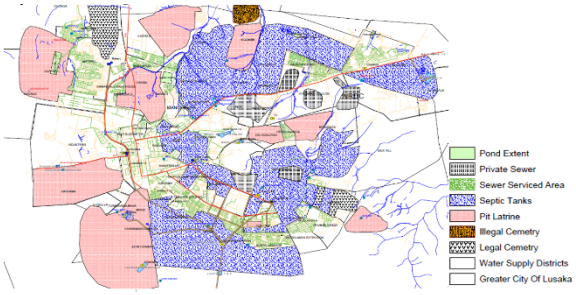
Source: Lusaka Water Security Initiative

Therefore, Lusaka District or LWSC has the following problems and issues on water supply.

- Shortage of capacity of production and supply of water
- High non-revenue rate
- Lack of budget for the development of water supply facilities

5.1.2 Sewage

The sewage pipe network (darker green hatches) is mainly maintained in the old city center, while individual pit latrines (pink hatches) and septic tanks (blue hatches) are used in areas outside the network. The amount of sewage flowing into each treatment facility is two to four times the design flow, and the treatment facilities are aging.



Source: WB - Lusaka Sanitation Project (May 1,2015)

Figure 5.2 Sanitation coverage in Lusaka City

Table 5.4 Design Flow and Daily Average Flow of Each Sewage Treatment Plant in Lusaka District

Plant Name	Design Flow (m^3/day)	Daily Average Flow (m^3/day)		
		January	February	March
Manchinchi WWTP	36,000	79,761.13 (221.6%)	74,755.63 (207.65%)	63,530.67 (176.47%)
Chunga WWTP	9,100	40,977.94 (450.31%)	40,428.11 (444.26%)	40,044.14 (440.05%)
Ngwerere SP	8,350	211.63 (2.53%)	115.09 (1.38%)	127.64 (1.53%)
KaundaSquare SP	31,200	26,760.45 (85.77%)	13,133.67 (42.03%)	9,839.85 (31.54%)
Chelstone SP	2,700	1,862.10 (68.97%)	1,951.40 (72.27%)	1,209.82 (44.81%)
Matero SP	7,100	2,167.10 (30.52%)	2,969.90 (41.83%)	1,719.76 (24.22%)

Source: LWSC

The followings are problems and issues with the sewage system in the district.

- Less household connecting a sewage network
- The inflow of sewage volume exceeds the capacity of an existing treatment facility
- Cholera outbreaks in areas using on-site sewage treatment (pit latrine or septic tank) system

5.1.3 Drainage

LCC implements the development and maintenance of drainages in Lusaka District.
Lusaka District is situated in the Kafue River and Changwe River basins. A total of 37 main drainages are developed in the district. Rainwater inside the district flows out through these main drainages. The development situation of the drainage system in the district is very poor. Therefore, submergence and

flood often occur in the district, especially in the peri-urban area located west of the district due to their flat terrain, increased precipitation, and progress of urbanization.
To improve this situation, two projects were proposed as priorities in Lusaka Drainage Investment Master Plan. However, only Bombay and Mazyopa Main were improved and extended. The improvement of Kanyama/John Liang/Makeni Main was not implemented.
The followings are issues on drainage facility and flooding.

- Construction of the priority project (Improvement of Kanyama/John Liang/Makeni Main Improvement Project)
- The necessity of update of data on the study and the design of a drainage system
- Maintenance of drainages closed by garbage dumpsites
- Discussion with other districts on construction or upgrading of a downstream part of the main drainage which extends over to a neighboring district

5.1.4 Solid Waste

Public Health Department in LCC is responsible for solid waste management in Lusaka District.
The amount of waste generated per day in Lusaka in 2019 is approximately 1,200 tons. Collection and transport of solid waste are conducted not only by LCC but also by private companies (franchise companies and community-based enterprises (CBE)) contracted with LCC.


Source: LCC

Figure 5.3 Collection of Solid Waste

The amount of waste collected and transported was 660 tons per day, and the rest was illegally dumped or incinerated. The Chunga landfill in the northern part of the city started operation in 2007, but due to the lack of budget for LCC, the vehicles and equipment in the landfill soon became unusable, and the landfill has continued to operate without compacting and covering the waste. 500 to 700 tons of waste are carried in the site every day recently.

Table 5.5 Situation of Solid Waste Management of Lusaka District

Population	About 2.4 million
Discharged Waste	About 1,200 t
Collected Waste	About 660 t (55%)
Collection, Transport	LCC, Franchise Contractors, CBE
Final Dump Site	Chunga Dumping Site
	Operation start year 2007
	Not function well

Source: LCC

Followings are issues on solid waste management:

- Increase of solid waste discharged
- People's disinterest and low understanding of solid waste management
- Limit of waste disposal throughput and insanitation of the existing dumpsite by inadequate waste treatment
- The necessity of Construction of a New Dump Site and an Intermediate Treatment Facility
- The necessity of reduction of waste discharged and transported
- LCC's low capability in waste management

5.1.5 Infectious Diseases including the COVID-19

(1) COVID-19

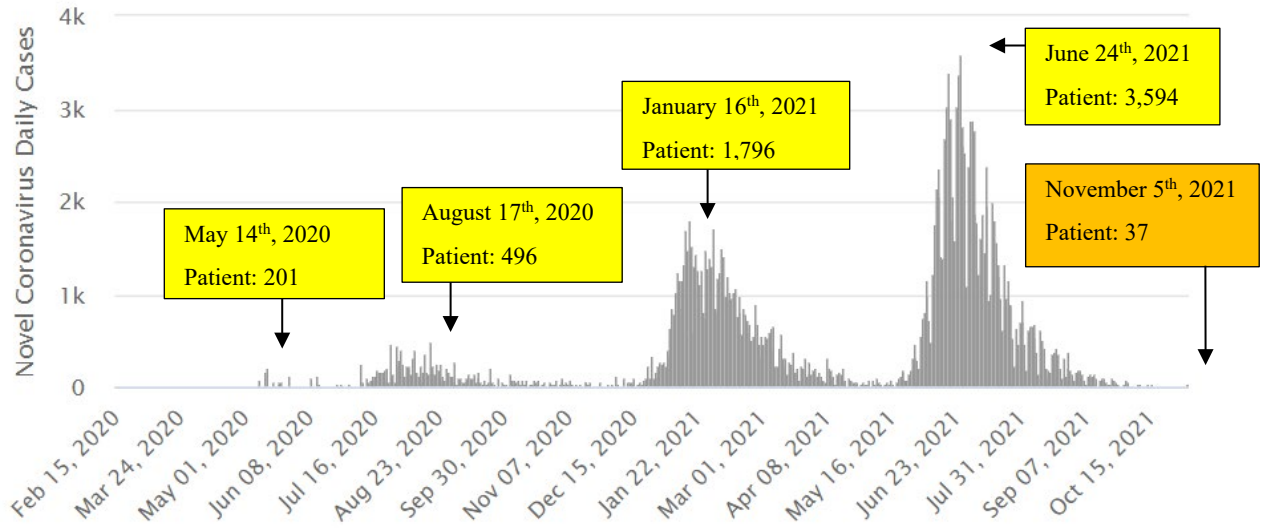
As of November 5th, 2021, the total number of COVID-19 patients in Zambia was about 210,000. Of them, 206,000 have recovered.

Table 5.6 Present Situation of COVID-19 (as of 5th November, 2021)

Area	No. of Patient	No. of Fatality	No. of Recovery
World*1	249,134,481	5,038,372 (2.02%)	224,494,336
Africa*2	8,520,873	219,121 (2.57%)	7,925,013
Zambia*3	209,852	3,662 (1.75%)	206,008

*Source: *1- Homepage of Johns Hopkins University*
**2- Homepage of African Union / AFRICA CDC*
**3- Homepage of ZNPHI*

The first patient of COVID-19 in Zambia was reported in March 2020. Since then, there have been 4 waves of infection. The number of infected persons increased at every wave, and about 3,600 new patients were reported at the 4th peak on June 24th, 2021. However, no. of patients decreased rapidly after the peak. As of November 5th, 2021, the number of the daily reported infected persons was 37 in Zambia and 5 in Lusaka District.



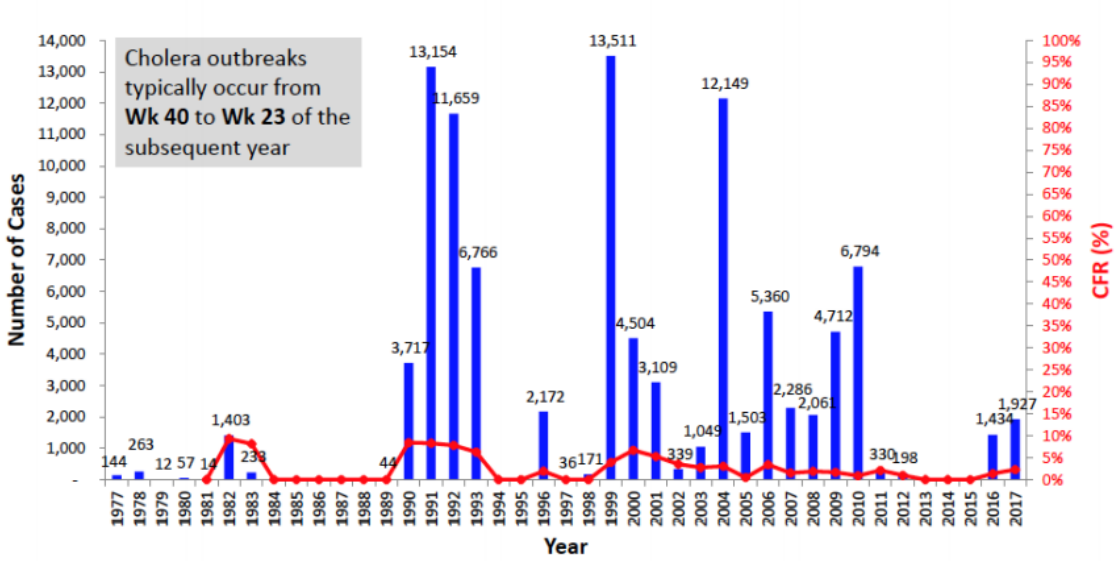
Source: MOH / ZNPHI

Figure 5.4 Transition of Person Newly Infected by COVID-19 in Zambia

To control and end COVID-19, the Zambia government took several measures, such as quarantine policy at the borders, soft lockdown, campaign, disinfection, and requirement of a digital negative certificate upon entry.

(2) Cholera

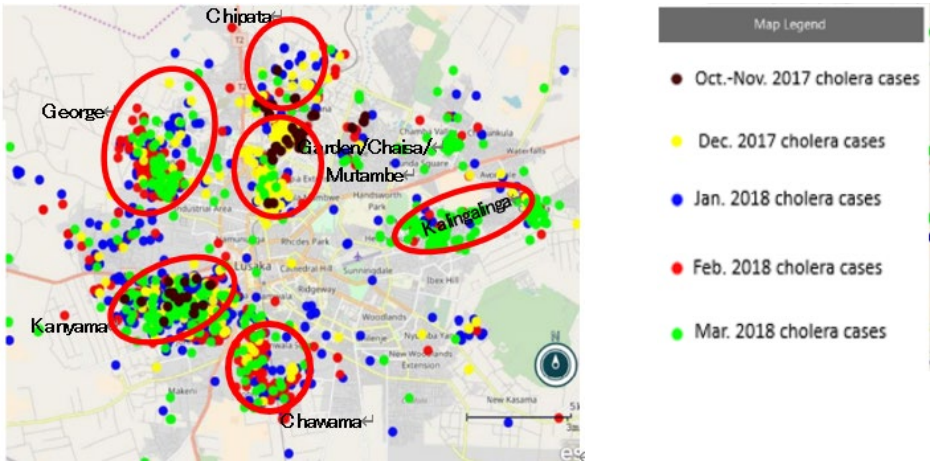
Zambia experiences regular cholera outbreaks. About 35,300 people suffered from Cholera from 1990 through 1993, about 21,500 from 1999 through 2002, and about 35,900 from 2003 through 2010.



Source: JICA Mission for Cholera Outbreak in Lusaka, 2017-2018

Figure 5.5 Cholera Outbreaks in Zambia: 1977-2007

In Lusaka City, there have been many outbreaks within compounds that use pit latrines. A total number of 5,444 people suffered from Cholera in Lusaka District between June 2017 and June 2018. Of them, 98 died.



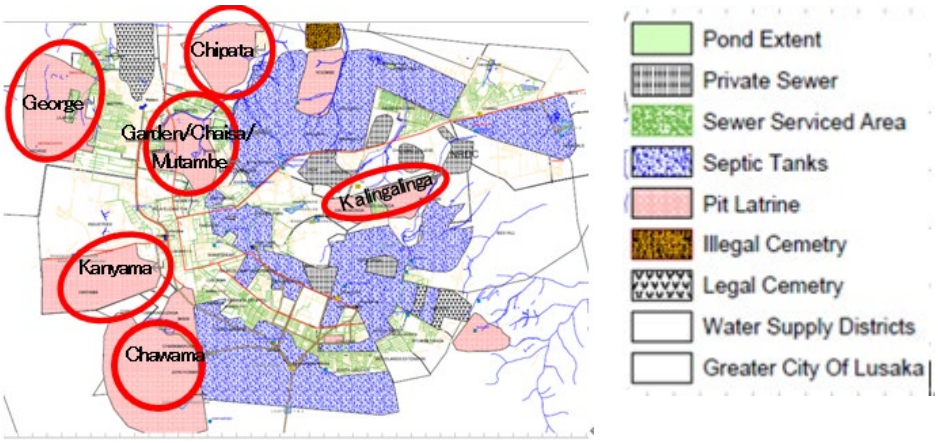
Source: JICA Mission for Cholera Outbreak

Figure 5.6 Outbreak and Distribution of Cholera in Lusaka District (2017 - 2018)

It is believed that the urine in the pit latrine percolates into the ground and the use of the contaminated groundwater is the cause of the outbreak and spread of cholera.

Source: Wikipedia

Figure 5.7 Contamination of Groundwater with Urine



Source: WB-A Lusaka Sanitation Project (May 1, 2015)

Figure 5.8 Use of Pit-Latrine and Outbreak of Cholera

Followings are issues related to infectious diseases.

- Groundwater pollution caused by sewage in a pit-latrine
- Close distance between a pit-latrine and a shallow well
- Use of potentially contaminated groundwater
- Many pit-latrines and shallow wells are used in peri-urban areas, especially compounds.
- Drainages around compounds often do not perform well because of sand sediment caused by flooding
- Contamination of water in drainages
- Shortage of medicines and health workers with adequate training at the community level
- Shortage of manpower for surveillance, finding, and testing of COVID-19
- Shortage of soap, mask, and disinfectant

5.2 Current Situation and Issues in Compounds of Lusaka

5.2.1 Water Supply

LWSC provides a borehole and supplies treated groundwater in areas without water supply service from Kafue Water Purification Plant. Water is supplied to several public water places with 2~3 taps from one borehole.
Residents who have difficulties accessing a public water place dig wells by themselves and drink untreated groundwater.

5.2.2 Sewage

Almost all toilets in Misis, Chibolya, and Kanyama Area are pit latrines. Residents in the area build toilets very close to their houses. It is highly possible that the urine in the toilet percolates into the ground and contaminates groundwater. The tops of many pit latrines are over 0.5~1.0m from the surface of the earth to avoid overflow of urine by floods.
Some septic tanks are also provided in compounds. However, many septic tanks have no drainage to discharge treated water from the tank.

5.2.3 Drainage

Almost all compounds have no street drain. Some drains constructed around compounds are filled with garbage and buried in the sand. Therefore, rainwater does not flow well.

5.2.4 Solid Waste

Many residents in compounds do not pay for the collection and transport of garbage. They discard and/or burn garbage within their property or their community illegally. Therefore, garbage is often found scattered within a community inside a compound, leading to the worsening of living conditions in and around the compound.

5.3 Draft Support Policies in the Field of Water, Sewage, and Waste Management

5.3.1 Water Supply

To solve the mentioned problems and issues regarding water supply, the following projects are suggested.

Table 5.7 Project Long List on Water Supply

No.	Project Title
1	Increase of production and supply of water by implementing previously halted projects such as JICA's Lusaka City Water Supply Improvement Project and Kafue Bulk Water Supply Project Phase II.
2	Implementation of maintenance, inspection, and replacement of existing water supply facility (improvement of non-revenue water rate and increase of water sales revenue)
3	Expansion of water supply service area and increase of the number of registrants
4	Installation of a water mater and change of water charge system to mater rate charging from flat-rate charging

Source: JICA Team

Among the projects mentioned in the list above, the following two projects will be selected as the candidate project for implementation.

Table 5.8 Candidate Projects on Water Supply

	Project Title	Outline	Rough Estimate	Supporting Method
1	Reduction of Non-Revenue Water Rate	Inspection of existing water supply facility for minimizing water leakage volume Change of water charge system from flat-rate charge to meter-rate charge	200 million yen	Technical Cooperation
2	Economic and Social Development Program (Water Supply)	Provision and Installation of a water meter to 70,000 households and buildings	700～750 million yen	Grant

Source: JICA Team

5.3.2 Sewage

To solve the mentioned problems and issues regarding sewage, the following projects are suggested.

Table 5.9 Project Long List on Sewage

No.	Project Title
1	Enhancement of treatment capacity of existing wastewater treatment facilities
2	Expansion of existing wastewater treatment service area
3	Construction of a community wastewater treatment plant by community
4	Conversion of existing pit latrines to better-improved pit latrines

Source: JICA Team

Among the projects mentioned in the list above, the following two projects will be selected as candidate projects for implementation.

Table 5.10 Candidate Projects on Sewage

	Project Title	Outline	Rough Estimate	Supporting Method
1	Improvement of existing pit latrines in peri-urban areas	Half of the construction cost of an improved pit latrine will be supported. (about 88,000 households in Kanyama, Chibolya, and Misisi)	4.4 billion yen	Grant or Loan
2	Economic and Social Development Program (Sewage)	Provision of vacuum vehicles for collection and transport of sewage (8t vehicle x 10, 5t vehicle x 30)	500～550 million yen	Grant

Source: JICA Team

5.3.3 Drainage

To solve the mentioned problems and issues regarding drainage systems and floods, the following projects are suggested.

Table 5.11 Project Long List on Drains and Flood Protection

No.	Project Title
1	Development and maintenance of drains around Kanyama area for mitigation of flood
2	Review of the M/P and the design of drains based on new design items
3	Review and/or implementation of an improvement plan of drainages running through adjacent districts of Lusaka city affected by Lusaka's drainage improvement plan
4	Implementation of public awareness activities for residents

Source: JICA Team

Among the projects mentioned in the list above, the improvement of Kanyama/John Liang/Makeni Main Improvement Project (No. 1) should be implemented as soon as possible.

5.3.4 Solid Waste

Both soft components (such as technical support) and hard components (such as the construction of a facility or procurement of equipment) will be needed as solutions to problems and issues on solid waste management.
The following list shows several candidate projects on both soft and hard components.

Table 5.12 Candidate Projects on Enhancement of Waste Management in Lusaka City (Soft Components)

No.	Project Outline	Rough Estimate	Supporting Method
1	Training of staff in LCC (especially Public Health and Community Development Department)	2 years 200million yen	Technical Cooperation (Dispatch of Experts)
2	Education and public awareness campaign on reduction and adequate treatment of waste		
3	Study on quality and quantity of waste discharged and waste treatment method	2 years 200million yen	Technical Cooperation for Development Planning
4	Formulation of waste collection plan and dissemination and publication of the plan		
5	Revision of waste collection charge and imposing stricter collection of the charge and a penal regulation		

Source: JICA Team

Table 5.13 Candidate Projects on Construction of Waste Treatment Facility (Hard Components)

No.	Project Outline	Rough Estimate	Supporting Method
1	Renewal and replenishing of collection and transport vehicles and purchasing and installing of waste containers	1 year 1 billion yen	Grant
2	Planning and construction of an intermediate treatment facility of waste, especially waste incineration facility for reducing the volume of waste discharged to a landfill site (2,000t/day →200t/day)	5 to 6 years 65 billion yen	Co-financing with other doners
3	Planning and construction of a new dumpsite (study, plan, design, and construction) before closing existing landfill sites. (20years, 1,500,000m^3)	3 to 4 years 8 billion yen	
4	Closing of existing Chunga landfill site and planning of usage of the former landfill site (removal of existing solid waste and facility, and natural environment restoration work)	3 to 4 years 1 billion yen	

Source: JICA Team

5.4 Draft support policy regarding the infection status and countermeasures for infectious diseases including COVID-19

To solve the mentioned problems and issues regarding prevention, reduction, eradication, and treatment of infectious diseases, the following projects are suggested.

Table 5.14 List of Project against Infectious Disease

No	Project Title
1	Change conventional pit latrines to better-improved pit latrines
2	Provision of vacuum vehicles
3	Regular cleaning of existing drainage system
4	Provision and storage of disinfectants and medicine for malaria
5	Training of healthcare staffs working at community level
6	Securing and training of experts to analyze and assess the situations of COVID19
7	Provision and distribution of face masks, soaps, and disinfectants
8	Planning of staffing on medical treatment and construction of public health facilities by adjustment and cooperation of Lusaka District and its adjustment districts

Source: JICA Team

Among the projects mentioned in the list above, the following two projects will be selected as the candidate project for implementation.

Table 5.15 Candidate Projects on Infectious Disease Measures

	Project Title	Outline	Rough Estimate	Supporting Method
1	Economic and Social Development Program (Urban Hygiene)	Provision and storage of disinfectants and medicine of malaria and other communicable disease in Level 1 hospitals and LCC	400～500 million yen	Grant
2	Human resource development and training program	Securing and training of experts for analyzing and judging COVID19 and other communicable diseases in institutes and hospitals (Phase I: 3 years)	400～500 million yen	Technical Cooperation (Dispatch of Experts)

Source: JICA Team

CHAPTER 6 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion and Recommendations

- This Data Collection survey began in March 2021 and focused on urban planning, urban transportation, urban sanitation, and water and sewage in Lusaka City. At that time, Covid-19 was already widespread across the world. One output of the survey is to list out projects JICA should support in the future. The other was to verify the feasibility of Phase 2 section of the inner ring road project including the alternative road development plans. As a result of the survey, the candidates of the project for urban planning, urban transportation, urban sanitation, and water and sewage were extracted, and these results are described in Chapters 3, 4, and 5. In addition, the procedures and points regarding socio-environmental considerations when candidate projects such as infrastructure development are implemented are also summarized.

- It was confirmed that there are many problems in terms of land use, transportation and hygiene. In addition, the new IDP in Lusaka City which is under formulation can be seen as a revised version of the MP2009 formulated under the support of JICA. MP2009 was formulated with the goal year of 2030, therefore still in its mid-term. On the other hand, the population rapidly increased and the urban area expanded in an unordered beyond the city boundary. The traffic congestion at the peaks of morning and evening hours became more serious.

- Based on this situation, many opinions from the central and local governments requested JICA for its technical support. To formulate an appropriate IDP from the perspective of the central government, there is a problem with the capacity of the city planning department of Lusaka City. While the central government is also in a position to provide appropriate advice and guidance, they find it difficult to have practical solutions, and if found, how to provide instructions to apply them. In particular, Lusaka is assumed to become a large city with a population of over 4 million in 2030, the supply-demand gap will widen in various aspects, and the current disorderly urban area will expand more beyond the city boundary, resulting in greater traffic congestion. In addition, there is a high risk that water shortages and urban hygiene problems will become more serious. Under these circumstances, the Zambian side asks to support the formulation of IDP. In Zambia, the content of JICA2009MP is highly regarded, and Japan is expected to assist Zambia to tackle such difficult problems based on its experience and know-how because it has had experience in dealing with similar urban problems.

- To restrain the disorderly expansion of urban areas, it is necessary to introduce highly effective measures such as an urban development permission system based on appropriate land use plans, area zoning, and land use regulations. Among such measures, it is also necessary to select one that is easy to implement in the Lusaka metropolitan area and to enact it as a legal system. In Lusaka City, building permit applications and land use information has recently been converted into a digital database and processed. This technology can be applied to formulate a land-use plan, nature conservation areas, and urban development promotion areas.

- It seems more appropriate to establish the future urban structure, land use plan, and infrastructure development plan for a wide target area as a metropolitan Lusaka area including Lusaka City and the surrounding districts. It is also expected that a new IDP will serve as a compass for selecting priority projects based on a more effective and efficient methodology. To formulate the IDP as an appropriate one suitable to a new era, both central and local governments are asking JICA to support the IDP formulation.

- Not only Zambia but also the world has reached a turning point in a new era. In Zambia, a new president was elected in the 2021 presidential election, and the Ministry of Green Economy was established as a reorganization of ministries. The world is witnessing major transformations such as the achievement of SDGs, response to global warming problem by decarbonized society, and digital transformation including smart city concept utilizing advanced ICT technology. Given the changes of this era and the current situation of the Lusaka metropolitan area, it is a more appropriate

time for JICA to support the formulation of the new IDP, an integrated urban development plan that will guide the sustainable development of the Lusaka metropolitan area over the medium to long term.

- Using the newly formulated Metropolitan Lusaka IDP as a compass, it is expected to formulate a vision from a wide-area, medium- to long-term perspective, not as a symptomatic treatment, to select short-term priority projects and to use new technologies for urban management and operation. In addition, the new IDP for Lusaka City and surrounding areas are expected to contribute to the effective, efficient, and steady promotion of measures such as urban growth management, the improvement of sanitation and living environment in compounds, reduction of road congestion, and improvement of water and sewage systems. To conclude, it is recommended to assist the formulation of the new Metropolitan Lusaka IDP as a technical assistant project.

6.2 Toward IDP Formulation for Lusaka City and Surrounding Areas as a Technical Cooperation Project

6.2.1 Approaches to Formulate IDP for Lusaka City and Surrounding Areas

(1) Considerations of technical assistance regarding the development issues interlocked between Lusaka City and surrounding areas.

As the result of an examination of the candidates for development assistance described in Chapter 3, IDP formulation for Lusaka City and Surrounding Areas is given by the most considerable candidate as a technical cooperation project. This section aims to seek appropriate contents of the technical assistance through sorting out the development issues to clarify the needs for assistance, focusing on the lessons from reviews of LCDUP 2009. The followings are key aspects to be considered for technical assistance when the development issues are sorted out.

- Development issues of Lusaka City interlocking with issues of surrounding areas: The development issues can be sorted out by an issue of Lusaka City as itself and another issue not able to be separated because of the tight relationship as a cause-and-effect link such as land scarcity in the city affecting surrounding area development. These development issues require a certain planning area including the surroundings of Lusaka City to be covered, analyzed, and planned in an integrated manner.
- Additional development issues raised after LCDUP 2009: Current development issues not highlighted at that time such as climate change, population increase beyond expectation, the new government policies, and others that happened after the plan need to be incorporated into the agenda of IDP planning.
- Considerations on the planning elements by IDP Guidelines: As the IDP guidelines stipulate detailed planning elements to be incorporated into IDP outputs, technical assistance is needed to consider the relationship between the development issues and planning requirements such as financial plan, monitoring plan, strategic environmental assessment.

The development issues in consideration with lessons from the progress of the planned components in LCDUP 2009 are sorted out and examined to identify issues relating to issues of the surrounding area of Luska City. As the result, there are many development issues identified as interlocking issues between Lusaka City and surrounding areas such as the issue of demand and supply issues of population framework in terms of carrying capacity of Lusaka City and the surrounding areas or public transportation system linking with the surrounding areas from the city in terms of commuting. Table 6.1 shows the examination of the development issues on whether they have an interlocking condition or not, and supplemental identification of issues as additional development issues or not.

Table 6.1 Proposed Primary Data Survey

Basic Development Issues	Development Issues in conjunction with Lessons from the Progress of Planned Components in LCDUP2009	New Issues added	Issues relating to LCC	Issues relating to Surrounding Area
A. Critical insufficiency of infrastructure and services in UUSs to be solved immediately	Increased urgency for improvement of UUSs due to worsened urban hygiene (communicable disease) conditions by the delay of improvements	--	●	○
	Further urbanization than the plan of LCDUP with insufficient infrastructure and services in the surroundings of Lusaka City on housing	✔	○	●
B. Coping with further supply-demand by increased population amid current insufficient infrastructure and services	Necessary review and update of the supply side of infrastructure due to increased population than LCDUP demand frameworks	✔	◎	◎
	Necessary enhancement of weak public transportation operation and management against commuting demand increase	--	◎	◎
	Necessary sufficient road network and effective public transportation system coping with the expansion of peri-urban settlements	--	◎	◎
C . Inevitable approach for sustainable urban development against inadequate development	Necessary densification of settlements by collecting housing and land-use efficiency against dominant low-rise houses and insufficient land utilization	--	●	◎
	Necessary effective distribution of urban functions coping with the inconvenient business environment, especially CBD of Lusaka City due to insufficient access and network	--	●	◎
	Necessary measures to retain green areas for climate change mitigation measures and water source cultivation	--	○	●
D. Workable urban management mechanism and institutional capacity	Necessary enhancement of coordination mechanism for Lusaka City and surrounding areas in an integrated manner, straddling two Provinces (Lusaka and Central)	--	○	●
	Necessary enhancement of land management in peri-urban areas coping with difficulties of customary land management	✔	--	●
	Necessary enhancement of effective implementation measures of the land use plan such as zoning with land-use controls and guidelines of development controls	--	◎	◎
	The necessary development of monitoring and improvement action plan for planned components for sustainable implementation	--	◎	◎
	The necessity of strengthening financial capacity through improvement and increase of own financial resources	✔	●	●
E. Coping with global development issues	Necessary enhancement of urban information management for on-target analyses and planning through ICT development	✔	◎	◎
	Necessary enhancement of incorporation of technologies or measures of Smart City solution and Green Infrastructure development into planning	✔	◎	◎

Legend: ●= Main issue, ◎= Interlocking issue, ○= partial issue, -- = a few or not corresponded
Source: JST

(2) The desirable direction of the technical assistance for IDP formulation of Lusaka City and surrounding areas

1) Goals for technical assistance for IDP formulation

The following are set as four goals of the technical assistance in the formulation of IDP in Lusaka City and surrounding areas.

- To enable the IDP plan to be formulated toward sustainable development with implementable measures
- To enable the IDP plan to integrate urban developments and managements for Lusaka City and surrounding areas
- To enable relevant Councils and Ministries to establish an effective and cooperative mechanism for the planning and implementation (operation and management)
- To enable relevant Councils to implement effective, rational, and scientific analyses in planning

and development management by their capacities and skills

2) Approaches to assist the formulation of IDP

An important aspect of the effective formulation of IDP is to adequately address the development issues to find an effective solution. The following shows basic approaches to incorporate those development issues identified in the previous sections in consideration with the planning framework of the IDP Guidelines.

- Wide area IDP formulation covering Lusaka City and Surrounding for sustainable development as a whole through assistance to achieve an integration of the planning rationally, utilizing the institutional tools of "joint planning initiative" stipulated in URPA 2015
- Enhancement of implementability of IDP through assistance to enable collaborative implementation (development and management) of the IDP among relevant implementation bodies (ministries, authorities, quasi-public corporations) at a national level, and inter-council cooperation mechanism for implementation of urban services to be promoted at a local level.
- Sustainability of IDP effectiveness through assistance to strengthen capacity and skills of relevant experts of Councils in monitoring and updating IDP effectively.
- Coping with global issues utilizing applicable measures to be incorporated into IDP through assistance with a focus on advanced or innovated technologies, such as in Smart City solution and green infrastructure development.
- Viable project and program formulation in capital investment plan though assistance with an emphasis on financial measures such as profitable mechanism, public-private collaboration, and others to be introduced.

3) Other considerations with IDP formulation

- Considering a long-term framework in the study area (20 years planning target) as the basis of the planning area for IDP formulation (10 years) as the capital region of Zambia playing a considerable role in leading future Zambian socio-economic development in coordination with an expected new long-term development plan (e.g. Vision 2040).
- Carrying capacity of development in Lusaka City and surrounding areas for sustainable development in terms of demand and supply capability for infrastructure and sources (e.g. source of water, energy, and lands)
- Strategic environment assessment (SEA) to be introduced for development plan alternative examination taking account of the framework SEA by ZEMA to be provided.
- Mainstreaming Climate Change Adaptation into IDP formulation taking advantage of IDP as the integration of sector plans in scenario planning and assessment by certain indicators of sustainability
- An appropriate range of involvement of local stakeholders (community) for building consensus of IDP planning taking account of inputs and time-frame of the IDP formulation
- Planning agreement with Chiefs of customary lands in the surrounding areas of Lusaka City for the planning area as a pre-condition of IDP formulation.
- Adequate range of relevant Council's planning for Capital Investment Plan and Financial Plan stipulated in URPA 2015 and the IDP guidelines depending on the coverage of the IDP plan whether it covers the whole jurisdictional area or partial entity.
- Coordination and adjustment with ongoing IDP by Councils where Chongwe and Kafue have formulated their IDPs and Chilanga and Chibombo have started. There will be an issue with the role and function of the new IDP for Lusaka and surrounding areas.

4) Planning Activity for IDP covering Lusaka City and Surrounding Area

According to the planning framework of IDP guidelines, the desirable planning activities in the case of the IDP covering Lusaka City and surrounding areas are considered by adding them to the standard planning activities of the guidelines. Table 6.2 describes the planning activities for the IDP formulation covering Lusaka City and surrounding areas.

Table 6.2 Considerable Planning Activities on IDP formulation for Lusaka City and Surrounding Areas

Planning Activities in the Guideline		Considerable Additional Planning Activities for IDP
Category	Major Activities for Planning	
0. Preparation of Planning Program	• Establishment of implementation bodies within a local authority • Formulation of Planning Program and its authorization	• Planning Agreement with Chiefs for the planning area covering customary lands • Establishment of Joint Planning Committee and approval for the planning program
1. Undertaking Survey and Data Collection	• Collection of physical and spatial data, plans, and statistical data • Collection of opinions: stakeholders, local communities within a	• Primary data collection through the implementation of field surveys (traffic, land use, household survey, etc.) • Refining and narrowing adequate stakeholders in multi-local authorities jurisdiction
2. Analyses and Issues Identification)	• Analyses on socio-economic, spatial conditions and cross-cutting trends and issues • Sector analyses on infrastructure • Macro-framework analyses, demand and supply analyses for key infrastructure, social sector	• Existing land use mapping covering a wide planning area • Wider area study for the macro frame (pop, emp) and scenario setting for 20 years • Examination for wider area negative impact for Climate Change
3. Development Framework and Plan Formulation	• Setting development vision, goal, • Development framework and strategy • Environmental assessment and climate change adaptation • Formulation of plans and projects and priority identification • Public consultations by stakeholders, local communities, etc	• Development framework setting and alternative study through Climate Change impacts • Strategic Environmental Assessment (SEA) adaptation in coordination with ZEMA • Put infrastructure sector planning weight on Water, Energy and Public Transport • Put social sector planning weight on Housing Sector in combination with UUSs improvement
4. Implementation Plan	• Financial analyses of local authority • Action plan for implementation through budgeting analyses • Capital Investment Plan (CIP) and Financial Plan (FP) • Monitoring and Evaluation Plan (MEP)	• Refining and narrowing adequate ranges for CIP and FP in multi-local authorities
5. Plan Approval	• Planning Committee and Council Approval • Final Approval by Minister (MLGRD) for Statutory Plan	• Joint Planning Committee and Each Councils' Approval

Source : Guidelines for Integrated Development Planning (vol1/vol2/vol3/vol4) compiled by JST

5) Primary Data Surveys

Primary data surveys as essential elements of rational and sound IDP planning are considered to incorporate into the activities of the IDP formulation. It is proposed by three types of survey for collecting primary data as shown in Table 6.3.

Table 6.3 Proposed Primary Data Survey

Item		Surveys for Primary Data Collection		
		Existing Land Use Survey	**Traffic Survey**	**Household Interview Survey**
Purpose		• to obtain existing land use conditions and to reflect land use planning and spatial development	• to obtain the latest traffic data and information and to reflect the transportation planning of IDP	• to grasp living conditions and needs of households and to reflect on the socio-economic development and spatial development in addition to daily mobility by households
Survey Area	Study Area	• not applied	• Some selected survey items (e.g. cordon)	• not applied

	Planning Area IDP	• Lusaka City and Surroundings	• Traffic zone to be applied to the planning area	• Lusaka City and Surroundings
Key Survey Items		• land and building use utilizing a satellite imagery /orthophoto with supplemental field survey	• cordon/screen line surveys, traffic count survey, origin-destination survey, freight movement survey	• socio-economic conditions, living environment conditions, mobility (trip) conditions, development, and improvement needs

Source: JST

6.2.2 Proposed Scopes for IDP Formulation

(1) Implementation Structure

1) Considerations for organizing the structure

For the implementation structure of the IDP formulation under an expected technical assistant project, several factors by its specific project environment to be considered are described as follows. And candidates for each group of the structure shown in Table 6.4 and Figure 6.1 are proposed in consideration with the following separately from the required members in the IDP Guidelines.

Joint Coordination Committee (JCC) as an additional organization for technical assistance project management is recommended to establish. This additional committee (JCC) to be incorporated into the implementation structure aims to manage technical assistance apart from the managing body by the relevant Councils for an IDP formulation, and to set a place for discussions and commitments from higher-level officers of the central government for policies and direction of the development of Lusaka City as the capital of Zambia and surrounding areas. The followings are tentative candidate members for the committee.

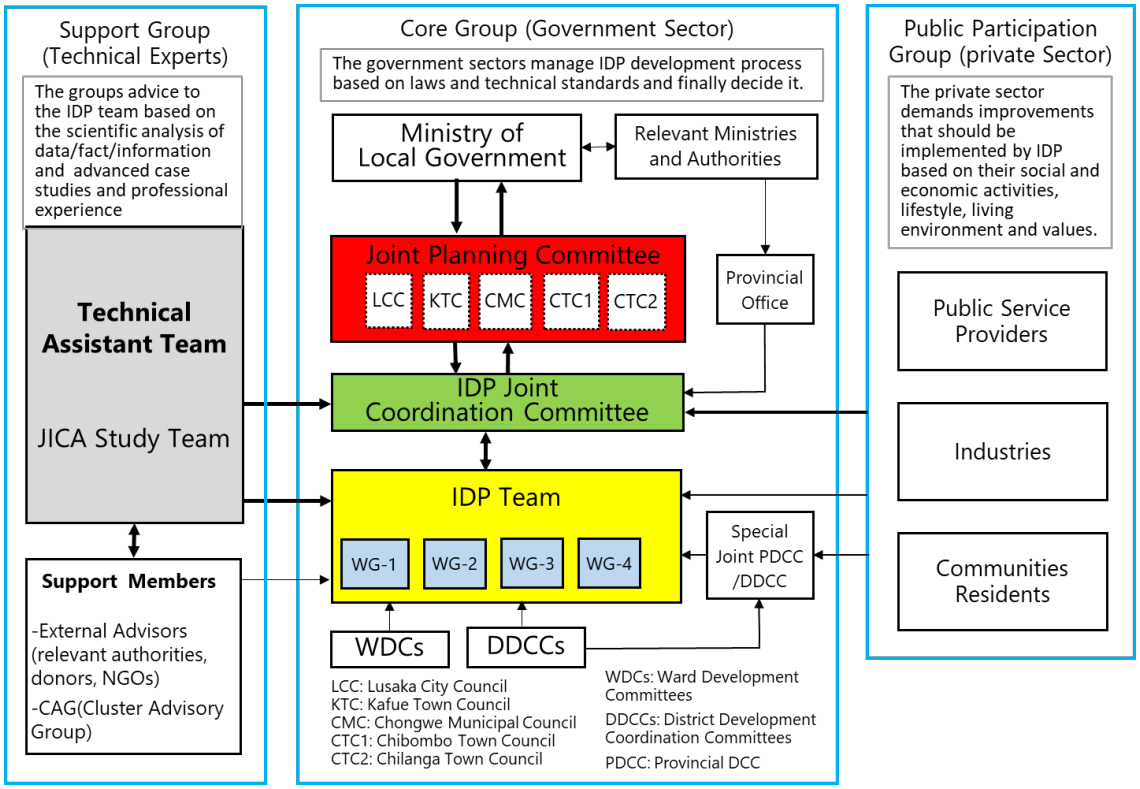
- **Moderator (avoiding a duplicated name of chairperson):** Permanent Secretary from core Ministries (e.g., Ministry of Finance and National Planning or Ministry of Local Government and Rural Development)
- **Members of the committee:** Technical officers at the Director level of relevant ministries and IDP Manager of Councils, Town Clerks/Council Secretaries of relevant Councils, Provincial Planning Officers. Regarding members from relevant ministries, it is proposed to organize two groups by “Core Ministries” and “Ad-hoc Ministries” as follows.
  - Core Ministries as standing members from seven (7) ministries: Ministry of Finance and National Planning (MFNP), Ministry of Local Government and Rural Development (MLGRD), Ministry of Land and Natural Resources (MLNR), Ministry of Water Development and Sanitation (MWDS), Ministry of Transportation and Logistic (MTL), Ministry of Infrastructure, Housing and Urban Development (MIHUD), Ministry of Green Economy and Environment (MGEE)
  - Ad-hoc Ministries for thematic policies by eleven (11) ministries; Ministry of Health (MOH), Ministry of Education (MOE), Ministry of Agriculture (MOA), Ministry of Commerce, Trade, and Industry (MCTI), Ministry of Small, Medium Enterprise Development (MSMED), Ministry of Energy (MOE), Ministry of Tourism (MOT), Ministry of Mines and Minerals Development (MMMD), Ministry of Community Development and Social Services (MCDSS), Ministry of Technology and Science (MTS), Ministry of Youth, Sports and Arts (MYSA)

Joint Province & District Development Coordination Committee as an ad hoc organization utilizing members of each present committee (PDCCs, DDCCs) in Lusaka Province and Central Province is also proposed as an advisory organization. And this ad hoc organization is expected to be a standing committee in the future for development and management in Lusaka City and surrounding areas.

Table 6.4 Candidate Organizations for Implementation Structure for the IDP Formulation in Lusaka City and Surrounding Areas

item	Organization (*1 IDP Guidelines)			Reference (Candidate)
Project Manage-ment	Joint Planning Committee *1 (ad-hoc)		(Planning Management)	Decision-making organization
			Chairperson	Town Clerk (LCC)
	Joint Coordination Committee		(Technical Assistance)	Technical, planning coordination
			Moderator	Permanent Secretary (MFNP or MLGRD)
			Committee members	Directors of Core Ministries and Adhoc Ministries*2
	IDP Manager (IDP operation and management within Councils)			Town Clerk (LCC)
Technical Analyses and Planning	IDP Joint Team*1		Planning officers in the five Councils（Lusaka, Chongwe, Kafue, Chilanga, Chibombo）facilitated by the City Planning Department of LCC and	
	Technical Support Group*1	Inputs to IDP team (data/text/ map)	IDP Support Team (Technical Staff)	Sector technical experts by sector departments within each council
			IDP-Task Team (External Advisors)	Experts officers of Ministries. PPOs, DPOs, Relevant Service Providers
		Technical validation	Joint Province-District DevCC	Standing members (Lusaka and Central Prov)
			DDCC members, WDC members	Standing members of five DDCCs/WDCs
			Cluster Advisory Group (CAG) members for the technical working group	Composing of members from above groups as Working Groups
Technical Assistant Project			Team for Technical Assistances	JICA project team
Participatory Planning	Chief of Customary Land*1			Chibombo, Chongwe, Kafue
	Local communities*1 (WDC can be utilized as a substitute)			NGO, NPO, CBO in communities
	Other stakeholders			Private enterprises, institutions, etc

*Note: *2: Seven Core Ministries = MFNP, MLGRD, MWDS, MIHUD, MTL, MLNR, MGEE, Eleven ad-hoc Ministries by theme = MA, MCTI, MSMED, MOT, MOEn, MMMD, MOEd, MOH, MTS, MCDSS, MYSA*
Source: JST



Source: JST

Figure 6.1 Proposed Implementation Structure for ID Formulation for Lusaka City and Surrounding Areas

(2) Areas for the IDP Planning for Lusaka City and Surrounding Areas

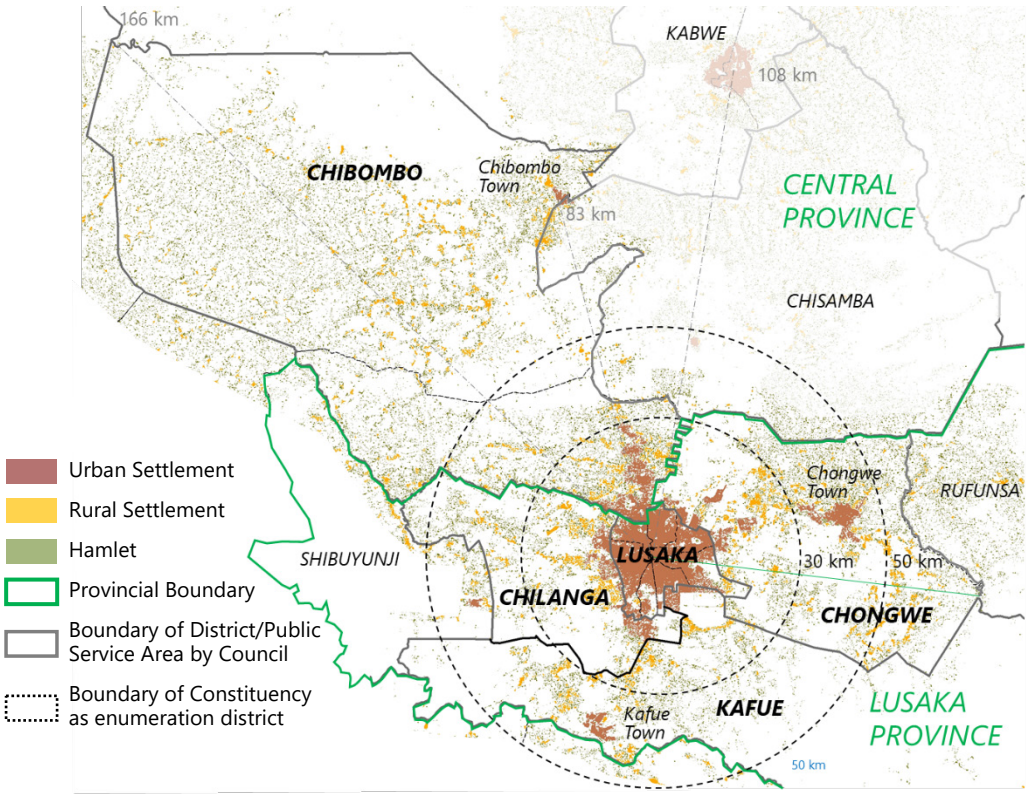
The current urban development trend of Lusaka City and surroundings indicates expansions by built-up areas beyond the boundaries and the expansion of influential areas of economic activities generating frequent movement of peoples and goods between the city and surroundings. In this context, the proposed IDP formulation project needs three levels of planning by 1) the wider area analyses as a "Study Area" to grasp socio-economic relationships between Lusaka City and surroundings and seek positioning of Lusaka City and Surrounding Areas in the wider area, 2) the "Planning Area" for the IDP to be set by required plans stipulated in URPA 2015. These proposed planning ranges of the IDP formulation require further discussion with Zambian counterparts for the agreement.

1) Considerations for setting the study area

Sustainable spatial structure for an economic sphere avoiding single-pole development through multi-polar urbanization for the regional development required by a certain range covering potential satellite centers by Chongwe and Kafue within 50 km radius (Kabwe is considered as outside of the coverage at 108 km from Luska as the capital of the Central Province).

2) Considerations for setting the planning area

Taking account of large jurisdictions of surrounding Councils (Districts) such as Chibombo (8,184 km^2), Kafue (4,630 km^2), Chongwe (2,505 km^2), the study cannot be covered by the desirable depth of analyses and planning outputs with limited inputs and time-frame. Setting an appropriate planning area in case of dividing administrative jurisdictions should be a matter of discussion and agreement through examination of rational influential areas with needs for urbanization or development control based on a population growth trend, density, approved plans, development potentials, and considerable environment to be protected.



Source: JST

Figure 6.2 Existing Map of Lusaka City and Surrounding Councils (Districts)

(3) Schedule of Activities

The overall schedule of activities for the IDP formulation of Lusaka City and Surrounding Areas is proposed to set the project period by 21 months longer than the standard period of an IDP. The schedule of activities for the IDP formulation is set down in consideration with the character of technical assistant projects mainly. The followings are key considerations to propose the schedule.

- **Schedule for components for a technical assistance project** to enhance IDP implementation aiming not only to support the planning activities but also enhance capacity development of relevant counterparts toward the realization of sustainable urban development and effective management.
- **Schedule for obtaining essential primary data** by several surveys with certain terms covering the planning area or the study area such as traffic survey, land use condition survey, and household survey
- **Time-frame for building consensus** with chiefs and local communities (WDCs) due to the wide coverage and large numbers of stakeholders requiring a lot of time for the activities of discussions at remote target areas
- **Timing for the availability of essential data of Population Census 2020** able to obtain at the end of 2022 or beginning of 2023 according to ZAMSTAT as one of the fundamental determinants of IDP formulation.

(4) Planning Target Year

Although the law[1] and the IDP guidelines stipulate a target year for IDP planning by 10 years and five (5) years for a capital investment plan and financial plan, it is proposed to consider additional planning periods for the study area. Table 6.5 shows proposed planning target years, and the followings are additional planning elements with proposed targets and their rationale.

- **Regional setting:** studies necessary to have long-term view fitting with an expected national development plan (e.g., Vision 2040 or 2050) by macro analyses and examination of development scenarios
- **General investment program:** expected programs and projects in the IDP for Lusaka City and surrounding areas may be characterized by the large scale of investments with a longer period beyond the capabilities of Councils in which Capital Investment Plan and Financial Plan are required by five (5) planning targets.

The proposed planning terms by planning outputs are considered by the proposed schedule for the IDP formulation mentioned previously, of which the plan is expected to be terminated and approved in 2024.

Table 6.5 Proposed Planning Target Years

Planning Output		Planning Target Year	
		Period	Term
1. Regional Setting (macro planning)		20 years	2025~2045
2. IDP Planning*1		**10 years**	2025~2035
	2-1 General Investment Program	10 years	2025~2035
	2.2 Capital Investment Plan*1	5 years	2025~2030
	2.3 Financial Plan*1		

*Note: *1 is stipulated in the law[2] and the IDP Guidelines*
Source: JST

[1] Urban and Regional Planning Act 2015

6.2.3 Discussions on Applicability of Statutory Plans to the Planning Area

(1) Conditions of the planning area and statutory plans

As described in Chapter 3, 3.4, the planning for Lusaka City and the surrounding area requires special attention to its spatial conditions and other factors to formulate a statutory plan as follows.

- **Surrounding Areas belonging to two Provinces:** The surrounding areas as influential areas of Lusaka City are covered by several Districts (Councils) which span two Provinces: the Province of Lusaka with three Councils (Districts) of Chongwe, Kafue, and Chilanga, and Central Province with Chibombo Town Council (District) adjacent to Lusaka City. As a Regional Development Plan formulation may be suitable for this case covered by multiple provinces, this condition with two provinces should be considered how to apply an IDP to the target planning area.
- **The request of Technical Cooperation Project:** Lusaka City Council requested the technical cooperation project of JICA for the IDP formulation of the city in 2021. This is one of the fixed conditions as a requirement when the technical cooperation project is examined.
- **Implementability of IDP:** After the formulation of IDP, its implementation in an integrated and effective manner becomes one of the issues, especially in the case of joint IDP planning or regional development planning. As the statutory coordination body for development and management beyond one province has not been realized, the implementation with necessary coordination or integration would become weak.

(2) Two possible options of statutory plans to apply to the target planning area

- **Option 1: IDP for Lusaka City + Development Framework for Surrounding Areas:** This option aims to respond to the request of Lusaka City Council by IDP formulation at least, in consideration with mitigation of the constraints above mentioned. A development framework for the surrounding areas may involve planning elements of spatial structure defining trunk road networks and other major utilities, demarcation of lands for development, and conservation taking into account of carrying capacity of the surrounding areas.
- **Option 2: Joint IDP for Lusaka City and Surrounding Areas:** This option aims to apply a joint IDP formulation covering the target planning area. However, this option involves the issues of two provinces of Lusaka Province and Central Province in the IDP formulation as out of the scope of URPA 2015, while desirable planning measures of the statutory plan would be able to apply the target planning areas.

When the technical cooperation for the IDP formulation is examined practically, those conditions of merit and demerit should be examined and determined through discussion with Zambian counterparts taking account of applicability of the statutory plan.

6.2.4 Discussions on Implementability after Formulation of IDP

The reviews of the progress of LCDUP 2009 identify the issues of lessons of ill-management for implementation of the planned components. The implementability becomes one of the considerable criteria to formulate IDP appropriately and concretize effectively proposed planning components. In general, implementability can be secured or affected by three key factors 1) human and financial resources, 2) legal measures to control or guide and 3) cross-cutting aspect by implementation management. Expected technical cooperation including elements of capacity development should be considered by these aspects to enhance and promote implementability during the project.

6.3 Challenges for Sustainable Road and Transportation Development

In Lusaka City, road development is being promoted sequentially based on the 2009 MP, but road congestion due to an unexpected increase in population and traffic volume has also been affecting economic and social cost losses and an increase in traffic accidents.

Therefore, it is necessary to discuss the following three priority items that promote a drastic shift in the transportation mode.

1) Response to traffic congestion and traffic safety

- Development of public transportation network for conversion from private cars to public transportation
- Development of NMT corridors and transportation hubs
- Effective management of traffic flow using ITC
- Strengthening the road network by improving ring roads and radial roads
- Strengthening measures against traffic accidents by improving intersections and improving sidewalks/bicycle lanes

2) Ensuring consistency with urban structure plans and land use plans

- Review of road network plans to improve mobility in expanding commutable areas
- Introducing public transportation to support access between the suburbs and central area and creating an urban corridor axis to improve services
- Implementation of comprehensive traffic management system in high traffic demand areas in response to the development of existing city centers and new sub-centers
- Development of transportation networks that support decentralization for the four surrounding counties

3) Responding to global issues

- Shift to more efficient transportation modes to reduce carbon dioxide
- Countermeasures for urban traffic vulnerability due to climate change

As shown in Chapter 4, the more specific addressed items that should show the implementation plan/ schedule and process in the IDP are as follows.

4) Organizational Challenges

Institutional weaknesses are the source of many observed failures in urban transport in developing countries. At the municipal level, institutional structures for transport are weak and inadequately staffed. An integrate policies both within the transport sector and between transport and other aspects of urban development are strongly required.

I. Public Transport

The main barriers to a successful implementation of public transport policies are uncoordinated institutional obligations, inadequate organizational capacity, and complex institutional frameworks. For this reason, it is appropriate to give the city of Lusaka, a local government, the authority to plan/manage/regulate public transport.

II. Road Traffic

As the city of Lusaka grows rapidly in size and complexity, the demand for mobility is also growing rapidly. Due to the lack of regulations on road management and operation and the inadequate network of public transport, the city of Lusaka needs to have a short-term organization dedicated to road transport.

III. Integrated Urban Transport Institution

In the medium to long term, it is proposed to establish the Lusaka City Comprehensive Urban Transport Countermeasures Organization as an independent organization to centrally manage the planning/implementation/management of integrated and consistent urban transport.

5) Challenges in CBD

Considering the limitation of road development in the city center, it is necessary to discuss the following items in the urban transportation field of IDP.

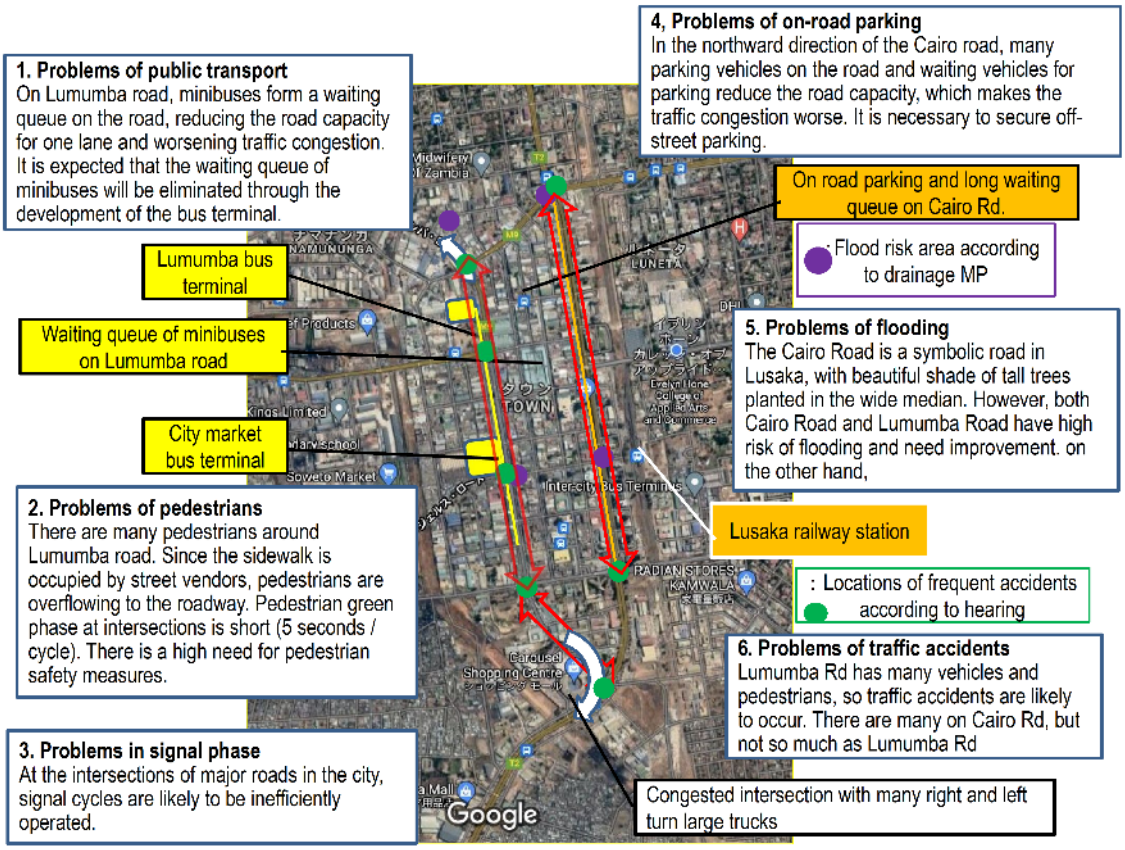
I. Traffic Congestion on Roads

Based on the results of the speed survey, the most serious congestions are on Cairo and Lumumba roads in the city center. Large cargo is prohibited on the Cairo Road, and all of it flows into Lumumba Road, causing heavy congestion. In addition, the importance of Cairo Road and Lumumba Road in the Lusaka urban transportation system can be confirmed in results from other surveys.

II. Multiple Challenges

In the city center (CBD), there are issues such as pedestrian safety measures and flooding measures as well as congestion reduction. The Cairo Road and Lumumba Road can be said to be a triple burden of traffic congestion, accidents, and flooding.

Also, programs for traffic signals are not operating properly to meet demands. Therefore, it is necessary to take comprehensive measures to realize efficient traffic flow by combining bus terminal maintenance and parking measures.



Source: JST

Figure 6.3 Traffic Problems in City Center

III. Inner Ring Road Phase 2

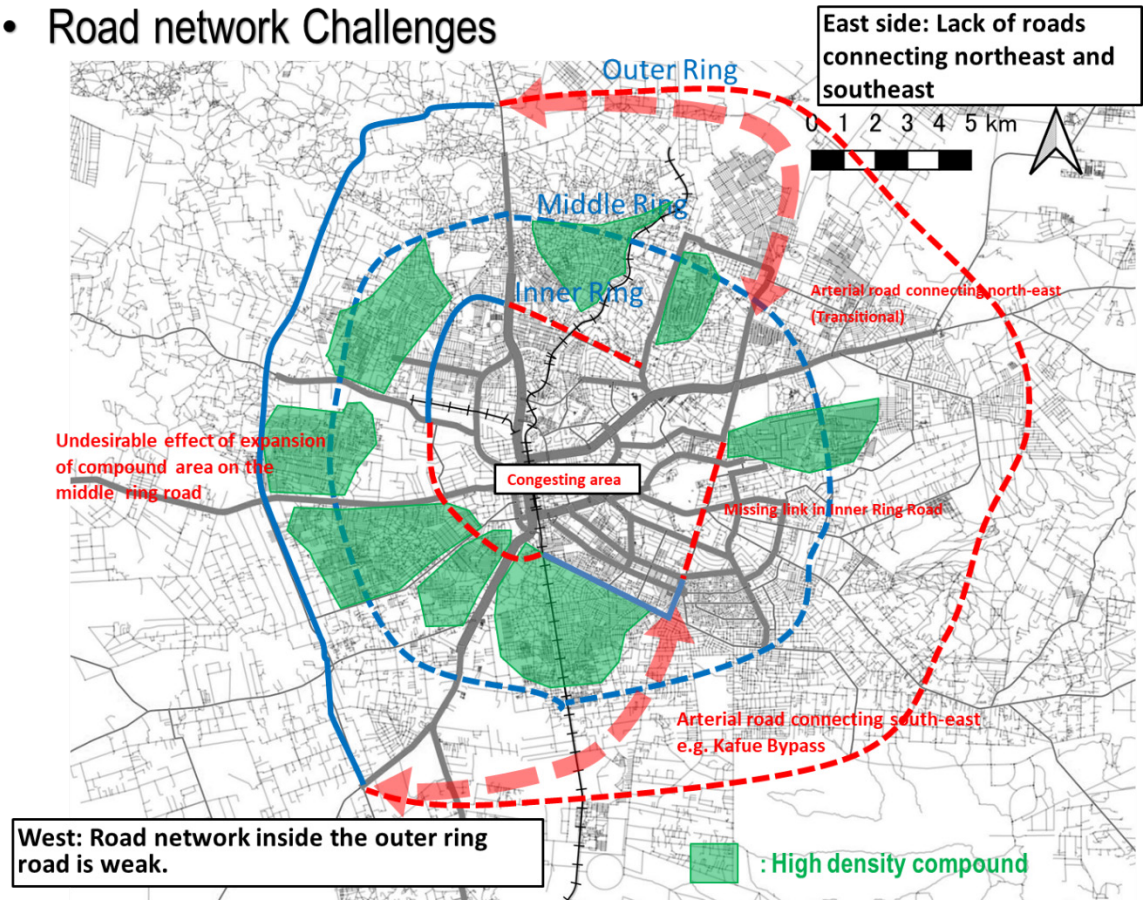
Inner Ring Road Phase 2 section is located through the compound and requires a large-scale relocation of residents. The middle ring road also needs to pass through some compounds, and although the number of affected houses is different, it can be said that early project implementation is difficult. Therefore, as an alternative, improvement of the function of the Lumumba road is proposed. However, since the inner/middle ring road is an important framework of the urban road network, it is necessary to continue to leave it as a planned route.

6) Road Network Challenges

New road development in the city center will cost a lot of money and time. On the other hand, it is still necessary to connect missing links in the surrounding area, construct small-scale Bypass, and develop continuous NMT facilities such as sidewalks and bicycle lanes.

I. Inefficient Road Network

In Lusaka City, road development is being promoted in sequence based on the proposal for road network development by JICA MP. However, as with the inner/middle ring road, there are issues of relocation of residents, budget problems, and a rapid increase in road traffic demand that exceeds the expectations outlined in the MP, so efficient network formation is insufficient. Therefore, it is necessary to plan an efficient road network in the short/medium term.



Source: JST

Figure 6.4 Road Network Challenges

II. NMT Network

More than 60% of the means of transportation in Lusaka is walking (including public transport users), but about 75% of the road network lacks sidewalks, prompting pedestrians and cars to share space. At the same time, there is a shortage of facilities for bicycles and other forms of non-NMT. In an urban environment where pedestrian traffic is dominant, this is an issue that needs improvement.

III. Insufficient Road Facilities

In Lusaka City, there are no additional lanes for turning left and right at some intersections (insufficient road design), and proper signal systems that reflect demand. Lighting facilities are installed only at limited parts of the road network. Thus, proper street lights in residential areas are necessary to ensure safety and security.

6.4 Challenges for Safe Hygiene and Sustainable Water Sector Development

The greatest features of Lusaka City and its Surrounding areas are as follows.

- The population within the area in 2035 will be almost double (about 5 million) from 2020.
- Lusaka City and surrounding areas Area will extend over five districts in two provinces.

- Four areas contacting with Lusaka District are far from the center of each district.

Therefore, it is expected that the number of services such as water supply, sewerage treatment, waste treatment will increase. Method of supply and treatment and the main management body of them should be discussed and studied at the time of Lusaka City and surrounding areas IDP development mainly.

According to Zambia Population and Demographic Projection 2011-2035, the predictive population in 2030 in the planning area of the Lusaka City and surrounding areas which consists of the whole area of Lusaka District and part of Kafue, Chongwe, and Chilanga District in Lusaka Province and part of Chibombo District in Central Province is about 5 million.

Table 6.6 Population Prediction of Grater Lusaka(Year 2020 – Year 2035)

Province / District		Year 2020	Year 2025	Year 2030	Year 2035
Lusaka Province	Urban Population	2,895,809	3,461,805	4,069,500	4,722,700
	Rural Population	464,374	542,471	634,635	743,075
	Total of Province	3,360,183	4,004,276	4,704,135	5,465,775
	Lusaka District	2,731,696	3,285,329	3,893,102	4,560,560
	Kafue District	335,583	391,914	451,143	513,572
	Chongwe District	262,408	294,268	325,194	355,313
	Chilanga District	–	–	–	–
Chibombo District		390,366	437,516	488,951	545,279

Source : Zambia Central Statistical Office – Zambia Population and Demographic Projections, 2011-2035

Issues on water, sewerage, waste and infectious diseases are as follows. These should be confirmed, discussed, and considered at the time of the study.

6.4.1 Water and Sanitation

LWSC conducts a business of water supply and sewerage in all districts of Lusaka Province and Lukanga WSC conducts the same business in Central Province.

- **Conservation and Secure of Water Resources**

Resources of water supplied to the planning area are surface water from the Kafue River and groundwater spreading under the Lusaka plateau. Groundwater as a resource of water supply in the area will be very important even in the future.

- Study on amount and quality of groundwater by the collection of existing information and data (topology and geological feature, hydrology, land use, etc.), investigation of existing wells, geophysical exploration (electric exploration, seismic exploration), boring survey, and groundwater flow investigation
- Study on the promotion of rainwater penetration to underground by control of urbanization and promotion of greening
- Study on the use of high water permeable and retentive concrete and/or asphalt to promote penetration and storage of rainwater to underground

- **Water supply**

The daily average volume (about 200,500 m^3/day) of water produced by LWSC in 2019 was about less than half of the quantity of demand (about 420,000 m^3/day) of the Lusaka District. Moreover, the measured daily average consumption volume (about 90,000 m^3/day) was about 45% of the production volume.

Table 6.7 Demand, Production, and Consumption of Daily Average Water Volume of Lusaka District (the Year 2019)

Item	Daily Average (m3/day)		
	Demand*1	Production*1	Consumption*2
		②	③

Volume	418,555.00	200,549.29	90,152.33
%		47.91 ②/①	44.95 ③/②

*Source : *1 - LWSC Annual Report and Financial Management Statement 2019*
**2 - LWSC Commercial Services*

To improve these present situations, the following should be implemented.

- Hearing and confirmation on the present situation of water supply facility development plans that were planned by the Chinese company and JICA
- Study on the increase of volume of production and supply of water by a steady implementation (construction) of the existing planned projects (China and Japan)
- Study on water supply area and estimation of the population using surface water and groundwater
- Improvement of non-revenue water rate to increase water sales revenue and improve business budget of LWSC
- Increase of registrants, promotion of water meter installation, and change of water fee system

- **Sewer system**

The sewage treatment system in Lusaka City and surrounding areas is off-site and on-site. The volume of sewage discharged and treated in the future will be increased due to the increase in population in the area. Targets of "Attainment of 90% access to sanitation to all by 2030" and "Rehabilitation, reconstruction of sewage treatment facilities in all major towns and cities" were set in Vision 2030, and "To achieve access to improved sanitation for 100% of the population in the Lusaka Province by 2035 by extending the existing sewer network to serve 50% of the population and the remainder of the population will be served by improved on-site sanitation system" was also set in Lusaka Sanitation Investment Master Plan. To achieve and/or approach these targets, the following should be discussed and studied.

- Study on upgrade and expansion of existing sewer collection system based on population and land use in the future
- Study on upgrade and expansion of existing sewage treatment plants for wastewater volume in the future
- Study on the promotion of introduction of sewage on-site treatment systems such as improvement of existing pit latrines and new construction of improved toilets
- Discussion and study on management (operation and maintenance) of the sewage treatment system with two provinces (which province will be responsible for the management of the system?)

- **Drainage system**

Several parts of Lusaka City and the surrounding area have been flooded and/or submerged several times every year in the rainy season due to the very poor development of the rainwater drainage system in the area. This disturbs economic activities in the area and causes deterioration of the hygiene environment of people.

Therefore, the following study should be needed to reduce such damages.

- Study on a drainage plan (type and size of roadside ditches and main drains) based on the land use and the road network in future in the catchment basin of Kanyama, John Laing, Makeni
- Checking of existing main drains in the catchment basins other than above-mentioned basin and study on improvement of the drains
- Study on main drains and rivers in areas around Lusaka City and surrounding areas

6.4.2 Solid Waste

The volume of solid waste disposed and collected from Lusaka City and surrounding areas area (whole area of Lusaka and a part of other three districts) will be increased due to the increase of population in the planning area in the future. Therefore, the following should be discussed and studied.

- Discussion and study on the possibility of establishment of an association for the wide-area (whole area of four districts or limited area of the districts) disposal management (collection, transport, and disposal) of solid waste, and location of an intermediate treatment facility and a final disposal site of the waste
- Study on and estimation of the volume of solid waste discharged and volume of the waste reduced by 3R activities and on implementation of a pilot project for estimation of the volume of waste discharged and reduced
- Discussion and study on the necessity of the joint use of a new waste disposal site and a new intermediate treatment facility

The table below shows the comparison of the main management body of solid waste, its activities, and a facility location assumed.

Table 6.8 Main Management Body and Its Activities for Solid Waste

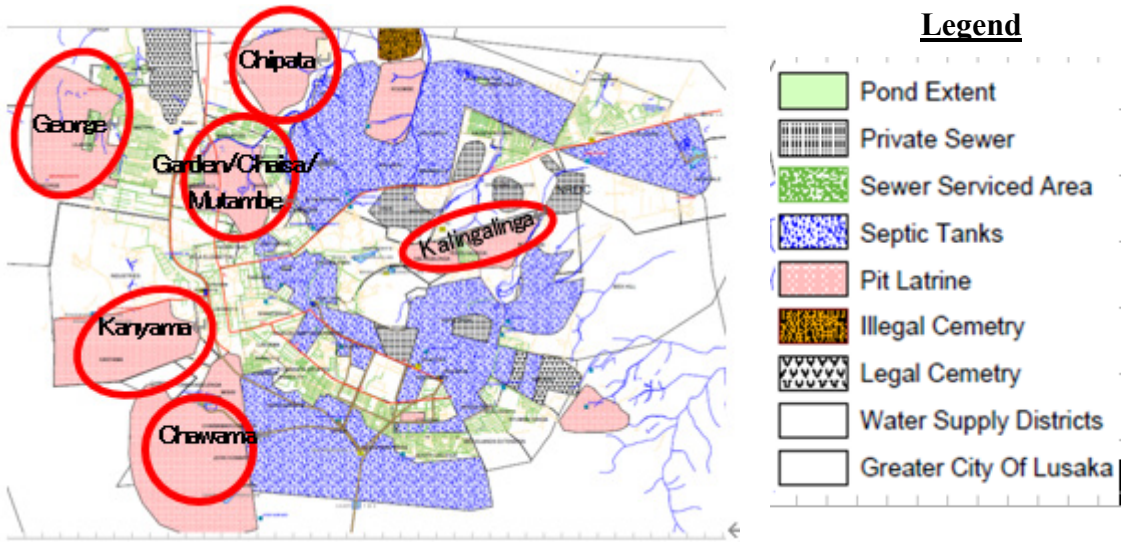
Main Body of Management	Collection / Transportation	Management of Facilities	Location of Facilities
Managed by each municipality	Each municipality	Each municipality	Within an area of each municipality
Managed by an association for whole 4 districts management	Each municipality or an association for wide-area management	An association for wide-area management	Within the jurisdiction of an association for wide-area management(the most adequate place in 4 districts)
Managed by an association for limited area management	Each municipality or an association for limited area management	an association for limited area management	Within the jurisdiction of an association for limited area management(Lusaka district)

Source: JICA Team

- Discussion and study on the closing of an existing Chunga Dumpsite and planning of usage of the former dumping site

6.4.3 Urban Hygiene

A large outbreak of cholera has occurred in Zambia regularly. About 5,400 people were infected with cholera in Lusaka District in one year from 2017 through 2018. Cholera occurred mainly in the unplanned area where a pit latrine and a shallow well are mainly used.



Source: Prepared by JICA Team based on data from LWSC and JICA Mission for Cholera Outbreak in Lusaka, 2017-2018

Figure 6.5 Type of Toilet and Cholera Outbreak

Night soil in pit latrines seeps into the ground and contaminates groundwater. It is thought that people consumed this water and got infected with cholera. Residents living in unplanned areas discharge garbage illegally, which in turn flows into a roadside ditch and disturbs the flow of water, contaminating it and making it a hospitable environment for malaria-borne mosquitoes.

To control and eradicate the outbreak of malaria, the following should be studied.

- Study on improvement of an existing pit latrine and construction of an improved one to reduce the number of the outbreak of infectious diseases such as cholera, and study on the support (technical and financial) system to introduce an improved pit latrine
- Study on education and public awareness campaign for children and residents for reduction and adequate treatment of waste and implementation of a pilot project

6.5 Considerations for Environmental Assessment

6.5.1 Outline of Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is a comprehensive method to analyze and evaluate the impacts in the large-scale project, the program that covers several large-scale projects and in the development of policy. The ultimate goal of the SEA is to avoid or minimize negative impacts from the early stage of project planning. The importance of introducing SEA is recognized in JICA's Environmental Guidelines.

6.5.2 Implementation and procedures of SEA in Zambia

In Zambia, detailed regal grounds for SEA have not been developed until Environmental Management (Strategic Environmental Assessment) Regulations, 2021(SEA Regulations) has been approved in May 2021. Before the approval, there was only a limited case of implementing SEA in the country. It is expected that based on the SEA Regulations, Policy, Plan, or Program (PPP) that may cause environmental and social impact will be evaluated and modified to avoid or minimize those impacts.

SEA procedures follow similar steps as EIA, such as application to ZEMA, the decision of ToR by ZEMA, public hearing on scoping and draft assessment results, approval, and registration of PPP.

(1) Gap analysis

Table 6.9 presents the results of a comparison between JICA Environmental Guidelines (JICA GL) and Zambian SEA regulation. There are no significant gaps to be filled, but some differences were found those better be considered in process of discussions and preparing SEA-related documents.

Table 6.9 Gap analysis between JICA guidelines and Zambian Regulations

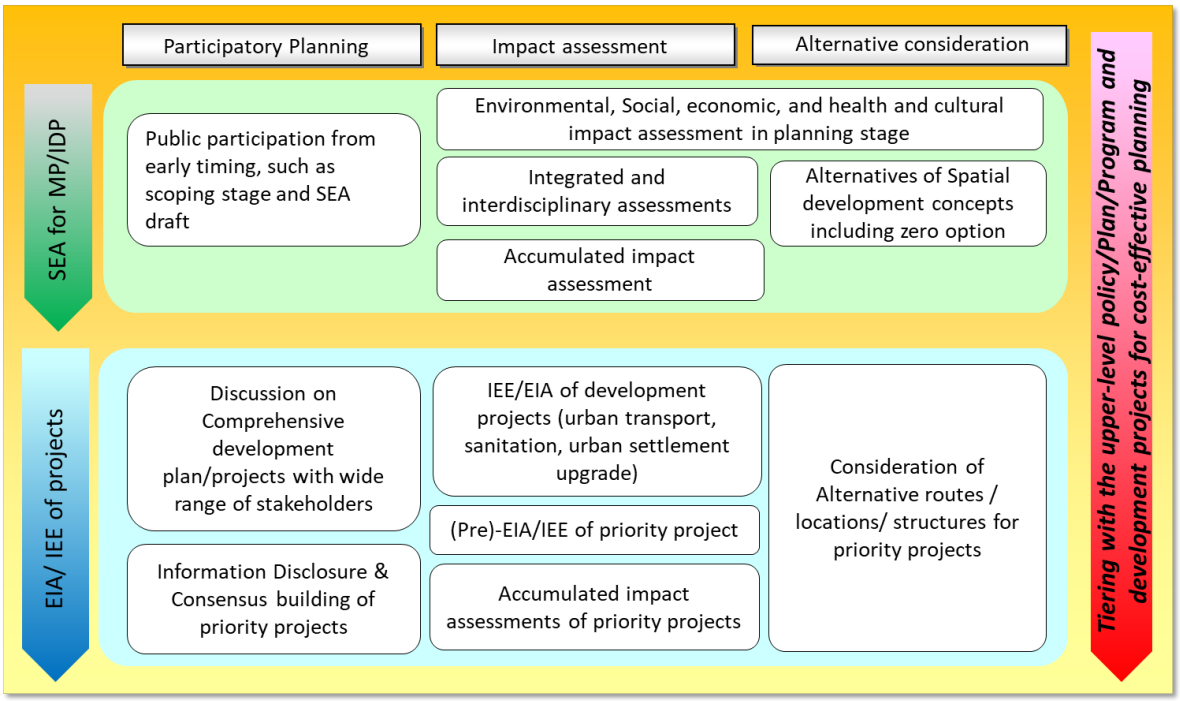
JICA Environmental Guidelines	Zambian Regulations	Gap
Stakeholder Engagement		
- Citizens in the project area, representatives, PAPs, local leaders, and central & local govt. - The mode of consultation can be public meetings, interviews, information dissemination, public comments	- Involvement of relevant ministries, govt agencies, local authority, traditional authority, public, civil society and private sector, academia, and research institutions are defined.	No major gap was observed.
Impact Assessment		
- JICA projects usually look at impacts and feasibility from environmental, social, economic, and technical aspects.	- The regulations assess more aspects: environmental, social, economic, health, and cultural aspects of PPP (Section 5)	It is recommended to Follow Zambian law as it covers a wide assessment target
Cumulative Impact		
- JICA GL does not specify the method of cumulative impact assessment.	- Same as JICA GL	No major gap was observed.
Alternative considerations		
- JICA projects always Include the no-project option. Additionally, in JICA	- Zambian SEZ Law does not mention "no project option" or "zero option" (Section 2).	No major gap was observed.

JICA Environmental Guidelines	Zambian Regulations	Gap
projects, the use of Multicriteria Analysis (MCA) is preferred.		
Tiering with the upper PPPs		
JICA usually secures consistency and coherence between plans (e.g. M/P) and projects (e.g. pre-F/S, F/S, B/D, and D/D) by conducting the JICA program based on the previous studies.	- The regulations require to ensure consistency and coherence, in the development and implementation of a PPP (Section 4 (k).	No major gap was observed.

Source : SEA Regulations of Zambia (2021) & JICA Guidelines for Environmental and Social Considerations (2010)

(2) SEA preparation as a part of MP/IDP development

The process of conducting SEA and EIA in MP/IDP development is summarized in Figure 6.6. Since the formulation of IDPs and urban MPs are subject to SEA, it is necessary to conduct SEA following the procedures outlined in the SEA Regulations. In the process of assessments, it is desirable to conduct impact assessments in line with both JICAGL and Zambia's SEA Regulations. In addition, it is highly likely that the EIA Regulations for project implementation assessment, which are currently under review, will be revised when the MP is formulated. Therefore, it is necessary to check the latest EIA Regulations when formulating plans for individual projects and then consider the following contents.



Source : SEA Regulations of Zambia (2021) & JICA Guidelines for Environmental and Social Considerations (2010)

Figure 6.6 SEA and EIA procedures in the development of MP/IDP

6.6 Considerations for Capacity Development on Urban Planning and Development

Management

For urban growth management administration that has led to undesirable urban sprawl, as learned after 2009MP, it is indispensable to strengthen its management capacity or create an effective mechanism. The issues in planning and strengthening the development management capacity of related local governments including Lusaka City Council (LCC) can be summarized below.

6.6.1 Approaches on the capacity development

- **Strategic approach considering the self-sustaining capacity development:** Efforts are required to continuously strengthen practical abilities and skills, by building a cooperative mechanism taking advantage of the experts handling with various experiences in complex urban planning and management issues in the LCC such as mutual dispatch system to strengthen the abilities of local government experts in the metropolitan area through the practical work jointly.
- **Practical methods for skills and planning and management technology:** During the formulation of the IDP and the Local Area Model Plan, capacity development can be taken mainly by "On the Job Training (OJT) method" through practical works on them such as periodical workshops on issue solution, collaborative works for outputs, tech-lectures on contemporary urban planning and measures to address current urban development and management issues in Lusaka.
- **The comprehensiveness of planning and coordination/coordination capabilities:** Toward successful IDP formulation depending on the well-organized activities, coordination, and cooperation of planning works and planning techniques to make the best solution addressing development issues need to be enhanced.

6.6.2 Focused challenges in the capacity development program

1) Supporting rational planning formulation and practical decision-making with ICT

- **Establishing urban information management system centered on GIS:** In line with the e-Government Master Plan, the ICT system in the City planning Department of LCC should be enhanced to establish an interactive urban information platform rather than standalone units (e.g. GIS unit, e-permission unit) to share among experts for urban planning and management.
- **Disseminating and sharing urban information with the public:** Urban information would play multiple roles not only in the basis of urban planning and management but also in the encouragement of citizens' understandings and participation in urban development and management. The interactive Urban Dashboard could feature city profiles, urban planning indicators, geospatial data, and project information, adding secure access to indicators related to sustainable urban development.

2) Strengthening institutional capacity to manage and guide sustainable urban development

- **Strengthening practical management through Local Area Plan application:** Taking account of the biding powers of a statutory local area plan, its application to actual areas may require a lot of planning challenges to adjust measures to control and guide various types of development toward the desirable achievement of development. This process with lessons learned could be useful to formulate applicable "Guidelines" for Local Area Planning to other areas contributing to the enhancement of institutional capacity in Zambia.
- **Development management without a plan area plan:** After formulating an IDP plan, binding the Local Area Plan over the entire administrative control area will take a lot of time or financial resources to be achieved. Considering the current financial status of the local governments, it is still an urgent issue to consider the adaptation of binding development power with effective means in the area without any Local Area Plan. It is important to strengthen the institutional capacity for development control and management such as the local government ordinances as specific control tools.