MINISTRY OF LOCAL GOVERNMENT AND HOUSING (MLGH)
LUSAKA CITY COUNCIL (LCC)
JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

THE STUDY ON COMPREHENSIVE URBAN DEVELOPMENT PLAN FOR THE CITY OF LUSAKA IN THE REPUBLIC OF ZAMBIA

FINAL REPORT

VOLUME I

COMPREHENSIVE URBAN DEVELOPMENT PLAN

MARCH 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

KRI INTERNATIONAL CORP.
NIPPON KOEI CO., LTD.
JAPAN ENGINEERING CONSULTANTS CO., LTD.

EXCHANGE RATE

USD 1 = ZMK 3,582 = JPY 106.53

ZMK: Average rate of Bank of Zambia, from January 2008 to October 2008
JPY: Average rate of JICA rate, from January 2008 to October 2008

PREFACE

In response to a request from the Government of the Republic of Zambia, the Government of Japan decided to conduct the "Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia" and entrusted it to the Japan International Cooperation Agency (JICA).

JICA selected a study team consisting of the Joint Venture (JV) of KRI International Corp., Nippon Koei Co., Ltd., and Japan Engineering Consultants Co., Ltd. The team, headed by Mr. Isamu Asakura of the KRI International Corp., was dispatched to Zambia during the period from August 2007 and March 2009.

The team conducted field surveys and formulated the comprehensive urban master plan of Greater Lusaka based on the consensus built in a series of discussions with concerned officials of the Government of the Republic of Zambia, donor community members, citizens, and other stakeholders through workshops, seminars, and exhibitions. This final report was prepared based on the result of the intensive analyses of all the data and information obtained in the study, and offers a set of recommendations for the comprehensive improvement of Greater Lusaka.

I hope this report will contribute to the prosperity of the City of Lusaka as the capital city of the Republic of Zambia and towards becoming the focal city among cities in southern Africa. I also hope that the cordial relationship between our two countries has been strengthened by this collaborative study.

Finally, I wish to express my sincere appreciation to the concerned officials of the Government of the Republic of Zambia for the close cooperation they have extended to the Study.

March 2009

Eiji Hashimoto,

Vice-President

Japan International Cooperation Agency

March 2009

Mr. Eiji Hashimoto,
Vice-President
Japan International Cooperation Agency

Dear Mr. Hashimoto,

Letter of Transmittal

We are pleased to submit herewith the Final Report of the "Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia".

The Study was carried out by the JV of KRI International Corp., Nippon Koei Co., Ltd, and Japan Engineering Consultants Co., Ltd under the contract with your Agency for the twenty-month period from August 2007 to March 2009.

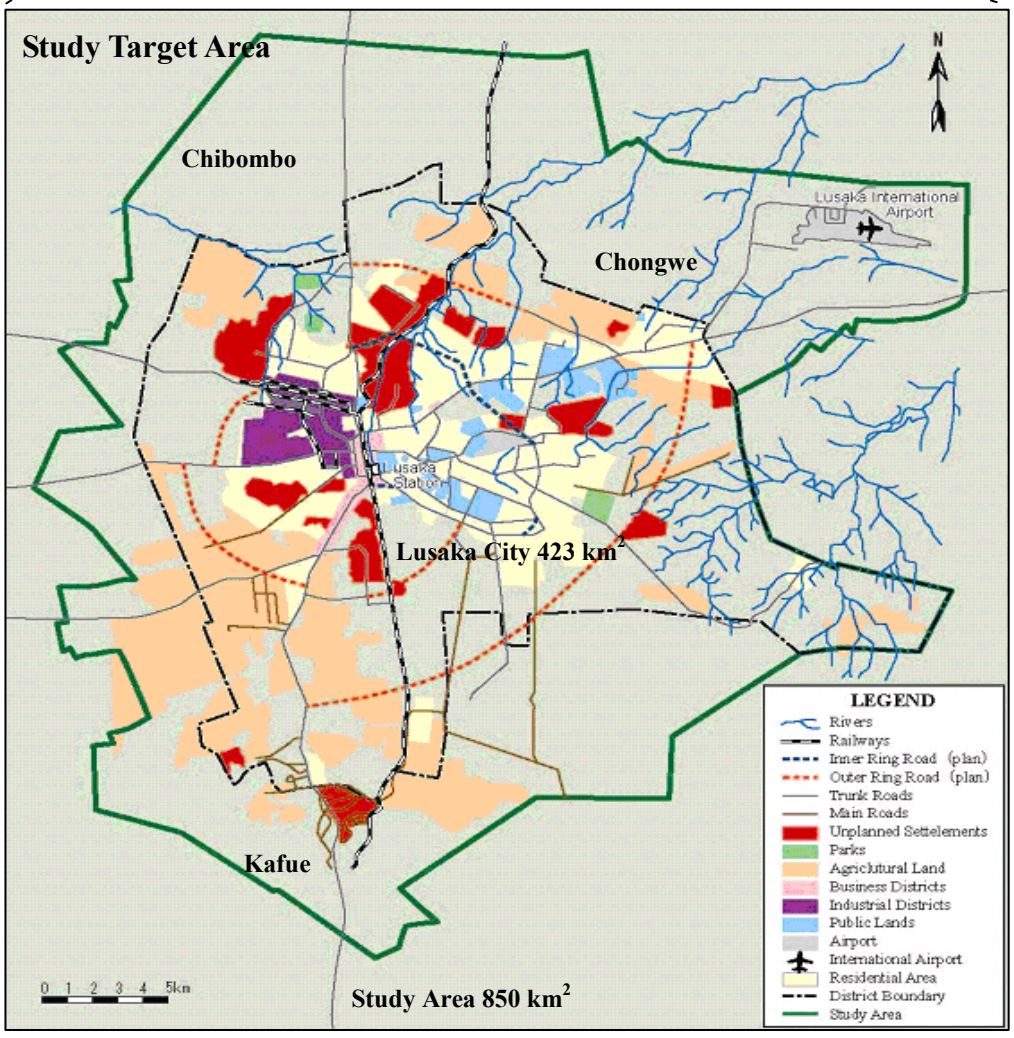
The Study aimed at the formulation of a comprehensive urban development master plan of Greater Lusaka and master plans of sub-programs for urban transport development, water supply and sewerage development, and living environment improvement. The Study carefully endeavoured information dissemination and consensus building by participatory method with regards to the content of the master plan, result of the pre-feasibility study, social and environmental considerations, etc. by means of series of seminars, workshops, and exhibitions. The workshop initiated by Honourable Vice President of Zambia, Honourable Ministers, and other higher dignitaries from Lusaka City, Chibombo, Chongwe, and Kafue districts, was held through the leadership of the Ministry of Local Government and Housing (MLGH) at the final stage of the Study. It was recognized in the workshop that the master plan should be realized as soon as possible through the undertaking of the Government of Zambia in cooperation with the stakeholders.

The Final Report is a fruit of the continuous efforts of all stakeholders for this Study. We wish to take this opportunity to express our sincere gratitude to your Agency, the Embassy of Japan, the MLGH, Lusaka City Council, Chongwe District Council, Chibombo District Council, Kafue District Council, and others concerned in the Republic of Zambia for their valuable support provided to the Study.

Finally, we genuinely wish that the master plan will be realized towards the development of the Greater Lusaka, and that the friendly relationship between Zambia and Japan will continue.

Yours very sincerely,

Isamu Asakura
Team Leader
The Study on Comprehensive Urban Development Plan
for the City of Lusaka in the Republic of Zambia



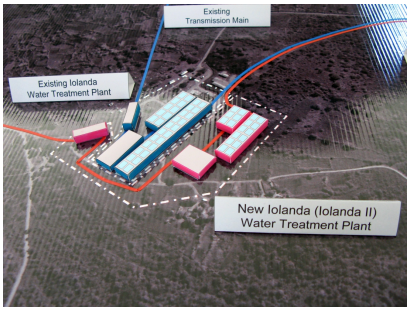
LOCATION MAP

PHOTO

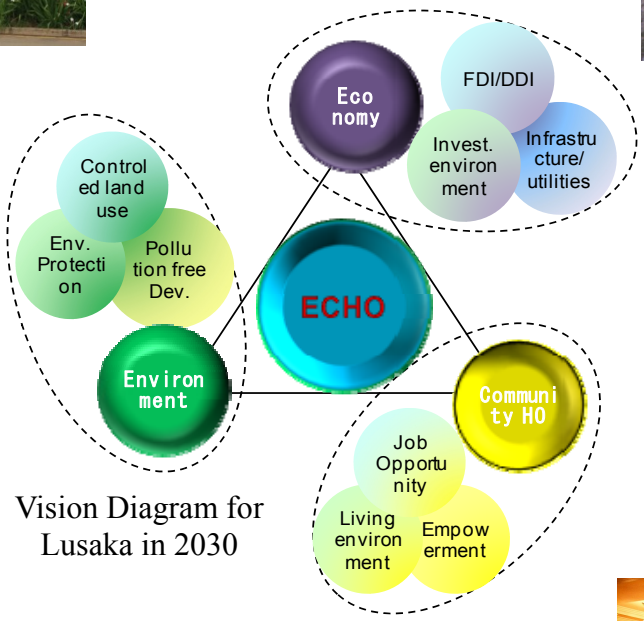
Land Use Plan of Lusaka City in 2030

Industrial Development by FDI/DDI

Plan for Water Supply System Project



Improvement of Road Network



Vision Diagram for Lusaka in 2030

Exhibition of Master Plan to the Public

Green Network Development

Workshop for the Vice President and Ministers

Seminars for Stakeholders

Conclusion and Recommendation

0. Background of the Study

Zambian economy is exhibiting vital expansion in line with its increasing FDI and DDI in the manufacturing, construction and agricultural sectors, however, the urban poor benefiting from the economic growth is still limited. Meanwhile, Lusaka population has increased drastically and about 600,000 persons increased within 20 years had sprawled in Lusaka urban area, expanding the unplanned urban settlement (UUS).

Under such circumstances, the Government of the Republic of Zambia (GRZ) requested the technical cooperation for the study on the comprehensive urban development plan. In response to a request, the Government of Japan decided to undertake the study in line with the same spirit of another technical cooperation project, called the Triangle of Hope, Strategic Action Initiative for Economic Development (ToH SAIED) project (from July 2006 to March 2009). The purpose of ToH is to facilitate the creation of a conducive environment for both domestic and foreign investment. It is necessary to make Lusaka more attractive as the capital of Zambia to achieve these purposes.

1. Development Challenge and Vision

Taking into account the issues of Lusaka, the development challenge towards 2030 are i) promotion of industrial development and job opportunity creation for the urban poor, ii) environmentally sustainable & well controlled urban growth/development, and iii) full service of urban infrastructure and social facilities for both formal and informal settlements.

In case the challenges are achieved, the vision of Greater Lusaka development can be described as ECHO Garden City with "stimulating Economically strong development and the Environment friendly, to attain the Community Hope and Opportunity, by providing a world class and competitive business and living environment by the year 2030.

2. Development Approach

Necessary development approach to realize the comprehensive urban development through the envisaged challenges will be i) Industrial development /capacity empowerment of local manpower, ii) appropriate spatial development and land use control, iii) urban center development, iv) urban transportation development, v) living environment improvement for housing, local road, utility service, social service, etc., vi) natural environment protection/ green network development, and vii) utility and social service development.

3 Development Framework

Population of Greater Lusaka was approximately 1.45 million in 2007 and planned population of Greater Lusaka is set as 2.9 million for the year 2030, which is twofold of the current number.

Lusaka GDP in 2005 is estimated to be about ZMK 1,527 billion in real term. Given the conservative national goal of economic growth, JICA Study Team (JST) forecasted GDP increase of 6.2 % between 2005 and 2015, 7.1 % between 2016 and 2020, 8.2 % between 2021 and 2030. This growth path would make it for Lusaka to achieve GDP of ZMK 8.6 trillion in 2030, which is six times more of GDP in 2005 in real term.

In line with the economic growth, the employment structure will be improved accordingly. Formal sector employment will increase gradually until 2015 and sharply improve to 60% in 2030 from the current 40%, due to formal industrial development initiated by FDI/DDI.

4. Development Strategy

Strategy for Urban Development of Lusaka

For the study of spatial development of Greater Lusaka, three tactical ideas are possibly conceived in order to accommodate effectively and efficiently, the expected population increase and economic development in well-organized development manner.

- New Urban Expansion: by satellite town formulation in urban fringe areas, in combination with linkage development with existing urban area
- Upgrading Existing City: by strong urban growth management for compact city formulation with intensive development in the interior area
- New Capital Development: by decentralization of the capital such as the development of twin city or new capital city in remote area

JST concluded that the alternative, new urban expansion concept, is the most appropriate considering the effectiveness for supporting the economic growth, effective and efficient absorption of rapidly increasing population, equal benefit to adjoining districts, etc.

The following principle is proposed for Lusaka City and satellite city spatial development.

(Inner City area: Lusaka City territory)

- Well controlled dense settlement
- Efficient land use with adequate density distribution
- Controlled urban growth by urbanization promotion area (within outer ring)

(Satellite Cities: adjoining three district territory)

- Self-sustain cities with dense settlement
- Planned settlement with adequate infrastructure

Regional Development Direction and Greater Lusaka

Since Lusaka City is expanding to the adjacent Districts of Kafue and Chongwe in Lusaka Province and Chibombo in the Central Province, the integrated development with Lusaka City and three adjacent districts is the most important. Three districts located in the node of the country and Southern African countries has been highlighted recently as one of the potential areas crossing four economic development corridors in Southern African Development Community (SADC) economic region, and will largely benefit from the socio-economic development by utilizing the economic corridors, natural resources and potential land for agriculture development spreading out in the districts.

Strategy for Industrial Development of Lusaka

Lusaka is geographically endowed with proximity requirements such as markets, customers, suppliers, competitors, supporting industries and government, and exhibits potentials in achieving a dynamic economic development in the region. Considering Vision 2030 “Zambia as the middle income country by the year 2030”, Lusaka will no longer be a mere capital city, but rather mandated to take the lead in the future regional economy.

The capital city would firstly require strengthening of its urban economic structure through industrialization, by attracting FDI/DDI and then shift to high level urban economy and society in harmonization with regional globalization.

Three vital fields, namely i) agribusiness and agro-industry including urban agriculture, ii) manufacturing industry, iii) international trade and distribution services, will contribute in strengthening the industry in Lusaka. Accordingly, Lusaka would promote the development of those industrialization fields.

Governmental intervention is necessary for the upgrading of investment environment and manpower empowerment for FDI promotion as well as support for nurturing SME and micro business. Informal sector, which is primary composed of presently available

workers in Lusaka, should be paid due attention. Public support on finance arrangement, capacity empowerment for business management, market promotion, and technical renovation is necessary for the informal sector. Moreover, job training and recruitment system supported by the public will be effective for searching employment for the currently self-employed.

5. Development Plan of Lusaka

Comprehensive urban development plan of Greater Lusaka composes by the sector plans encompassing spatial development and land use control, urban transportation improvement, sustainable environment preservation, improvement of living environment, upgrading of infrastructure and social services and proposes the capacity development plan and priority projects/programs for realization of the sector plans.

Spatial Development (Land Use Plan)

The land use plan for Greater Lusaka is formulated according to target population and employment towards 2030. It is anticipated that gradual dense residential development and effective foundation for economic development, led by industrial zones and competitive urban center development, are fundamental elements for the land use plan, while vulnerable water system with greenery network will be protected and formulated.

Four satellite cities will be established in medium and long terms in adjacent areas covered by Chibombo, Chongwe and Kafue Districts, in conjunction with industrial zones' development within the sphere of the proposed Outer Ring road. Peri-urban agricultural land will be retained and improved for both food production and environmental buffer green of garden city development.

Urban Growth Management

Urban growth management will be achieved through effective urban growth control and intensive infrastructure provision in the guided Urban Development Promotion Area by appropriate administration against inadequate urban sprawl, while other area will be strictly controlled.

Density formulation of Greater Lusaka development for the future will be a fundamental tool in maximizing efficient land utilization in urban areas guiding the private sector development, given by economic development incentives. Gradual densification will be set from the center to outer area of Greater Lusaka area by land use control measure in combination of floor area ratio (FAR) and building coverage ratio (BCR).

Urban Center Development

The urban center of the Capital of Zambia will play essential role in Zambia growth center development and serving commercial and inter-regional and international business activities in competitive manner.

Lusaka CBD will be formulated by dual core development connected by public transportation system and pedestrian network where a financial business center will be strengthen as in the existing business and commercial center while another new urban center will be established in Lusaka City Airport area for commercial-shopping tourist center development.

Government center will be also enhanced in association with knowledge center development with advanced technology and IT infrastructure provision utilizing higher education resources and facilities. Livable living places in CBD area will be also re-organized by densification of residential area as mixed use development including urban renewal.

Industrial development serving as the lead role in economic development in Greater Lusaka will achieve the development vision through the effective and efficient provision

of industrial infrastructure in connection with the national industrialization project of MFEZ.

Urban Transportation Development

Urban transportation network should be developed as essential infrastructure to attract economic/industrial investments and realize the orderly urban land use. Namely the challenges of the transportation sector are to provide smooth access to job opportunities and other urban activities especially for low-income communities, by improving the main roads and public transport system. The future road network will consist of three ring roads, 12 radial roads, and seven other major roads. Renovation of bus system for the modal shift from car to public transport will be necessary in 2030.

Priority projects and programs to be implemented in the short term are proposed to include i) inner ring road development, ii) LS-MFEZ access road development, iii) city roads decongestion by improvement of minor roads, intersections, and missing link connection, iv) comprehensive traffic management, etc.

Living Environment Improvement

Living environment improvement in UUS should be given high priority considering fundamental issues of UUS where majority of living areas lack infrastructure and urban services for securing basic human needs (BHN).

BHN and acceptable living environment will be provided in UUS in the short and medium terms, while the ordinary living standard is planned to be realized in the long term. House building/facility renovations and provisions by the public and private sectors through the improvement of social and utility services, environmental facility and infrastructure should be initiated for such purpose.

Integrated improvement of living environment will be experimentally implemented in several UUS scattered in the central area of Lusaka within the short and medium terms. Further, improvement of remaining UUSs in the suburbs will follow with the replication of the renewal method learned.

Urban renewal, urban development mechanism suitable for densely populated area, is proposed to be introduced to deal with complex and challenging issues of UUS. The mechanism includes community consensus building, securing/arrangement of property rights, land tenure delivery, fund arrangement, housing construction, provision of infrastructure and public services and other related administrative services.

The first urban renewal project in Chibolya settlement will be implemented if "Chibolya Urban Renewal Pilot Study" by Lusaka City Council (LCC) is successful and concluded project as feasible. Through this experimental implementation, the appropriate and applicable urban renewal mechanism can be established and replicated to the other UUS, where living environment improvement has stagnant for long period.

Environment Protection and Green Network Development

As Lusaka still has potential natural resources, strategic approach is required to achieve effective urban environment protection, as it was also known as the "garden city Lusaka". In this context, strategies for urban environment protection and green network development are; i) to provide urban environment protection and green management program in order to formulate strategic interventions for environmental protection, ii) to establish sustainable urban design in order to protect the destruction of natural reserve forest and damage of natural habitats and biodiversity, iii) to formulate a "green belt zone" maintaining mainly agriculture land and other natural green spaces, functioning as buffer for urban sprawl and environmental and recreational network, iv) to formulate spatial network for urban green environment (river green, street green, open space, and suburban agriculture belt) and recreational activities (parks and walkways or cycling lanes), and v)

to empower local communities' activities in a participatory manner for the environment improvement, especially for waste management and energy (charcoal) issues.

Social Service and Utility Service Development

Water resource development should be tactically carried out to cope with the increasing water demand of Lusaka[1]. Kafue river water with sufficient flow capacity can be utilized as the main water resources to correspond to the Lusaka City water demands of 2030, while the scarce groundwater resources should be conservatively utilized as supplemental resources especially for community water works.

Flood problem seriously affecting the living environment in UUS should be urgently dealt with. Both urgent dewatering project such as mobile pumping stations and rehabilitation of clogged streams, and the formulation of integrated master plan for flood control in Lusaka are necessary.

Shortage of basic schools and high schools should be resolved to offer proper education to the next generation. Upgrading of the vocational training for both the informal and formal sectors is also necessary. Groups of vulnerable micro/SMEs or individuals in the formal and informal sectors shall be trained and educated to enhance their management and technical capacity and advance their fundamental skills for industrial production works.

There are needs to develop neighboring clinics such as health posts and health center in some wards, considering that the health development criteria of "one ward shall have at least one health center" is unachieved. Capacity enhancement of the present clinics is also necessary.

6. Capacity Development Plan

Capacity Development Issues

The capacity development issues in terms of city management administration are: i) strengthening development control; ii) improving land management mechanism for better living environment; iii) infrastructure project implementation; and iv) improving public administration.

The planning and building permission systems are on-going in Lusaka City but existing regulations and standards are already obsolete and inadequate. Inspection and enforcement are also based on old regulations under limited enforcement capacity. Moreover, fundamental enhancement is primarily necessary to correct ineffective office works, incapable staffs with insufficient office skills, etc.

After the new Town and Country Planning Act (TCPA) is enact, capacity development of Lusaka city and relevant organizations will become more important.

Capacity Development Plan

The capacity development plan is programmed by four pillars namely, i) least cost programs for basic and thematic programs, ii) basic capacity development, iii) capacity formulation for Master Plan implementation, and iv) capacity building for urban and living environment improvement. Detailed programs for the capacity development are proposed in the next table.

[1] Present water demand of 218,000 m^3/day in Greater Lusaka will increase to 615,000 m^3/day in 2030.

Capacity Development Pillars and Key Projects and Programs

Development Pillars		Key Projects and Programs for Capacity Development		CAPDEV Focused Area			Target
				Individual	Org	Institution	
Least Cost Capacity Development	Basic CD	1)	Installation of Operational Improvement Mechanism	○	●	--	S
		2)	Basic Information Management	●	●	--	S
	Thematic CD	3)	Knowledge Sharing	●	○	--	S
		4)	Use of the Internet	●	○	--	S
		5)	Accelerating the Basic IT skills by using free software	○	●	--	S
Basic Administrative Capacity Development		6)	Data management, communication, basic skill, no. of staff	●	●	--	S
		7)	Empowerment of Ward role and function in urban management	●	●	○	S/M
		8)	Establishment of urban management administration for Satellite Cities	●	●	--	M
		9)	Accreditation of qualified Planner by organization	●	--	●	S
Formulation of Capacity for Master Plan Implementation		10)	Establishment of statutory zoning and development control by guideline	●	●	○	S
		11)	Empowerment of building permission, inspection, penalty enforcement	○	●	○	S/M
		12)	Reinforcement of infrastructure project implementation	●	●	--	S
		13)	Formulation of urban transportation planning section in CPD	●	●	--	S
		14)	Planning coordination organization (authority, committee) for G-Lusaka	○	●	○	S
		15)	Skill development for review, update and revision of the plan	●	●	--	S
Capacity for Urban & Living Environment Improvement		16)	Land management enhancement: a) land registration promotion	○	●	○	S/M
			Land management enhancement: b) promotion of public asset management	○	●	○	S/M
			Land management enhancement: c) Chibolya pilot project implementation	○	●	○	S
		17)	Formulation of regional public service (water, waste, ambulance, etc)	○	●	--	S/M
		18)	Establishment of Condominium Law for dense development	○	○	●	M/L
		19)	Reinforcement of planning standards and building codes	●	○	●	S/M
		20)	Empowerment of local communities (CBO/CBE) for public services	○	●	○	S

Legend : ●= priority, ○=partial, -- = not applicable S = short-term, M = medium-term, L = long-term

Capacity Development conducted in the Study

On the job training and technology transfer concerning i) traffic investigation and projection technology, ii) participatory method for consensus building in urban renewal scheme, iii) pipeline network simulation of water leakage detection, and iv) social impact assessment method such as involuntary resettlement in road development was conducted in the Study for the capacity development of counterpart organizations. Transferred technologies will be contributable for the realization of the plan and project/program proposal.

7. Plan of Project/Program and Implementation Management

Necessary projects and programs for the comprehensive urban development of Lusaka are proposed encompassing the transportation network development, utility development, living environment improvement, social service upgrading, green network development, capacity development, and industrial promotion.

Development cost of the necessary projects and programs are estimated at USD 3,100 million (equivalent to ZMK 11,200 billion) to be earmarked for the public development expenditure during the next 20 years until the year 2030

Priority projects and programs to be implemented by 2015 are selected in consideration of i) urgency, ii) effectiveness, iii) viability, iv) environmental soundness. Investment cost ceiling is also considered to assess cost magnitude by referring the budgetary records of GRZ and LCC. Approximately USD 420 million (ZMK 1,500 billion) is estimated for the priority projects as shown in the table below.

Priority Project/Programs for Short Term Period Implementation

(US$ million)

Project Program Title	Cost
Urban Transportation	**108.6**
1) Inner Ring Road (Mumbwa-Kafue-Kasama, 12.7km)	29.4
2) Outer Ring Road (9.4km)+Lilay Road (7.6km)	31.8
3) LS-MFEZ Access (10.4km)	21.7
4) Airport Road Extension (LN-MFEZ, 6.4km)	4.9
5) Mumbwa road/Los Angeles Road (4.0km)	12.8
6) Kalambo Road/Benbella Road (1.6km)	0.7
7) Bus Institutional Reform	1.0
8) Traffic Management in Town	2.5
9) Intersection Improvement (10 intersections)	3.8
Water/Sewerage/Drainage	**167.0**
1) Water Resources Management Program (Acquisition of Kafue River Water Right, Study on Comprehensive Groundwater, Ordinance on Registration of Industrial/Commercial Wells)	3.0
2) Water Supply Sector	128.0
a Improvement of UFW (Leakage)	3.0
b Water Supply and Sanitation Improvement Project (Kafue [illegible])	85.0
c Improvement and Expansion of Distribution System	40.0
3) Sewerage Sector	24.0
a Remaining Rehabilitation of Existing Facilities	24.0
4) Drainage Sector	12.0
a Provision of Mobile Pumping Station as urgent measure	4.0
b Urgent Rehabilitation of Existing Facilities	4.0
c Comprehensive Drainage Master Plan Study	4.0

Project Program Title	Cost
Living Environment Improvement	**15.5**
1) Urgent Improvement of Living Environment (renovation of communal tap, drainage, sanitation, etc.)	3.0
2) CBE-led Living Environment Improvement/Public Service Operation	2.0
3) Enhancement of Micro-finance for Housing Development, Upgrading of Substandard Housing in UUS	10.5
Social Service Improvement	**47.2**
1) Improvement of Education Service	32.2
2) Improvement of Medical Care Service	15.0
Legal/Institutional Enhancement (Capacity Development)	**3.1**
1) Least Cost Capacity Development (A feedback process installation, basic filing and data input and management, etc.)	0.0
2) Basic Administrative Capacity Development (Strengthening data management, communication skill, etc., Promoting accreditation and increment of Qualified Planner by authorized organization)	0.5
3) Formulation of Capacity for Master Plan Implementation (Development control, building permission, inspection, penalty enforcement, implementation capacity of infrastructure project, new urban transportation planning section, planning coordination	1.2
4) Capacity for Urban & Living Environment Improvement (Reinforcing Land Management, Empowerment of local communities for public services participation)	1.4
Industrial Development/Job Opportunity Expansion	**80.0**
1) Formal/Informal Micro, SME training	5.0
2) LS-MFEZ Development (Phase1)	75.0
Total	**421.4**
	(K' billion) **1,510**

US$1.00＝ZMK3,582

Note: UUS renewal projects by private initiative will be necessary in addition to above.

Implementation Management

For the implementation of the comprehensive master plan proposed in the Study, (a) legal formalization as the master plan of Greater Lusaka, (b) provisional implementation of the master plan during negotiation period, (c) implementation of priority projects/programs and capacity development until 2015 are necessary. Intermediate evaluation of implementation progress and revision of the master plan is recommendable after termination of priority projects term until 2015.

For the legal formalization of the master plan of Greater Lusaka, consensus building with concerned organization such as adjoining districts is inevitable. This Study conducted a series of consensus building activities with stakeholders including two seminars, three workshops, two times exhibition at four places and plan explanation to traditional chiefs, therefore, the legal formalization is expected to be smoothly achieved by the central government and LCC.

8. Detailed Study on Priority Projects

In- depth studies on the road network development and expansion of the water supply system were conducted.

Inner Ring Road

For the purpose of decongesting the inner city roads and the development of alternative access to LS-MFEZ, a 23-km length road is proposed as the urgent road project. Traffic volume for inner ring road is estimated at 9,000 to 60,000 PCU (passenger car unit) per day in 2030.

Total development cost of inner ring road is estimated at USD 51 million (equivalent to ZMK180 billion). Based on the assumption that travel time and vehicle operating time (VOT) savings were the economic benefits of the inner ring road, the Economic Internal Rate of Return (EIRR) and Net Present Value (NPV) were calculated respectively at 23% and USD73 million, assuming a 10% discount rate, therefore the inner ring road project

can be feasible.

Environmental and social impacts by the inner ring road project were assessed through the pre-EIA. Involuntary resettlement, community split by construction of heavy traffic road, air pollution, noise and vibration level worsening due to traffic increase are projected and environmental management and monitoring plans were proposed. The Resettlement Action Plan (RAP) framework was also prepared for the involuntary resettlement households.

Outer Ring Road

The outer ring road is proposed not only for the purpose of bypassing the international and intra-regional through-traffic but also to support the satellite town's development. Eighty-six km length outer ring road is planned to circle Greater Lusaka.

20,000 to 54,000 PCU per day is projected on the outer ring road in 2030 and it can be said that the road should be four-lane for all sections. However, full opening of the outer ring road in the early stages is not feasible and a two-lane road can be workable until the medium term period.

Development cost of the outer ring road is estimated at USD 500 million (equivalent to ZMK 1,800 billion). EIRR is calculated at 11.2% and the project become feasible, in case of stage-wise construction is taken.

The alignment of the outer ring road is designed to avoid involuntary resettlement to the maximum extent. Therefore, significant negative impact is only anticipated for the noise and vibration increase due to the increase in traffic along the ring road. The environmental management and monitoring plans were proposed to counter the negative impacts.

Water Supply and Sanitation Improvement

To deal with the water demand increase caused by the population increase and economic growth in Lusaka, water supply capacity in Kafue water works should be augmented with water leakage improvement.

The Water Supply and Sanitation Improvement Project consists of (a) intake facility on Kafue River, (b) raw water main pipeline, (c) new water treatment plant with 50,000 m^3/day, (d) booster pumping station and transmission main pipeline with 66 km length, (e) sanitation pilot plant and (f) reduction program of UFW (unaccounted-for water).

Project cost of the Water Supply and Sanitation Improvement Project (Phase-1) is estimated at approximately USD 92 million (equivalent to ZMK 330 billion).

Financial Internal Rate of Return (FIRR) of the project is estimated as 3.33%. In case that soft loan mobilization is possible (i.e. 1.92% average cost of capital), the project will be feasible. Further, the EIRR is estimated as 15.35% which is above the hurdle rate of 10.0% generally accepted for similar types of water supply projects. Therefore, both FIRR and EIRR confirm the feasibility of the project.

However, sensitivity analysis on the FIRR calculated under a different UFW rate shows that the FIRR will be lower than 1.92% and the project will not be feasible under the delay of UFW improvement. Therefore, UFW reduction is crucial to ensure the project's viability.

Significant negative impacts are not anticipated in the implementation of the project.

The Study
on
Comprehensive Urban Development Plan
for
the City of Lusaka
in
the Republic of Zambia

Final Report

MAIN REPORT

VOLUME I COMPREHENSIVE URBAN DEVELOPMENT PLAN
VOLUME II MASTER PLAN OF SUB-PROGRAMS
VOLUME III PRE-FEASIBILITY STUDY OF PRIORITY PROJECTS

VOLUME I COMPREHENSIVE URBAN DEVELOPMENT PLAN

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THE OTHER VOLUMES

ABBREVIATIONS

ABO	Area-Based Organization
ACEZ	Association of Consulting Engineers of Zambia
AGOA	African Growth Opportunity Act
ADB	Asian Development Bank
AfDB	African Development Bank
BHN	Basic Human Needs
BID	Business Improvement District
BOD	Biochemical Oxygen Demand
CBD	Central Business District
CBD	Convention of Biological Diversity
CBO	Community Based Organization
CBE	Community Based Enterprise
CDF	Constituency Development Fund
GEF	Global Environment Facility
CEP	Copperbelt Environmental Project
CHC	Consumer Health Care
CIC	Community Interest Company
CIDA	Canadian International Development Agency
CIFOR	Centre for International Forestry Research
CP	Cleaner Production
CSO	Central Statistical office
DANIDA	Danish International Development Assistance
DDI	Domestic Direct Investment
DEO	District Education Office
DFID	Department for International Development
DF/R	Draft Final Report
DISS	Department of Infrastructure and Support Services
DPPH	Department of Physical Planning and Housing
DTF	Devolution Trust Fund
DWA	Development of Water Agency
ECHO	Economically strong, Environmental Friendly and Community Hope and Opportunity
ECZ	Environmental Council of Zambia
EIA	Environmental Impact Assessment
EU	European Union
FC	Faecal Coliform
FDI	Foreign Direct Investment
FNDP	Fifth National Development Plan
GDI	Gender Development Index
GDP	Gross Domestic Product
GHS	Globally Harmonized System
GIS	Geographical Information System
GOJ	Government of Japan
GPS	Global Positioning System
GRZ	Government of the Republic of Zambia
GTZ	German Technical Corporation
HDI	Human Development Index
HPPHSS	Housing, Public Health and Social Services Committee
IC/R	Inception Report
IEE	Initial Environmental Examination
IGA	Income Generation Activities
IMF	International Monetary Fund
IPPP	Industrial Pollution Prevention Programme

IT/R	Interim Report
JICA	Japan International Cooperation Agency
JST	JICA Study Team
KTC	Kamwala Trading Center
LCC	Lusaka City Council
LDHMT	Lusaka District Health Management Team
LIDP	Lusaka Integrated Development Plan
LRT	Light Rail Transit
LPPA	Lusaka Province Planning Authority
LSWSMP	Lusaka Solid Waste and Sanitation Management Project
LUSEED	Lusaka Sustainable Economic and Environmental Development
LWSC	Lusaka Water and Sewerage Company
MDG	Millennium Development Goal
MFEZ	Multi Facility Economic Zone
MEWD	Ministry of Energy and Water Development
MFNP	Ministry of Finance and National Planning
MLGH	Ministry of Local Government and Housing
MOCDSS	Ministry of Community Development and Social Services
MOE	Ministry of Education
MOU	Memorandum of Understanding
MOFED	Ministry of Finance and Economic Development
MOH	Ministry of Health
MoL	Ministry of Land
MoTENR	Ministry of Tourism, Environment and National Resource
MP	Member of Parliament
MSTVT	Ministry of Science, Technology and Vocational Training
MTC	Ministry of Transportation and Communication
MTEF	Medium Term Expenditure Framework
MWS	Ministry of Works and Supply
NACL	National Airport Corporation Limited
NDF	Nordic Development Fund
NGO	Non Governmental Organization
NHA	National Housing Authority
NHC	Neighbourhood Health Committees
NORAD	Norwegian Agency for International Development
NRDC	National Research and Development Center
NRFA	National Road Fund Agency
NWASCO	National Water Supply and Sanitation Council
O/D	Origin-Destination
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
O&M	Operation & Management
PCM	Project Cycle Management
PHC	Primary Health Care
PR	Progress Report
PPP	Public Private Partnership
PROSPECT	Programme of Support for Poverty Elimination and Community Transformation
PRP	Power Rehabilitation Project
PRSP	Poverty Reduction Strategy Paper
PTA	Public Transport Authority
PULSE	Peri-Urban Lusaka Small Enterprise Development Project
PUS	Planned Urban Settlement
PUSH	Programmes Urban Self-Help
PWD	Plans, Works and Development Committee
RBIPMA	Removing Barriers to Invasive Plant Management in Africa Project
RDA	Road Development Agency

RDC	Resident Development Committee
ROADSIP-I	Road Sector Improvement Programme Phase-I
RTSA	Road Transport and Safety Agency
RUSPS	Rapid Urban Sector Profiling for Sustainability
RWSS	Rural Water Supply and Sanitation
SADC	Southern African Development Community
SC	Steering Committee
SCP	Sustainable Cities Programme
SEA	Strategic Environment Assessment
SIDA	Swedish International Development Agency
SLP	Sustainable Lusaka Programme
SME	Small and Medium Enterprise
TEVETA	Technical Education, Vocational and Entrepreneurship Training Authority
TAZ	Traffic Analysis Zones
UBZ	United Bus Company of Zambia
UFW	Unaccounted for Water
USAID	United States Agency for International Development
UNEP	United Nations Environment Programme
UN-HABITAT	United Nations Human Settlements Programme
UNICEF	United Nations International Children's Emergency Fund
UNZA	University of Zambia
UUS	Unplanned Urban Settlement
VAT	Value Added Tax
VCUL	Valuation, Commercial Undertaking and Licensing Committee
VIP	Ventilated Improved Pit
VOC	Vehicle Operating Cost
WB	World Bank
WDC	Ward Development Committee
WDF	Ward Development Fund
WFP	World Food Programme
WG	Working Group
WHO	World Health Organization
WMD	Waste Management District
WMU	Waste Management Unit
WSPIP	Water Sector Performance Improvement Project
ZACCI	Zambia Association of Chambers of Commerce and Industry
ZAWA	Zambia Wildlife Authority
ZCCM IH	Zambia Consolidated Copper Mines Investments Holdings
ZCSMBA	Zambia Chamber of Small and Medium Business Association
ZDA	Zambia Development Agency
ZDC	Zone Development Committee
ZESCO	Zambia Electricity Supply Corporation
ZR	Zambian Railway

CHAPTER-1

INTDORUCTION

CHAPTER-1 INTRODUCTION

1.1 Background of the Study

In response to the request from the Government of the Republic of Zambia (GRZ), the Government of Japan (GOJ) is conducting "The Study on Comprehensive Urban Development Plan for the City of Lusaka" (hereafter referred to as "the Study") in accordance with the Agreement on Technical Cooperation between the GRZ and the GOJ signed on June 27, 2006.

Accordingly, the Japan International Cooperation Agency (JICA), the official agency responsible for implementation of the technical cooperation programs of the GOJ, undertook the Study in close cooperation with the authorities concerned in the GRZ. The scope of work for the Study was agreed between JICA and its counterpart organization, Ministry of Local Government and Housing (MLGH) and Lusaka City Council (LCC) on March 2007. Consequently, the JICA Study Team (JST) was dispatched to Zambia to conduct the Study.

JST carried out the Study in Zambia for one and half years, from August 2007 to March 2009. The final report was then submitted to the GRZ on March 2009.

1.2 Objectives of the Study

The objectives of the Study are:

(1) To formulate a comprehensive urban development master plan including sub-programs for urban transportation, water supply and sewerage, and living environment improvement for the Lusaka Greater Urban Area for the target year 2030;

(2) To formulate a short-term development plan for urgent implementation, which include management plans and capacity development plan, to ensure realization of the study output;

(3) To carry out technology transfer to the Zambian counterpart personnel in the course of the Study; and

(4) To formalize the Comprehensive Urban Development Master Plan as the formal plan of Lusaka by means of legal approval.

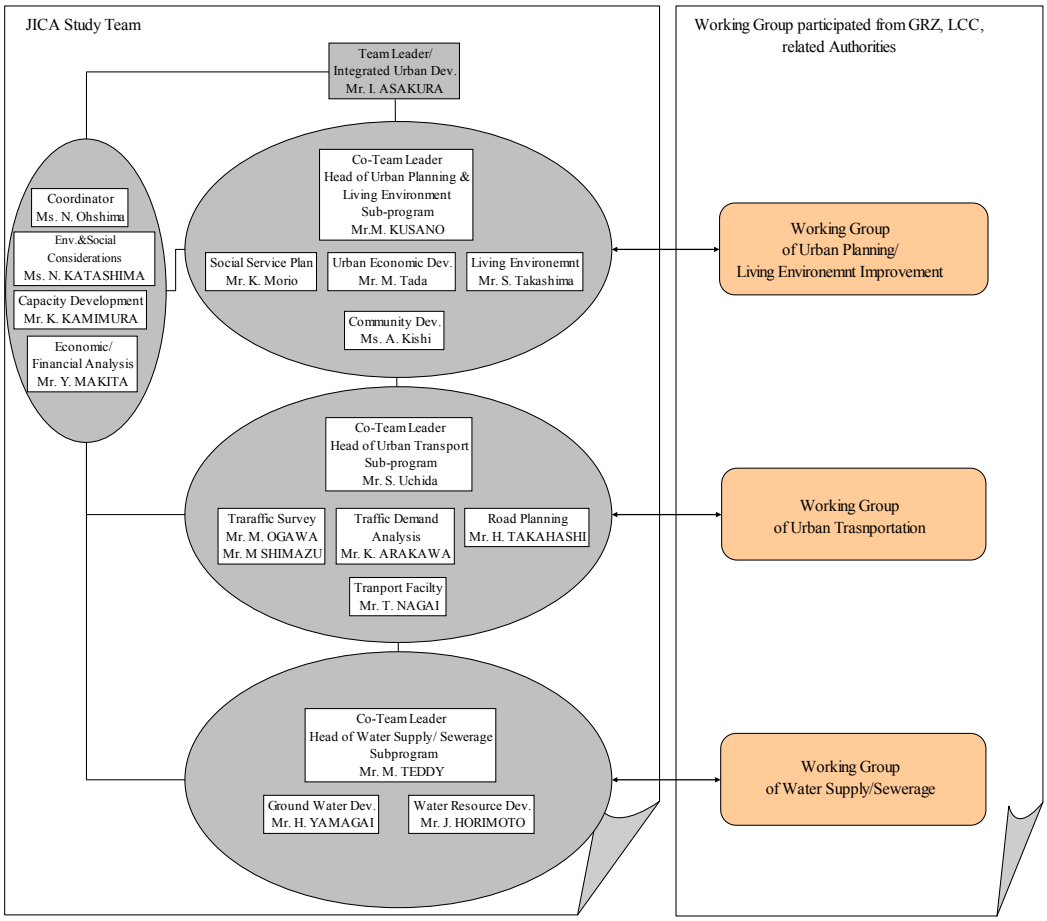
1.3 Organization of the Study Implementation

1.3.1 Study Team

The JST, headed by Mr. Isamu ASAKURA, was composed of three sector groups to correspond to the major fields of study, namely i) urban planning and living environment, ii) urban transport, and iii) water supply and sewerage as shown in Figure 1.3.1. Local staffs for GIS and data processing work also participated with JST.

Local consultants and NGOs collaborated with JST concerning the analysis on traffic survey, ground and river water resource survey, piped water leakage survey, community profile survey, urban renewal plan, and environmental impact assessment.

To immediately realize progress and reveal initial study results ahead of schedule, JST conducted workshops and exhibitions; issued project newsletter released every other month; and hosted a project web-site http://jicaluseed.rakurakuhp.net/ (until the end of March 2009).



Source: JICA Study Team

Figure 1.3.1 Study Team and Working Group

1.3.2 Steering Committee (SC)

(1) Role of SC

A SC was organized to lead the implementation of the Study in accordance with the agreed scope of works. Moreover, the SC took responsibility for the formalization of the comprehensive urban development plan proposed by the Study, as the formal city plan of LCC. The SC is composed of representatives from the following agencies:

1) MLGH
2) LCC
3) Lusaka Water and Sewerage Company (LWSC)
4) Ministry of Finance and National Planning (MFNP)
5) Ministry of Energy and Water Development (MoEWD)
6) Ministry of Works and Supply (MWS)
7) Ministry of Transportation and Communication (MTC)
8) Environmental Council Zambia (ECZ)
9) National Water and Sanitation Council (NWASCO)
10) Ministry of Community Development and Social Services (MoCDSS)
11) Ministry of Tourism, Environment and Natural Resources
12) Lusaka Province Planning Authority
13) District Council of Chongwe
14) District Council of Chibombo
15) District Council of Kafue
16) Ministry of Commerce, Trade and Industry
17) Zambian Development Agency

(2) Schedule of SC Meetings

The 1st, 2nd, 3rd, 4th, and 5th SC meetings were held on September 2007, November 2007, March 2008, August 2008, and February 2009, respectively. Agenda for each SC meeting are presented in the following table:

Table 1.3.1 Schedule and Agenda of SC Meetings

SC	Date	Agenda
1st SC	14th September 2007	Inception Report (IC/R) inclusive of study method, organizational arrangement for the study, etc. was agreed.
2nd SC	22nd November 2007	Discussion on analysis and evaluation results on current condition of social, economic and physical aspects of Lusaka City was made.
3rd SC	5th March 2008	Examination and approval of Progress Report (PR): Framework setting, vision and strategy for the comprehensive urban development.
4th SC	1st August 2008	Examination and approval of Interim Report (IT/R): Comprehensive Urban Development Master Plan including sub-programs of urban transportation, water supply and sewerage, and living environment improvement for the Greater Lusaka.
5th SC	6th February 2009	Examination and approval of Draft Final Report (DF/R): Overall outcome for the comprehensive urban development plan, detailed plans of priority projects and capacity development plan.

Source: JICA Study Team

1.3.3 Working Group

Three working groups as shown in Table 1.3.2 were established to promote close collaboration and technology transfer to its members throughout the Study.

Table 1.3.2 Working Group Configuration

Working Group	Member
Urban Planning / Living Improvement	01. Lusaka City Council (LCC)- Housing and Social Service Dep., Waste Management Unit, City Planning Dep. 02. Environment Council for Zambia (ECZ) 03. National Housing Authority (NHA) 04. Ministry of Land (MoL) 05. Lusaka Province Planning Authority (LPPA) 06. Ministry of Local Government and Housing (MoLGH)- DPPH 07. Chongwe Council 08. Kafue Council 09. Chibombo Council 10. Lusaka Water and Sewerage Company (LWSC) 11. Ministry of Community Development and Social Service (MoCDSS)
Urban Transportation	01. LCC- Engineering Dep., City Planning Dep. 02. Environment Council for Zambia (ECZ) 03. Road Development Agency(RDA) 04. Road Transportation Safety Agency (RTSA) 05. National Road Fund Agency (NRFA) 06. Ministry of Local Government and Housing (MoLGH), DISS 07. Ministry of Finance and National Planning (MoFNP) 08. Association of Consulting Engineers of Zambia (ACEZ)
Water Supply and Sewerage	01. Lusaka Water and Sewerage Company (LWSC) 02. LCC- Housing and Social Service Dep., Waste Management Unit 03. Ministry of Local Government and Housing (MLGH)- DISS 04. Ministry of Finance and National Planning (MoFNP) 05. Environment Council for Zambia (ECZ) 06. Development Water Agency (DWA)

Source: JICA Study Team

CHAPTER-2

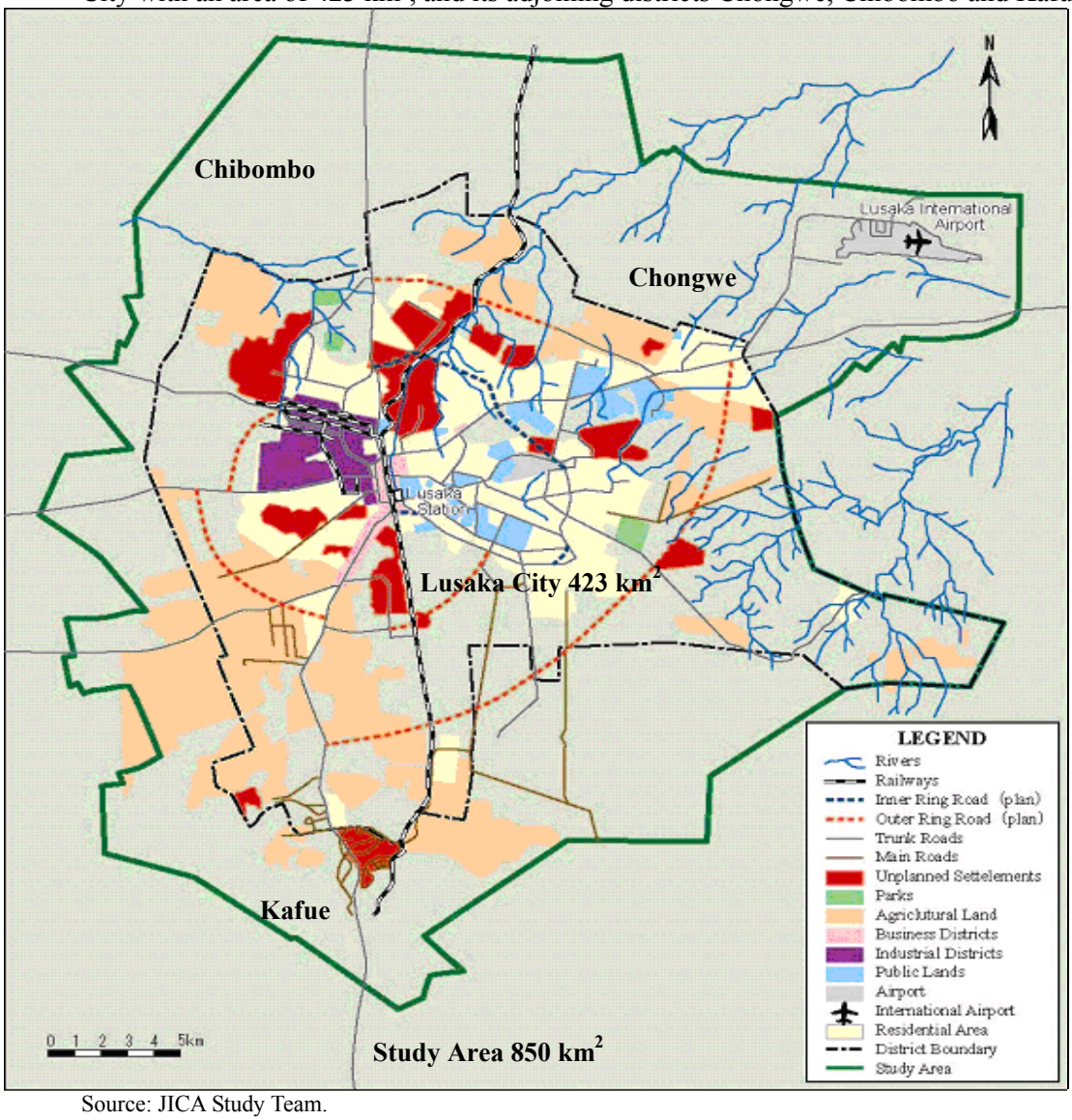
LUSAKA NOW: THE STATUS QUO

CHAPTER-2 LUSAKA NOW: THE STATUS QUO

2.1 The Study Area

2.1.1 Definition of the Study Area

The study area, as illustrated below, covers 850 km^2, which includes the entire Lusaka City with an area of 423 km^2, and its adjoining districts Chongwe, Chibombo and Kafue.



Source: JICA Study Team.

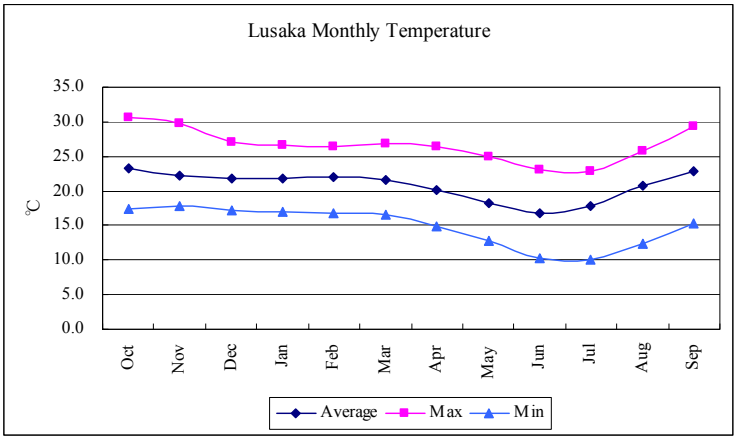
Figure 2.1.1 Study Area

2.1.2 Natural Conditions

Lusaka City (hereafter referred to as "the City" or "Lusaka") is in Lusaka Province, central part of Zambia, and located at latitude 15^o 30' north and longitude 28^o 10' east. The City has a surface area of 360 km^2, and shares boundaries with Chongwe, Mumbwa, Chibombo and Kafue districts. Its topography is mostly flat with an elevation ranging from 1,200 m to 1,300 m above sea level. Escarpments lie to the east and north of the City, which ends in the Luangwa Valley. The City is divided into three drainage basins, i.e. Chongwe, Chunga-Mwembeshi and Kafue Basins. There are only small-scale rivers in the City, namely Ngwerere and Chunga Streams, flowing to the northeastern and northwestern directions respectively. As for geology, the City comprises a Pre-

Cambrian basement complex consisting of granites, gneises and quartzites which is overlaid by limestones and dolomites.

From the meteorological point of view, there are three main seasons in the City: cool and dry from May to August; hot and dry from September to October; and warm and wet from November to April. The average maximum and minimum monthly temperatures in the years from 1976/77 to 2005/06, are shown in Figure 2.1.2

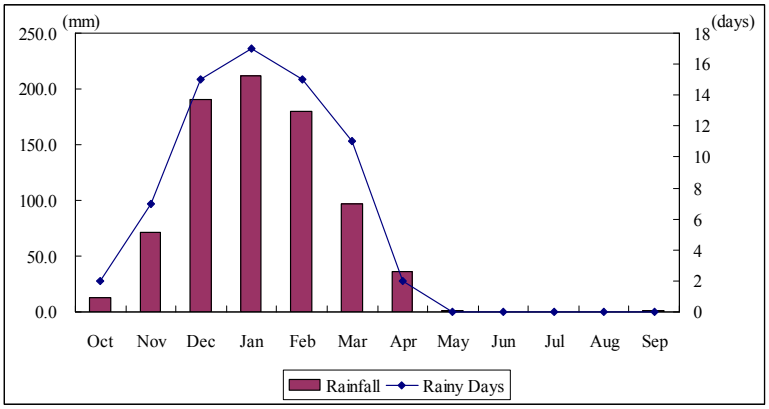


Source: Meteorological Department, Ministry of Communication and Transport

Figure 2.1.2 Monthly Temperature in the City of Lusaka

The average temperature throughout the year is 20.7 ^{o}C. The average maximum temperature reaches the highest of 30.6 ^{o}C in October, and drops to a minimum of 10.1 ^{o}C in July.

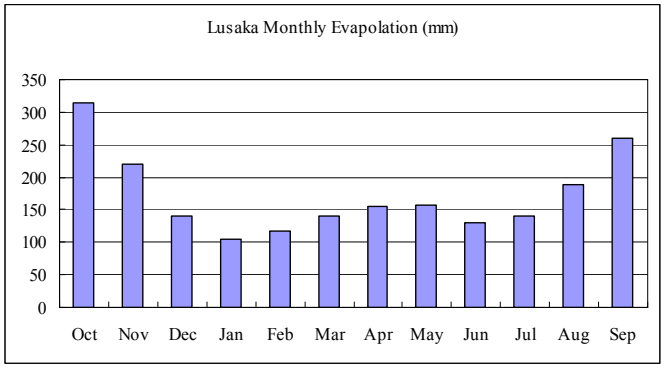
The monthly average rainfall and rainy days are shown in Figure 2.1.3. There is no rain in the City between May and September. In the rainy season from October and April, the monthly average rainfall is 114 mm. The average annual rainfall over the past 30 years is 802 mm.



Source: Meteorological Department, Ministry of Communication and Transport

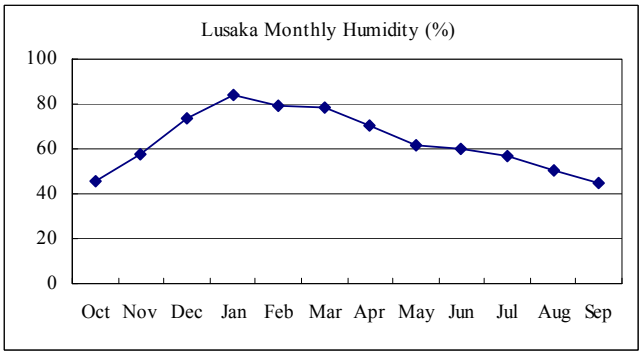
Figure 2.1.3 Monthly Rainfall and Rainy Days in the City of Lusaka

Very few data are available on evaporation and humidity in the meteorological department of the Ministry of Communication and Transport. The only evaporation data available are limited to years 1989 to 2000, while obtained humidity data covers only years 1988 to 1998 and 2005 to 2006. The average monthly evaporation and humidity in the City were calculated using the limited data, and are illustrated in Figure 2.1.4 and Figure 2.1.5.



Source: Meteorological Department, Ministry of Communication and Transport

Figure 2.1.4 Monthly Evaporation in the City of Lusaka



Source: Meteorological Department, Ministry of Communication and Transport

Figure 2.1.5 Monthly Humidity in the City of Lusaka

The average annual evaporation is around 2,070 mm, ranging from 104 mm in January to 315 mm in October. As for humidity, the average is around 64 % throughout the year. From the beginning of the rainy season, humidity rises, reaching 84 % in January, then gradually reduces to a minimum monthly average of 45% in September.

2.1.3 Social Conditions

(1) Area and Population

The City, along with the Copper Belt Province, is one of the most urbanized areas in Zambia, with a population of 1,385,000, and a density of 3,300 persons/ km^2.

The average household size in the district is 5.04 (persons/ household). The average household sizes in planned settlements and unplanned settlements are 5.42 (persons/ household), and 4.73 (persons/ household), respectively (as per CSO, Census 2000).

There are two indigenous ethnic groups in the City, namely the Solis and the Lenjes, which are all found in the City.

(2) Poverty Level

Basic social indices of Zambia are shown in Table 2.1.1.

The overall poverty rate of the whole country was 73 % (1998). Poverty is prominent particularly in the rural areas, however, more than half of the urban population also belongs to the poverty level. The percentage of the overall poor group of 52% is the smallest in Lusaka Province, among all the provinces in Zambia. Notwithstanding, it is estimated that more than 70% of the households in the City suffer from chronic poverty,

with most of these poor households live in an informal sector, according to "Lusaka District Situation Analysis (2005)".

The Human Development Index (HDI) for Zambia is 0.434, ranks the country 165th, out of 177 countries with data. As of 2005, Zambia is categorized in the Low Human Development group, along with neighboring countries such as Malawi, Tanzania, Angola, Mozambique, etc. Zambia's Gender Development Index (GDI), which is 97.9% of its HDI value, ranks the country 128th out of the 156 countries with available data.

Table 2.1.1 Social Indices of Zambia

Index	Value	Remark
(a) Overall Poverty Rate (1998)	73%	< ZKW 47,188/ month/ adult equivalent unit
- Urban	56%	
- Rural	83%	
- Lusaka Province	52%	
(b) HDI (2005)	0.434	165th out of 177 countries (Best ranking)
(c) GDI (2004)	97.9%	128th out of 156 countries (Best ranking)

Source: (a) PRSP Zambia
Source: (b) (c) Human Development Report 2007/2008 (UNDP)

(3) Administrative Boundaries

The City, which occupies a greater part of the Study area, has seven constituencies and 33 wards, as shown in Table 2.1.2.

Table 2.1.2 Constituencies and Wards in the City of Lusaka

Constituency	Ward	Constituency	Ward
Chawama	1. Nkoloma	Mandevu	18. Mulungushi
	2. Chawama		19. Ngwerere
	3. John Howard		20. Chaisa
	4. Lilayi		21. Justine Kabwe
Kabwata	5. Kamwala		22. Raphael Chota
	6. Kabwata		23. Mpulungu
	7. Libala	Matero	24. Muchinga
	8. Chilenje		25. Kapwepwe
	9. Kamulanga		26. Lima
Kanyama	10. Kanyama		27. Mwembeshi
	11. Harry Mwaanga Nkumbula		28. Matero
	12. Munkolo	Munali	29. Chainda
Lusaka Central	13. Silwizya		30. Mtendere
	14. Independence		31. Kalingalinga
	15. Lubwa		32. Chakunkula
	16. Kabulonga		33. Munali
Mandevu	17. Roma		

Source: Electoral Commission of Zambia

2.1.4 Economic Conditions

The City is the major center of all economic activities in Zambia. It accounts for about 4,000 or 50% of all establishments (about 7,900) in Zambia as of November 2007 according to the database from CSO. Although there is no official data on Gross Domestic Product (GDP) by region, a GDP share of City is estimated to be around 50 % or more, based on VAT revenue in the City and Zambia as of 2005. Economic activities of the country concentrate on the capital city.

Despite the concentration of economic activities or wealth (value-added) in the City, urban economic structure is still dominated by the informal sector. Out of estimated labor force of 470,000 in the City, in 2005, informal sector accounts for 192,000 or 41%

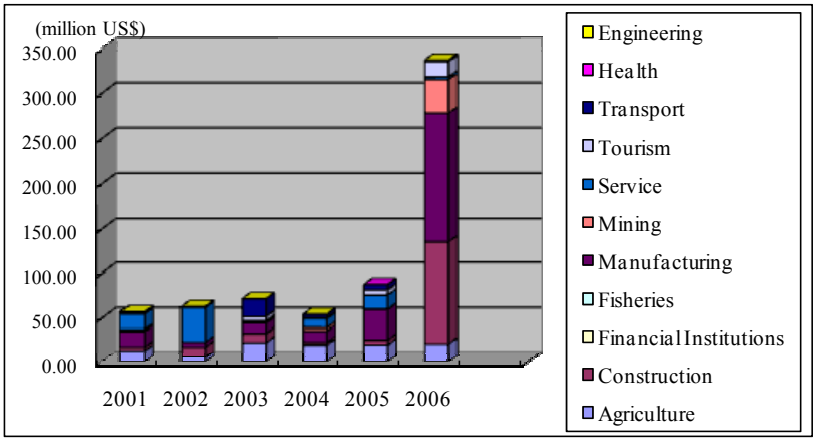
of the labor force, followed by the formal sector (190,000 or 40%) then finally the unemployed (88,000 or 19%). Informal sector refers to five (or less) persons employed without social security in an establishment. Majority of those in the informal sector are either self-employed or unpaid family worker.

Employment in the formal sector has increased from 122,000 in 1999 to 199,000 in 2005. This is attributed to the recent deregulation and privatization policies of the government, which has improved the City's foreign and domestic investments during 2000-2006. About 60% of the total investment is concentrated in the City, and its on employment creation is estimated to be about 28,000 during the period mentioned. Investment has also contributed to employment creation in the formal sector.

Formal	Informal	Unemployed	Labor force in the City in 2005
201,000 (42%)	179,000 (37%)	99,000 (21%)	= 479,000

Source: JICA Study Team

Figure 2.1.6 Composition of Formal and Informal Unemployment in the City (2005)



Source: JICA Study Team

Figure 2.1.7 Investment Demand in Greater Lusaka

2.2 Lusaka Development Context

2.2.1 National Development Plans

Vision 2030 and the Fifth National Development Plan (FNDP) are the principal national plans for social and economic development in Zambia. Vision 2030 is the first strategic plan giving clear vision for the long term development of Zambia.

Table 2.2.1 National Development Plans

National Plan	Target year	Vision/strategy/plans
1. Vision 2030	2030	Vision statement; A Prosperous Middle Income Nation by 2030 GDP growth; 6% (2006-2010) 8% (2011-2015) 9% (2016-2020) 10% (2021-2030) Poverty rate; less than 20% of the population Inflation rate; less than 5% Gini coefficient; less than 40% Safe water and sanitation for 100% population, etc.
2. Fifth National Development Plan (FNDP)	2006-2010	5 years action plan to implement Vision 2030 GDP growth; 7%/year Investment cost is ZMK62.6 trillion (USD16.5 billion) for 5 years
3. PRSP	2015	GDP needs to grow by 6% to 8% annually to achieve the poverty reduction target set for 2015.

2.2.2 Development Plans in the Greater Lusaka Area (Study Area)

(1) Statutory Development Plans

Local governments (Province, District, City and Municipality) are required to formulate the Development Plan based on the Town and Country Planning Act (TCPA1962 under MLGH) including spatial and socio-economic development frameworks. In the decades recently, the Government (Ministry of Finance and National Planning) has promoted to establish the Integrated Development Plan (IDP) as the Short-medium Term Year Plan (three to five years) in line with the National Development Plan (five years) focusing on budgeting and implementation. These two types of plan were formulated in the past for the study area (Greater Lusaka Area). Table 2.2.2 briefs the key contents and range of the study areas of the past plans.

Table 2.2.2 Development Plans and Their Contents in the Study Area

Plans	Status		Development Plan (MLGH)			Integrated Development Plan (MFNP)		Land Use Plan Coverage Area	
	Year made	Statutory Status	Socio-economic Framework	Land Use Plan	Zoning Plan	Socio-economic Framework	Sector Plan	within District	beyond District
1.The City of Lusaka Development Plan	1975	Approved	1985-2000	Yes, limited	Approved in1985	n.c..	n.c..	Partially	no
2. Lusaka Integrated Development Plan	2000	Not-approved	1997-2020	no (conceptual)	no	n.c..	n.c..	no	Partially (3districts)
3. Kafue Structure Plan	1999	n.a	2000-2020	Yes, only Kafue City	no	n.c..	n.c..	Partially	no
3. Lusaka District Plan	2005	Approved	n.c.	n.c.	n.c.	2006-2011	Yes	Yes	no
4. Kafue District Plan	2005	Approved	n.c.	n.c.	n.c.	2006-2011	Yes	Yes	no
5. Chongwe District Plan	2005	Approved	n.c.	n.c.	n.c.	2006-2011	Yes	Yes	no
6. Chibombo District Plan	2005	Approved	n.c.	n.c.	n.c.	2006-2011	Yes	Yes	no

Source: JICA Study Team
Note: n.c. = not corresponding, n.a. = not available to get its information

(2) Lusaka Integrated Development Plan

Lusaka Integrated Development Plan (LIDP) was formulated in 2000 through the assistance of World Bank. LIDP covered all aspects of urban development to review the Greater Lusaka Area Development Plan planned by Doxiadis Associates in 1969. LIDP was designed considering 2020 as the target year, based on detailed analysis of land use, transportation condition, infrastructure development, social needs, etc. However, the final plan of LIDP was not legalized due to disagreements with adjoining districts. Opposition was raised to the change of administrating boundary and development plans of cemetery and solid waste dumping site.

LIDP projected 2.6 million population for 2020, equivalent to 1.24 million population increase for 20 years from 2000, as shown in Table 2.2.3. Increase in area to 700-800 ha commercial land and 430-600 ha industrial land were proposed to be implemented in 15 years, from 2000-2015.

Table 2.2.3 Projection of Population and Households Number by LIDP

Year	Population (1,000)	Increase from 2000 (1,000)	Num of household (1,000)	Increase from 2000 (1,000)	Ave person per HH
2000	1,406	-	283	-	5.0
2010	2,107	701	450	167	4.7
2015	2,403	997	529	246	4.5
2020	2,649	1,243	602	319	4.4

Source: Lusaka Integrated Development Plan, Development Framework Report, August 2000

(3) District Plans of Lusaka, Chongwe, Kafue and Chibombo

1) Lusaka District Development Plan 2006-2011

The Lusaka District Development Plan states the City's vision as "A world class, economically strong, green and friendly city by the year of 2030". In detail, it mentioned that the City shall become an international standard modern central business district, leading to an upgrade of living conditions including housing, improvement of roads for accommodating traffic volume, and enhancement of basic infrastructure and social services to reduce poverty. In addition to these, economic development and cooperation among all stakeholders are also the key factors. Economic development aims to alleviate poverty, through increased access to informal economic opportunities and maximizing direct employment opportunities. Cooperation among stakeholders such as governmental organizations, civil society, and private sectors would contribute to the capacity building.

To realize this vision, strategies focus on capacity development of administrative organizations to implement programs and project, and adoption of goal oriented method for the enhancement of social and economic progress.

At program level, the City prioritizes the economic development in agro-industry, and social service enhancement in basic education and increase in employment opportunities. Besides, it also attempts to enlarge the administrative boundary of the City.

The Plan would be subject to mid-term review in 2009. It has been proposed to hold negotiations with GRZ in 2008, in order to implement the proposed plans.

2) Chongwe Integrated Development Plan 2006-2010

Chongwe district has experienced rapid population growth with a ratio of 3.7 %, the highest among Lusaka Province. It was analyzed that this was due to area of sufficient land available, compared to the City which has a limited land for development. To cope with this situation, private investment in housing estate increased, although, on the other hand, provision of adequate basic social and infrastructure services is still lacking.

At program level, it emphasized the provision of basic intra-service, setting regulation for land use and development, and enhancement of administrative bodies, which would balance with the district's growth.

Chongwe district is expected to be more progressive with the implementation of modern physical and social infrastructure to match the growing economy. Since it has a potential of being economically strong, the planned objectives to facilitate socio-economic development and attract investment, include; improvement of road network and transport; enhancement of public services; setting up regulation for buildings and other structures; control land use; and provide city amenities such as parks, open spaces, and reserve historical and natural areas.

3) Kafue District Development Plan 2006-2010

The vision of Kafue district is to be "A dynamic, vibrant and well developed Kafue with improved quality of life for all by 2030".

The plan especially emphasizes on the improvement of tourism sector utilizing its natural resources such as national and game parks, which are the advantages of the district. Kafue district also benefits from agriculture and animal husbandry, through Kafue River, Zambezi River, tempered woodlands and wetlands which are also part of the district's natural resources.

Through tourism and agriculture sector, the district attempts to generate income and increase employment opportunity. It is, however, noted that basic social and infrastructure sectors are important sectors as well that needs to be strengthened.

4) Chibombo District Development Plan 2006-2010

Chibombo District Development Plan covers the economic, social, administration, public safety, and cross cutting issue sectors. Main issue, as their vision, focuses on reducing poverty levels to 22 % by 2030 from 88% in 2005. To realize this, it plans to improve infrastructure services, increase food production for food security, initiate fair delivery of social services, and promote community participation leading to decision making stage. Thus, the district concentrates on social service improvement, while it also tries to enhance the agriculture and tourism sector.

It, however, faces challenges on financing implementation of plans, due to limited budget from GRZ and its cooperating partners. Nevertheless, the plan mentioned that harmonization of the costing, together with the FNDP, will be done through the Medium Term Expenditure Framework (MTEF).

2.2.3 Plans and Programs Concerned with Lusaka City

(1) Lusaka South Multi-Facility Economic Zones (LS-MFEZ)

In 2005, GRZ started the Multi Facility Economic Zone initiatives (MFEZ) in the towns of Zambia, based on the Triangle of Hope (TOH) concept.[1]

Responding to the request of GRZ, JICA commenced the master plan study of LS-MFEZ from February 2008. The master plan of LS-MFEZ was formulated in parallel with the Study.

The LS-MFEZ site is approximately 12.5 km south-east from the center of the City and has an area of 2,100 ha. It is part of the 4,798 ha forest reserve area designated in 1942, for the purpose of protecting the Chalimbana water catchment area and sustainable forest management.

The forest reserve is also admitted as the recharging resource for the ground water, contaminated with waste water from the dense populated inner city of Lusaka. Therefore, necessity of Environmental Impact Assessment (EIA) is agreed between GRZ and JICA, to determine the viability of the MFEZ.

LS-MFEZ will comprise industrial park, research institute complex, new residential

[1] TOH is aiming at the improvement of investment environment in Zambia for the purpose of investment promotion and job and value creation. TOH is JICA technical assistance to GRZ.

town, commercial complex, etc.[2]

MFEZ is an important component of the Lusaka urban master plan in terms of land use, socio-economic framework setting, etc. Therefore, a closely coordinated work between the master plan and the Study was secured.

(2) Water Sector Performance Improvement Project (World Bank Loan)

Water Sector Performance Improvement Project under the MLGH aims to support on-going commitment to urban and rural water sector reforms by improving access to and sustainability of water and sanitation services for consumers in Lusaka, and by supporting a more comprehensive institutional structure. The project finance was agreed on 5 October 2006, valid until 30 June 2010, with a total cost of USD 23 million.

Phase 1 (2006-2008) consists of two works components. Component A supports a performance agreement for a living conditions monitoring survey, underpinned by immediate infrastructure and management improvements. Component B supports institutional capacity building to prepare the MLGH in managing a sector-wide program financing (SWAP).

Phase 2 (2009-2012) is expected to commence immediately after Phase 1, and will include funds to scale up of infrastructure investments in the urban areas, support rural investments, and provide further assistance in institutional development and capacity building.

The Phase 1 will include the components described in Table 2.2.4.

Table 2.2.4 Components Included in the Phase 1

Component	Details
Goods Procurement	1. Computer equipment and office equipment 2. Specialized equipment, leak detection and power factor correction 3. Water engineering laboratory equipment 4. Remote controlled equipment and GPS 5. Specialized water and sewer equipment 6. Utility and operations motor Vehicles 7. Industrial and domestic water pumps and valves 8. Supply of installation of bulk and customers meters
Civil Works	1. Rehabilitation of Kafue Water Works (including dosing system, sedimentation basins and tanks, filtration system, chlorination system, high lift pumps, treatment plant instrumentation & pipeline, and 50 km transmission pipeline) 2. Borehole rehabilitation and development (includes rehabilitation of existing boreholes, replacement of heavy duty chlorination equipment, 10 units borehole exploration and development, construction of head works and compounds) 3. Rehabilitation and modification of Kafue road pump station (including pumping equipment, auxiliaries, rising mains and fittings, lagoon rehabilitation and other earth works and supply and install new booster station pumps with appropriate specifications complete with control panels) 4. Rehabilitation of booster stations for water supply pipeline 5. Rehabilitation of sewer networks and treatment plants

[2] In addition to LS-MFEZ above, another MFEZ is also conceived with the cooperation of Government of China (GOC). The additional MFEZ, called Lusaka north MFEZ (LN-MFEZ), is planned to be located in the northern edge of the Lusaka International Airport, with an area of 500 ha, and aims to promote industrial categories such as garment, shoes, electric appliance are indicated by GOC.

Component	Details
	6. Construction of 100 units of water kiosks and 4 units of area offices
Consultancy Services	1. Institutional audit study of the MLGH 2. Consolidation and updating of national water programs and policies 3. Quality evaluation system analysis 4. Options study of Rural Water Supply and Sanitation (RWSS) financing mechanisms 5. Special Performance Audit 6. Development of a Water and Sanitation Master Plan for Lusaka City up to the year 2015 7. Supervision of civil, electro-mechanical works for the rehabilitation of (i) booster station, (ii) reservoir and water distribution network/remote control valves, (iii) Kafue road pump station 8. Design and Supervision of Civil Works for (i) sewer network and treatment plant, (ii) construction of water kiosk and offices 9. Design and supervision of borehole development and rehabilitation 10. Feasibility Study for activities to be funded under Phase II 11. Environmental Impact Assessment (EIA) study and safe guards for Phase II 12. Engineering design, tender document preparations for works for Phase II (Proposed new pipe line for Kafue-Lusaka, design of intake plant, design of reservoirs)

Source: JICA Study Team

(3) Institutional Improvement Program by SIDA

1) Preparation of Urban and Regional Planning Bill

Project Overview

SIDA has implemented the project for supporting the preparation of "Urban Regional Planning Bill" in order to improve and update current urban planning and management system including existing related Laws and Acts such as Town and Country Planning (Amendment) Act No. 21 of 1997 (TCPA), Housing Statutory and Improvement Areas Act (HSIAA-1974/1994) and other relevant legal documents.

The project management team of the government will prepare a related document compiling the discussions within MLGH to form as basis on how to commence with the drafting of a bill. This first draft bill will be in early 2008, settled through a public participation process concerning an earlier bill carried out in 2007. On the basis of the feedback during that process a second draft bill will be finalized for MLGH in the middle of 2009 before going to Parliament.

The Draft Bill was circulated for discussion in November, 2008. A consultative meeting was conducted on November 18, 2008. The new bill excluded a provision of regional planning and focused on the Integrated Development Plan at the district level. During the discussion, a developer questioned delegation of planning approval to the Director of the City Planning Department under a condition that an application satisfies an IDP requirement and worried that such delegation would lead to arbitrary use of power.

Two participants questioned on the planning period of IDP which was proposed as three years-valid for capital investment programming but not for spatial planning. Another pointed out lack of provision on multi-provincial planning coordination. The Bill is scheduled to be passed in June 2009.

Consideration with Urban Planning Direction regarding to the Draft Bill

The proposed draft bill was formulated through consultation process workshops in the

City, with stakeholders including representatives of various government departments, civil society groups, private sector and Resident Development Committees (RDC) and districts and communities' workshop in Kitwe, Lusaka, Solwezi, Livingstone, Mazabuka, Senanga and Mongu districts.

Table 2.2.5 shows three key elements of the draft bill. There will be considerable directions for urban planning framework in which the corresponding JST could utilize as reference for the preparation of the master plan, especially those concerning the institutional arrangement to be proposed.

Table 2.2.5 Key Element of Draft Bill for Urban and Regional Planning

Key Element	Main item in the Draft Bill	Consideration for Lusaka Greater Area Development Plan
Planning System:	• Decision making process by local authority • Strengthen technical capability and political responsibility by New Planning Committee together with planning authority in local government • Strengthen technical capability of provincial planning authority by regional and urban planning regulations • Establishment of provincial tribunals including legal provision taking account of improvement of appeals procedure and decentralization	• Establishment of coordination mechanism among related Planning Authorities and expected Planning Committees for decision-making , planning and its review, monitoring in the Greater Lusaka Area beyond a Province
Planning Framework:	• Planning framework covering the whole areas of Zambia including State Land and Customary Land consists of National and Regional Planning Guideline, Integrated Development Plan, Local Area Plan and Sector Local Plans • Integrated Development Plan (IDP) considering financial and socio-economic planning as well as spatial plan, implementation with budget program involving relevant Ministries and Agencies • Local Area Plan considering detailed development plan by necessary specific area development by Local Authority in line with IDP • Statutory Improvement Areas to be merged into conventional planning and land development processes through statutory Local Area Planning with necessary property arrangement and infrastructure improvement	• In case of Greater Lusaka, the metropolitan area as the Capital of Zambia needs special status for planning for national and regional importance. • Chiboliya Pilot Study could be an example of Local Area Plan • Revise building standards to allow for greater flexibility in relation to plot size, building materials, coverage etc.
Planning Process:	• Joint planning initiative (Planning Authorities, Planning Committee) can be set for IDP by multi-jurisdictions within in a Province • Public participation requirements at each stage to be prescribed in plan-making process • IDP Plan validity will be every five years for review • Annual budget of a municipality must reflect the priorities and objectives of the applicable IDP • Development control and planning applications • Specific mechanism and process need to be designed for Customary Areas	• Greater Lusaka covering two Provinces needs review of the Bill to fit with the Greater Lusaka Development Plan • Participatory planning approach for citizen of Lusaka and Traditional Chiefs (workshops, seminars, exhibitions, media dissemination, etc) has been taken by the study

Source: Urban and Regional Planning Bill, November 2008, MLGH

2) Building Capacity for Urban Development and Effective Land Tenure Management in Lusaka

LCC/SIDA has continuously supported the administrative capacity improvement on land tenure management since October 2000 (Land Tenure Initiative-LTI project 2000-2003). The initiative aims to provide secured land tenure to residents living in informal settlements in Lusaka, which is simultaneous with another management improvement project for the Chaisa community.

Project overview

Currently SIDA has launched a new project entitled "Building Capacity for Urban Development and Effective Land Tenure Management in Lusaka 2007-2009" in line with previous program of administrative improvement program by SIDA. The program includes four components under a basic objective, which is "reduction of urban poverty in Lusaka City through improved quality, reliability and transparency of service delivery by LCC" as briefly shown in Table 2.2.6.

Table 2.2.6 Program Component of SIDA/LCC Capacity Building Project

Program	Objectives	Programs	Current Status
Component A: Public Service Delivery	Improve organizational and technical ability and capacity on the part of LCC and communities in selected peri-urban areas	• Establish project area for public service agreement • Establish seed fund mechanism • Awareness for involvement • Pilot project for infrastructure upgrading	• Five pilot project areas have been selected (Lilanda, Kanyama, Independence, Chakunkula, Lilayi) • Under preparation of project planning • Workshop for Ward Development Planning Process was conducted • Ward Development Plan is under process of visioning
Component B: Property Valuation and Tenure Campaign	Develop advice and training for re-valuation process of tenure in LCC in order to safeguard the proper implementation	• Establish new valuation roll • Training valuation field staff • Establish new technique for data capture and its information system • Pilot test for billing system and license valuation • Plan a land tenure campaign for pro-poor land administration system	• Coordination with National Valuation System • Methodology will be established • Specific trainings have done
Component C: Land Information Management System	Develop and test Land Information Management systems (LIMS) for efficient, transparent, decentralized and affordable land administration for LCC and satellite offices	• Establish modern geometric reference system with GPS • Establish base map geodatabase by digital orthophoto covering Metro Lusaka • Establish Land Information Management System (LIMS)	• Base map was prepared. • LIMS is under preparation linked with the base map
Component D: Developing the Institutional Capacity of LCC	Establish planning framework for the execution of good governance in rendering sustainable public services for all citizens in Lusaka	• Update strategic plan for both of LCC and Ward (WDC) to be selected • Plan capacity development including manual and guideline • Implement capacity building regarding to urban management (land tenure, valuation, financial management, procurement, planning, participation, HIV, etc.) • Develop financial information system (FMS) with framework and guidelines • Pilot project for infrastructure upgrading	• Needs assessment is under preparation • Formulating IDP capacity development program for enhancement of capacity enabling Integrated Development Planning

Source: Building Capacity for Urban Development and Effective Land Tenure Management in Lusaka/Swede Survey and SIPU 2007 SIDA

The Component C has been conducted at the Chaisa Improvement Area. All the footprints of the houses were outlined and owner information was encoded in a GIS system overlaid onto a satellite image. When the collaborative work was lead by the Departments of City Planning, Housing and Social Services and Legal Services. It is an initial attempt to identify ownership in Improvement Area, but the same survey has not been initiated because of financial constraints.

Coordination with SIDA program for capacity building program in LCC

The JST and SIDA team for capacity building program urban management and development in Lusaka conducted several meetings in order to discuss and coordinate both projects. Table 2.2.7 shows the general agreement between both study teams regarding the main role and activities by program fields.

Table 2.2.7 Coordination Between JICA Study Team and SIDA Team regarding Urban Management Capacity Improvement

Category for Technology Transfer	Target Planning Area			
	Greater Lusaka	Lusaka District	Ward	Zone
Administrative Body	--	LCC	WDC	ZDC
Establishing Vision & Strategy	JICA	JICA	SIDA	--
Master Planning	JICA	JICA	SIDA	--
Implementation Planning	JICA	JICA	SIDA	--
Pilot Program	--	--	SIDA	--

JICA Study Team Technology Transfer main area, sub area
SIDA Capacity Building Program area
Source: JICA Study Team

(4) Other Studies for Lusaka Urban Development and Management

1) Zambia: Lusaka Urban Sector Profile / UN-HABITAT 2007

This report study under the Rapid Urban Sector Profiling for Sustainability (RUSPS) program aims to help formulate urban poverty reduction policies in the cities (Lusaka, Kitwe, Livingstone) in Zambia through a rapid, participatory, crosscutting, holistic and action-orientated assessment of needs. It also intends to enhance dialogue, awareness of opportunities and challenges in identifying response mechanisms as a contribution to the implementation of the MDG.

The report study constitutes a general background, a synthesis of the four themes – governance, slums, gender and HIV/AIDS, and environment – and priority project proposals focusing on unplanned urban settlement (UUS) by four themes.

2) Environment Outlook Report for Lusaka City (Draft 2)

This report was technically and financially supported by the United Nations Human Settlements Program (UN-Habitat) and the United Nations Environment Program (UNEP) as part of the Sustainable Cities Program (SCP). This is reviewed and presented in detail at Chapter 7 - Environmental Consideration.

2.3 Legal and Institutional Context for Urban Development

2.3.1 City Planning and Management

(1) Overview of Current Urban Planning System and its Management in Zambia

1) Relevant Legal Framework for Urban Planning and Urban Development

The planning system is provided in the Town and Country Planning (Amendment) Act No. 21 of 1997 (TCPA), which is largely based on the first Town & Country Planning Act of 1962. The Minister of MLGH whose key responsibilities are related to spatial planning, were briefed with the obligations including appointment of planning authorities and its delegation to the Director of Physical Planning and Housing (DPPH) in provincial or local authority, orders including approval, revoking of the structure,

regional and local plans, and rejection of applications for subdivision, development of land or change in land use and others.

Under the TCPA amendment (1997), the DPPH's roles in sharing responsibilities between Central Government and Local Government have become broader in order to formulate a local plan. DPPH can direct a planning authority to prepare a local plan, conduct a public inquiry on objections made in respect of the local plan and grant corresponding approvals. DPPH also approves alterations to the local plans.

In conjunction with UUS management in cities of Zambia, the Minister has authority to declare any land area, within the jurisdiction of a council, as a *Statutory Housing Area* or an *Improvement Area*, under the Housing Statutory and Improvement Areas Act (HSIAA-1974/1994). These areas include informal settlements and site and service areas of the council. With this Act the council is permitted to subdivide or subject for lease, the lands belonging to Statutory Housing Areas, through the approval of the Minister. The council can also initiate development of infrastructure or any improvements on any parcel of the land.

2) Issues of Urban Planning and Management in Greater Lusaka Area

The discussion document on Urban and Regional Planning Bill identified urban planning issues towards the establishment of its new act in order to update urban management and development issues. The JST has observed similar issues on urban planning and management in Greater Lusaka area. The following are summarized key issues of urban planning and management. Meanwhile, Table 2.3.1 briefly shows issues and problems of Lusaka in terms of uncontrolled urban sprawl; and land management issues and living environment. The corresponding capacity development issues are: strengthening development control and improving land development mechanism for better living environment:

- Necessity to enforce administrative capacity of Local Planning Authorities (Lusaka, Chongwe, Kafue, Chibombo) for urban management system qualitatively and quantitatively
- Necessity to enforce capacity and implementation measures for living environment improvement in the ward, including Unplanned Urban Settlement and Planned Urban Settlement
- Introduction of alternative funding and resource for living area improvement utilizing private sector involvement
- Needs to establish an effective development control body for the Greater Lusaka area

Table 2.3.1 Urban Planning and Management Key Issues of Greater Lusaka Area

Planning Issues	Planning Sub-issues	Capacity Development Issues	Capacity Development Sub-issues
Uncontrolled urban sprawl	• Old and spatially limited planning system	Strengthening development control	• Regional coordination and planning that deals with issues of urban sprawl
	• Inadequate development control		• Strengthening administration functions for implementing the Master Plan
	• Urban area expansion outside of planning areas		• Enforcement
Land management issues and living environment	• Regional planning issues not satisfied	Improving land development mechanism for better living environment	• Regional cooperation for efficient public service delivery (Cemetery, waste disposal site)
	• Land registration in Unplanned Urban Settlements		• Accelerating land registration (Improvement Areas)
	• Living condition in Unplanned Urban Settlement		• Financing public services
			• Efficient land use

Source: JICA Study Team and DISCUSSION DOCUMENT for the preparation of the Urban and Regional Planning Bill, October 2007 HIFAB 2007 SIDA

(2) Review of Urban Planning in LCC as the Planning Authority for Lusaka District

1) The City of Lusaka Development Plan in 1975

This development plan for Greater Lusaka area was established in 1975 under MLGH through several stages based on seven years of continuous planning process from 1969 to 1975. This includes legal processes such as zoning ordinance, and final approvals by LCC as a statutory plan according to the TCPA-1962 (Chapter 475), with the physical development plan of Greater Lusaka area.

Although planning element for the urban management system documented in this Development Plan for the Lusaka District has been outdated, the contents related to urban management are maintained in general, such as the land use zoning (updated in 1985) and other development control measures.

2) LIDP 1999/2000

The LIDP 1999/2000, the latest urban development formulated by Lusaka Planning Authority in LCC, was formulated through funding from the Zambian Government, IDA (WB group) and NORAD after the Lusaka Development Plan in 1975. This includes a few updates in spite of the stipulation that this will be reviewed only every five years.

Its contents include physical, socio-economic and institutional development plans consisting of major sectors, without specific physical plans such as infrastructure services and utilities, transportation and road, environmental conservation, education and health and others.

Table 2.3.2 Spatial Development Zoning by Area for Greater Lusaka

Category	Sub-category	Color Legend	Area (km^2)
Zoning	Stability	yellow	72.2
	Employment	purple	31.9
	Future potential	light green	433.2
	Intervention	red	37.2
	Opportunity	brown	113.1
	Conservation area	dark green	22.8
	Metropolitan open space	green	10.2
	Beyond urban edge	light brown	143.5
	Total		**864.1**
Future Projects	Residential	Horizontal hutching	n.a.
	Industrial/Commercial	Net hutching	n.a.

Source: The Lusaka Integrated Development Plan 1999/2000
Note: Sub-categories are not defined in the report

3) Current Status of the LIDP 1999/2000

LIDP has not been authorized due to insufficient involvement of the adjacent districts and has not been implemented due to the following problems.

- The plan which was intended to solve issues such as securing public land for solid waste disposal and cemetery, addressing increase in demands, and control urbanization in the adjacent area where urban sprawl is conspicuous, has been subjected to adverse reactions from adjacent districts.
- The plan did not have concrete physical development scheme per sector and only shows budgetary program.
- Districts where customary areas are predominant around the City were reluctant to

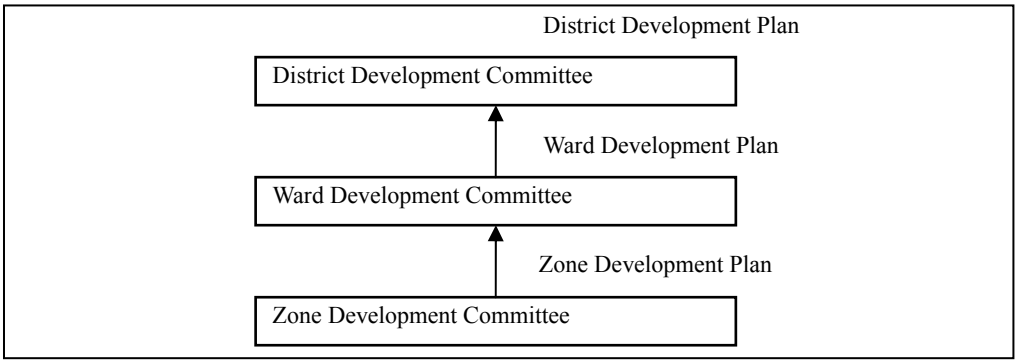
be involved in the Lusaka Planning Area, due to political issues.

- There were no strong measures to control development against urban expansion in the Greater Lusaka area.

(3) Development Planning Process

Development planning process of the City has three tiers: Zone; Ward; and District. The Zone level of development planning assures participatory process of development. Zone development plans are prepared by the Zone Development Committee. These development plans become inputs to ward development plans.

The ward development plans are consolidated to constituency development plan in the Constituency Development Committee. The constituency development plan, which is a project list, is submitted to the District Planning Unit of the City Planning Department to form the District Development Plan.



Source: Lusaka City Council

Figure 2.3.1 Development Planning Process

The ward development plans are also submitted to LCC which consists of ward councilors, mayors, and town clerks. The ward development plans serve as inputs to the Integrated Development Plan.

Development funding comes from the MFNP to MLGH. After receiving grants from the MLGH, LCC disperses the funds to the wards who will then distribute the funds to the zones.

The development planning is conducted, generally, without spatial information. Members of development committees simultaneously plan while preparing the project lists. Implementation of projects and allocations of funding are neither monitored properly by each tier of development committees nor by the district planning unit of the city planning department. The councilors, who have powers to dissolve the council, can form a committee to discuss developmental issues in the localities. Hence, they have a potential in dominating the development committee. The implementation of projects is also seldom monitored.

2.3.2 Land Tenure and Urban Development Control

(1) Overview of Land Tenure Issues

There are two tenure systems in Zambia, i) customary, and ii) leasehold tenure. Customary tenure is an indigenous form of land holding which is generally held by communal association, under the strong chairmanship of a chief. The customary lands in adjacent districts in Greater Lusaka area are under this tenure system.

Leasehold tenure meanwhile is a system of land holding known as state land and

regulated by statutes. Ministry of Lands, which has currently drafted the Land Management and Land Policy, indicated issues on land management in the report as follows.

- Customary lands is not a suitable system for future land management in terms of addressing population growth and urbanization.
- Customary lands will not be able to properly sustain important land resources such as natural resource areas and forest areas.
- Land distribution system needs to be more safely, effectively and sufficiently meet the current increase in demand, together with appropriate land registration.
- Land development form needs to be formulated through adequate institutional framework with private sector involvement.

(2) Land Management Issues in Greater Lusaka Area

Land management in the City is managed by three key bodies where each is delegated with different issues on land tenure.

There are three land registration types: Land Record Card, Occupancy License, and Certificate of Title. The Land Record Card is issued outside of improvement areas in unplanned areas. Occupancy License is issued in Improvement areas. Certificate of Titles are issued in the Statutory Housing Areas. When unplanned areas are declared as Improved or Statutory Housing Areas, a holder of Land Record Card needs to acquire Occupancy License or Certificate of Title. The Land Record Card, Occupancy License and Certificate of Title are valid for ten, thirty, and ninety-nine years, respectively.

A person or household without the proof of registration is considered illegally occupying a piece of land. Illegal occupants are evicted. Table 2.3.3 shows briefly each land issues. It is envisaged that same land administration system could be applied to the other three districts (Chongwe, Kafue, Chibombo), although this assumption was still subject to confirmation.

Table 2.3.3 Land Management System in Greater Lusaka Area (Lusaka District, Chongwe, Kafue and Chibombo Districts)

Responsible Authority	Planned Settlement Area		Unplanned Settlement (IA)	Area out of Range Two Type
	Land Management System	Tax System	Occupancy License	Recording
Ministry of Land	• Land registration (99 years Title Deed) • Cadastral mapping land title management	• Property rates ➢ Residence (1.0 %) ➢ Public Facil (1.0%) ➢ Com/Busi (1.5%) ➢ Industry (1.5%) ➢ Agriculture (0.0%)	--	--
District (Valuation Department)	• Land value evaluation	• Land value evaluation is evaluated for taxation	--	--
District (Legal Department/land registration)	• Land registration (99 years Title Deed) (ZMK250,000)	• Property Rates (ditto as MoL)	• Occupancy License (30 years, ZMK150,000) for house	• Land Record Card for temporal registration (10 years, ZMK150,000)
Traditional Authority for Customary area	• Head man submitting to District Council for land title approval	--	--	--
Ministry of Agriculture an Cooperative d	• Not apply to Urban Planning Area	--	• n.a	• n.a

Source: Lusaka City Council

2.3.3 Land Use Control and Building Permission

(1) Land Use Control

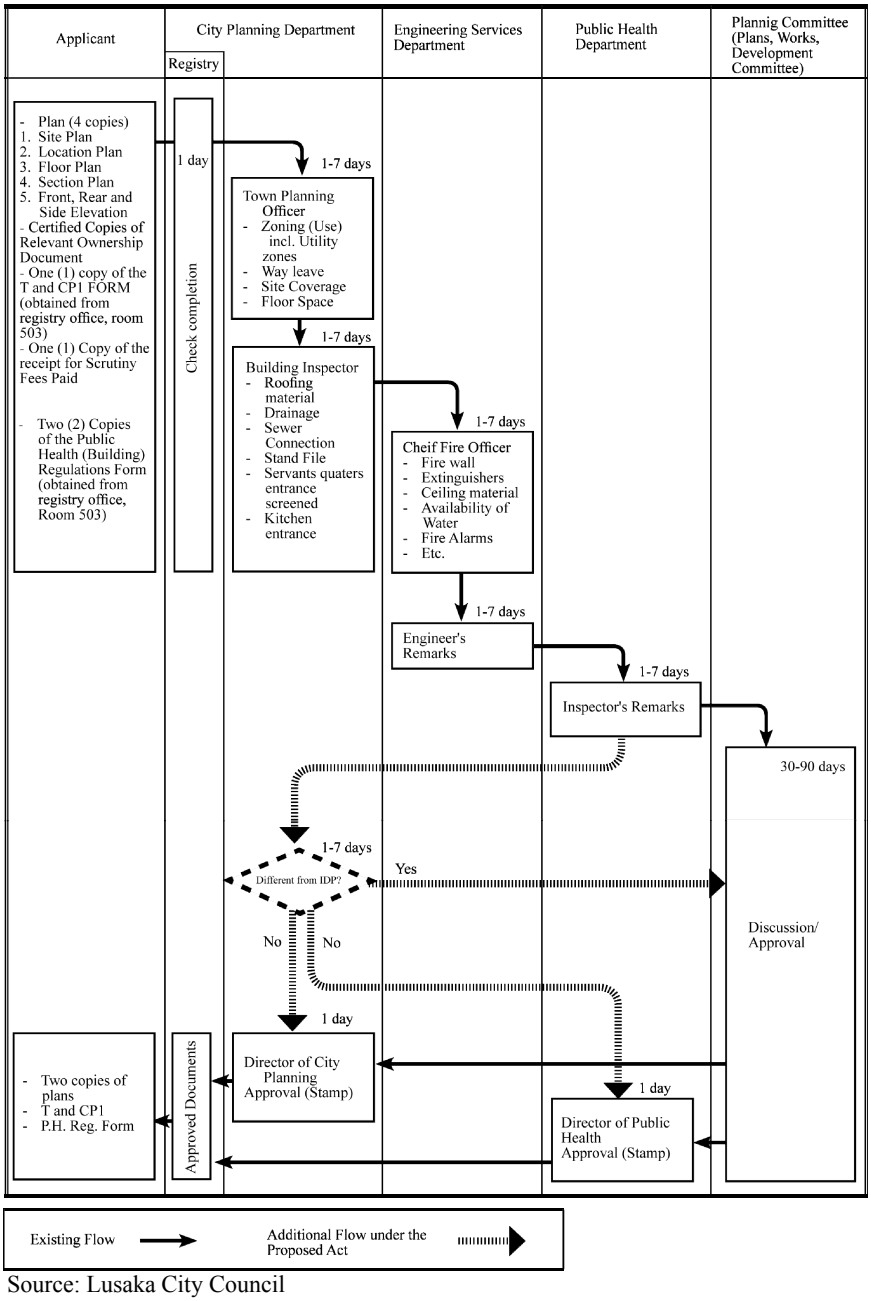
Land use control for urban activities is stipulated in the City of Lusaka Development Plan (1975/1985). This is referred to by the city planning department for managing and controlling urban development, regulated under Section 53 of TCPA, in terms of changing land use based on classification. The scope for land use control mainly includes granting development permissions, subject to appraisal, in consideration of land use and access road, availability of infrastructure, building coverage, floor area, etc. Building regulations meanwhile is managed by the Department of Public Health, regulated under Section 114 of PHA.

According to interview with planning officer, land use control does not involve major issues of violations in land use change such as conversion from residential to commercial or industry purpose. This is more common than the issue of converting agriculture or unutilized land to built-up areas. However, the trends of land use change has been observed lately such as the conversion from residential to commercial or business in the city center, and conversion to sub-urban area small holdings, e.g., from farmers' residential area to industrial area.

(2) Development and Building/Planning Permission Procedure

Planning and building applications are all processed in the City Planning Department. Generally application is processed in thirty-days or less depending on the schedule of the Committee meeting. When an application is failed to be processed for the scheduled Committee meeting, the application will be scheduled for the next meeting which takes from 60 to 90 days depending on the complexity of the application. There are three departments and one Committee (Plans, Works and Development Committee: PWDC) involved in the process of the planning and building approval. Every Tuesday and Thursday, representatives from the Engineering Department and Public Health Department come to the office of the Planning Department to review the applications. The applications are then approved or disapproved every thirty days during the Committee meeting. The general flow of the application process is shown in Figure 2.3.2.

To streamline the process, the new TCPA proposes a shorter approval process on a condition if an application satisfies IDP requirements, it can be approved by the Directors of City Planning and Public Health. It is to note that building regulation in Zambia included in the Public Health Act; therefore, the Director of the Public Health Department will be granted an authority to approve building applications.



Source: Lusaka City Council

Figure 2.3.2 Building/Planning Application Procedure

The documents required for building/planning permits are: building plans and drawings (site plan; location plan; floor plan; section plan; front, rear and side elevations); Certified Copies of Relevant Ownership Documents; one copy of the T and CP 1 Form (Lusaka City Council Application to Erect a Building and Application for Permission to Develop); Two copies of the public health (Building) regulations form; and one copy of the receipt of scrutiny fees paid. The application is reviewed by a Building Inspector, Chief Fire Officer, Engineer, and Public Health Inspector.

After their approval, the application is then certified in the Plans, Works and Development Committee in LCC. When the director of the City Planning Department decides to make an application to the agenda—cases of large development—the matters are raised and resolved in the committee monthly meeting.

2.3.4 EIA Procedure of Zambia

The development of the statutory EIA system was introduced in the late 90's. The first

environmental policy was the National Conservation Strategy of 1985 which was reviewed and later replaced with the National Environmental Action Plan. Furthermore, the Environmental Protection and Pollution Control Act (EPPCA) No. 12, Cap 204 was enacted in 1990, while the EIA was institutionalized in 1997.

There are seven objectives of EIA described in "Training Manual - Environmental Impact Assessment Review" prepared by Environmental Council of Zambia (ECZ) and Canadian International Aid Agency (CIDA) in May 2002.

- *Integrating environmental considerations into project planning;*
- *Ensuring that potentially negative impacts are foreseen and discussed at an early stage in the project planning process;*
- *Identifying and enhancing the positive impacts of the proposed project;*
- *Examining possible trade-offs and alternatives to minimize negative impacts;*
- *Ensuring appropriate participation of the affected and interested parties (grass root communities, government authorities, developers, investors, NGOs etc.) in the decision-making process;*
- *Ensuring that development activities are people-centered and contribute to local economies where possible;*
- *Providing opportunities for sustainable development by providing protection to natural ecosystems and social values important to Zambia and the international community.*

(1) Project Types which Require Project Brief and Environmental Impact Statement (EIS)

Whether a project is subject to submission of a project brief or EIS is decided according to project type. There are two types of project categories: the First Schedule and the Second Schedule (See Table 2.3.4 and Table 2.3.6, respectively).

(2) Requirements of the Project Brief

1) Project Types which Require Project Briefs

Projects under the First Schedule as shown in Table 2.3.4 are initially required to submit a project brief consisting of the contents in Table 2.3.5. Forty days after the submission of the project brief, the ECZ will issue a decision letter to the authorizing agency and concerned institutions. If the project has no significant environmental impacts or has sufficient mitigation measures, approval is granted. On the other hand, if any adverse impacts or inappropriate mitigation measures are identified, the developer will be required to conduct a full EIA study or submit additional information.

Table 2.3.4 First Schedule: Project Types which Requires Project Briefs

1	Project Type
(a)	Urban Area Rehabilitation
(b)	Water Transport
(c)	Flood Control Schemes
(d)	Exploration for and Production of Hydrocarbons including Refining and Transport
(e)	Timber Harvesting and Processing in Forestry
(f)	Land Consolidation Schemes
(g)	Mining and Mineral Processing, Reduction of Ores, Minerals, Cement and Lime Kilns
(h)	Smelting and Refining of Ores and Minerals
(i)	Foundries
(j)	Brick and Earthen Manufacture
(k)	Glass Works
(l)	Brewing and Malting Plants
(m)	Plants for Manufacture of Coal Briquettes
(n)	Pumped Storage Schemes
(o)	Bulk Grain Processing Plants
(p)	Hydro Power Schemes and Electrification
(q)	Chemical Processing and Manufacturing
1	Others
(a)	Resettlement schemes
(b)	Storage of hydrocarbons
(c)	Hospitals, clinics and health centers
(d)	Cemetery designation
(e)	Touring and recreational development in national parks or similar reserves
(f)	Projects located in or near environmental sensitive areas such as (i) indigenous forests; (ii) wetland; (iii) zones of high biological diversity; (iv) areas supporting populations of rare and endangered species; (v) zones prone to erosion or desertification; (vi) areas of historical and archeological interest; (vii) areas of cultural or religious significance; (viii) areas used extensively for recreation and aesthetic reasons; (ix) areas prone to flooding and natural hazards; (x) water catchments containing major source for public, industrial or agricultural uses; and (xi) areas of human settlements (particularly those with schools and hospitals).

Source: Regulation 3 (2), Environmental Protection and Pollution Control Act-Cap 204 of 1997

2) Contents of the Project Brief

The developer is required to prepare a project brief which covers the contents listed below in Table 2.3.5.

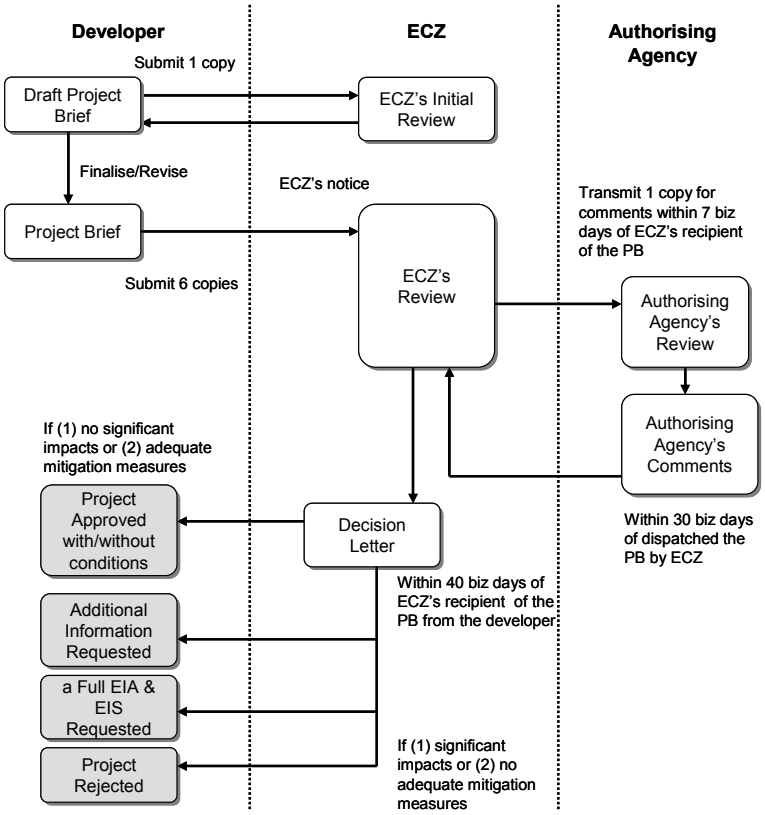
Table 2.3.5 Contents of the Project Brief

Par	Contents
(a)	The site description of the environment
(b)	The objectives and nature of the project and reasonable alternatives
(c)	The main activities that will be undertaken during site preparation, and construction and after the development is operational
(d)	The raw and other materials that the project shall use
(e)	The products and by-products, including solid, liquid and gaseous waste generation
(f)	The noise level, heat and radioactive emissions, from normal and emergency operations
(g)	The expected socio-economic impacts of the project and the number of people that the project will resettle or employ, directly, during construction and operation, etc.
(h)	The expected environmental impact of the project, taking into account the provisions of paragraphs (c) to (g)
(i)	The expected effects on bio-diversity, natural lands and geographical resources and the area of land and water that may be affected through time and space
(J)	A description of adverse impact mitigation measures and any monitoring programmes to be implemented.

Source: Regulation 3, Part II, Environmental Protection and Pollution Control Act-Cap 204 of 1997

3) Procedure of the Project Brief Submission and Review

The developer shall prepare a project brief and submit to ECZ for review. If the ECZ considers that if the project has no significant impact or adequate mitigation measures are adopted, considering comments from an authorizing agency, the ECZ issues a decision letter, granting approval to the project. The procedure is summarized Figure 2.3.3.



Source: Prepared by JICA Study Team based on Training Manual Environmental Impact Assessment Review (ECZ, 2002)

Figure 2.3.3 Project Brief Review Procedure

(3) Requirements of the EIS

1) Projects Types which Require EIS

The developer whose project is listed in the Second Schedule is required to conduct a full EIA and submit an EIS without submitting a project brief. The project types for the Second Schedule are listed in Table 2.3.6.

Additionally, if the ECZ considers the project may cause significant impacts, ECZ may request the developer to conduct an EIA and submit an EIS.

Table 2.3.6 Second Schedule: Project Types which Require the EIS

	Project Type
1.	***Urban Development***
(a)	Deigning of new townships which are more than 5 ha or more or sites covering 700 dwellings and above.
(b)	Establishment of Industrial Estate
(c)	Establishment or expansion of recreational areas such as golf course, which would attract 200 or more vehicles.

Project Type	
(d)	Shopping centres and complexes-10,000m^2 and above floor area
2.	***Transportation***
(a)	All major roads outside urban areas, the construction of new roads and major improvements over 10km in length or over 1Km in length if the road passes through a National Park or Game Management Area
(b)	Railway lines 10 km away from built up area
(c)	Airport and airfields whose runway is 1,800 m or more
(d)	Pipelines: for water, diameter 0.5m and above and length 10 km outside built up area; for oil, 15 km or more of which 5 km or more of their length will be situated in a protected areas, a seriously polluted or a water abstraction area
(e)	Establishment of or expansion of harbors or pontoon areas
3.	***Dams, Rivers and Water Resources***
(a)	Dams and barrages covering a total of 25 ha or more
(b)	Exploration for, and use of, ground water resources including production of geothermal energy: water to be extracted to be more than 2 million(m^3/s)
(c)	Water supply-reservoir surface area 50m^2 or more
4.	***Mining including Quarrying and Open Cast Extraction***
(a)	Copper mining, coal site
(b)	Limestone, sand, dolomite, phosphate and clay extraction's of 2 ha or more
(c)	Precious metals (silver, zinc, cobalt, nickel)
(d)	Industrial metals
(e)	Gemstones
(f)	Radioactive metals
5.	***Forestry Related Activities***
(a)	Clearance of forestry in sensitive areas such as watershed areas or for industrial use 50 ha or more
(b)	Reforestation and afforestation
(c)	Wood processing plants – 1,000 tonnes or more per year
6.	***Agriculture***
(a)	Land clearance for large scale agriculture
(b)	Introduction and use of agrochemicals new to Zambia
(c)	Introduction of new crops and animals especially exotic ones new to Zambia
(d)	Irrigation schemes covering an area of 50 ha or more
(e)	Fish farms of which production is 100 tonnes or more a year
(f)	Aerial and ground spraying – industrial scale
7.	***Processing and Manufacturing Industry***
(a)	Cement works and lime processing – 1,000 tonnes or more a year
(b)	Fertilizer manufacturing or processing – 1,000 tonnes or more a year
(c)	Tanning and dressing of hides and skins – 1,000 skins a week
(d)	Abattoirs and meat processing plants – 20,000 carcasses and above a month
(e)	Fish processing plant – more than 100 tonnes a year
(f)	Pulp and paper mills – daily output 50 air dried tonnes and above a day
(g)	Food Processing plants – 400 tonnes or more output a year
8.	***Electrical Infrastructure***
(a)	Electricity generation station
(b)	Electrical transmission lines – 220 kV and more than 1km long
(c)	Surface roads for electrical and transmission lines for more than 1 km long
9.	***Waste Disposal***
(a)	Sites for solid disposal: construction of permanent disposal site with 1,000 tonnes and above a day
(b)	Sites for hazardous disposal of 100 tonnes or more a year
(c)	Sewage disposal works – with a capacity f 15,000 litres or more a day
10.	***Nature Conservation Areas***
(a)	Creation of national parks, game management areas and buffer zones
(b)	Commercial exploitation of natural fauna and flora
(c)	Introduction of alien species of flora and fauna to local ecosystems

Source: Regulation 7 (2), Environmental Protection and Pollution Control Act-Cap 204 of 1997

2) Contents of the EIS

According to "Training Manual Environmental Impact Assessment Review," the EIS should cover the following contents (See Table 2.3.7).

Table 2.3.7 Contents of the EIS

Paragraph	Contents
(a)	a description of the project, reasonable alternatives, which may begin or increase operations to provide materials or services to the proposed project;
(b)	a description of the proposed site and reasons for rejecting alternative sites;
(c)	a brief description of the site and the surrounding environment including specifying any information necessary to identify and assess the environmental effects of the project;
(d)	a description of project activities during planning, construction, operation and closure/decommissioning or abandonment phases;
(e)	a description of the raw material inputs into the project and their potential environmental effects;
(f)	a description of the technology and processes that shall be used;
(g)	a description of the products and by-products of the project;
(h)	the environmental effects of the project, and reasonable alternatives, including the direct, indirect cumulative short-term and long-term effects;
(i)	the socio-economic impacts of the project such as resettlement of the affected people;
(J)	an impact management plan containing a description of measures proposed for preventing, minimising or compensating for any adverse impact, and enhancing beneficial effects, and measures to monitor effluent streams or important environmental features which may be affected by the project;
(k)	an indication of whether the environment of any neighbouring state is likely to be affected; and
(l)	an executive summary, stating the main findings and recommendations and shall be signed by ever individual person involved in its preparation.

Source: Training Manual Environmental Impact Assessment Review (ECZ, 2002)

3) EIA Review Procedure

The developer shall conduct an EIA and prepare an EIS in accordance with the Fourth Schedule of EPPC. The stages of the procedure of the EIA are summarized below and presented in Figure 2.3.4. Additionally, the Resettlement Action Plan (RAP) report is required for the EIA approval if the project involves the involuntary resettlement according to the hearings with the ECZ and local environmental consultants.

i) Proceed surveys for the EIA and RAP as described in the TOR

ii) Prepare the EIA report and RAP report

iii) Submit the EIA report for approval

iv) Wait for ECZ's approval of the EIA report which takes approximately 65 working days, or 122 working days when subjected to ECZ's public hearing

Stage 1: *Preliminary Actions*

Stage 2: *Scoping (or Identification of potential impacts):*

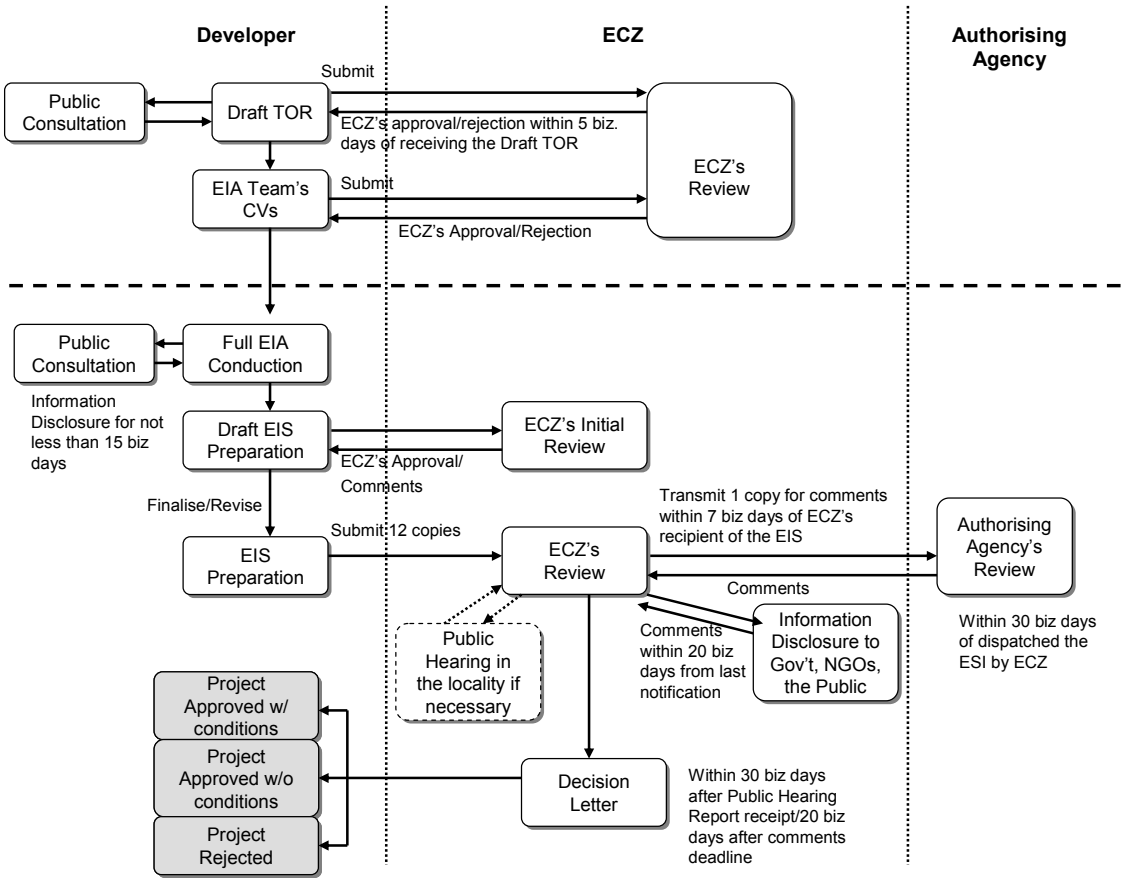
(1) Opening a public consultation meeting with Project Affected Persons (PAPs) on the expected environmental and social impacts of the project and the scope of the EIA and RAP when scoping impacts of the project;

(2) Prepare a draft TOR of the EIA and RAP by considering comments and suggestions from PAPs during the public consultation meeting;

(3) Submit the draft TOR together with CVs of EIA Team, the Minutes of Meetings and the participants' list with their signatures; and

(4) Obtain the approval letter from the ECZ which takes approx. 7 working days.
Stage 3: *Baseline Study:*
Proceed surveys for the EIA and RAP as described in the TOR
Stage 4: *Impact Evaluation*
Stage 5: *Public Participation in Environmental Impact Study*
Stage 6: *Identification of Mitigation Measures*
Stage 7: *Assessment (or Comparison of Alternatives*
Stage 8: *Decision Making by the Developer.*
Stage 9: *Submission of the Report to ECZ*
Prepare the EIA report and RAP report
Stage 10: *Decision Making by ECZ*
ECZ's approval of EIA report requires approx. 65 working days or 122 working days with ECZ's public hearing
Stage 11: *Implementation of the Project and Post Assessment Audit*

Source: Fourth Schedule of Regulations 9 (4) of Environmental Protection and Pollution Control Act-Cap 204 of 1997 and hearings with ECZ and Environmental Consultants in June 2008



Source: Prepared by JICA Study Team based on Fourth Schedule of Regulations 9 (4) of Environmental Protection and Pollution Control Act-Cap 204 of 1997 & Training Manual Environmental Impact Assessment Review (ECZ, 2002)

Figure 2.3.4 EIS Review Procedure

(4) Stakeholder Participation and Information Disclosure

The EIA regulations emphasize the involvement of all Affected and Interested Parties ("IAPs") into the EIA process. These parties include project proponents, investors, government ministries and departments (lead agencies), the private sector, local communities, NGOs, politicians, traditional leaders and institutions, the general public and consultants. In the course of EIA process, ECZ distributes copies of the EIS to relevant ministries, local government units, parastatals, NGOs and IAPs. ECZ posts copies of the EIS in public buildings in the vicinity of the proposed project site so that

the general public can access the EIS and make comments. Additionally, if necessary, ECZ organizes a public hearing concerning the project in which all IAPs are allowed to participate.

(5) Relevant Agencies and Institutions

ECZ is the designated agency for EIAs, and takes the central role in environmental administration. ECZ was established as an autonomous body by the EPPCA in 1990, which was the supreme environmental law of Zambia. The EPPCA prescribes the functions and powers of the ECZ as a corporate body. The board members of ECZ are drawn from specific stakeholders who are particularly concerned on the protection of environmental and natural resources, and have various related backgrounds. The ECZ headquarters is currently in Lusaka with three branch offices in Livingstone, Copperbelt and Chilundu.

ECZ is the only organization which has the authority to review EISs. However, some internal reviews are conducted by ECZ in conjunction with other governmental organizations. When the ECZ considers the need to request comments from primary stakeholders such as the Ministry of Tourism, Environment and Natural Resources (MoTENR) and LCC, these organizations will participate in reviewing and provide comments.

After the Environmental Protection and Pollution Control (Environmental Impact Assessment) Regulations of 1997, ECZ has received and reviewed 649 Environmental Project Briefs (EPBs) and 103 EISs. Due to anticipated economic growth in the future, there would be a need to increase the number of organizations who will be conducting reviews of EPBs and EISs. To tackle this issue, ECZ is currently decentralizing the EIA review process which enables local authorities to manage the initial EIA review process, as outlined in the decentralization policy of the MLGH.

The MoTENR appoints the chairperson of the board, while the board appoints the director who will serve as the chief executive officer for executing policies and directives of the board, through the inspectorate. Furthermore, the MoTENR also forms relevant policies.

According to a hearing with Department of Resettlement under the Vice President's Office, resettlement issues are handled by five authorized agencies depending on land use types: the Ministry of Land; Ministry of Agriculture; Office of the Vice President; MLGH; and Traditional Establishment. For urban development in the City, the jurisdiction is under the DPPH of the MLGH.

CHAPTER-3

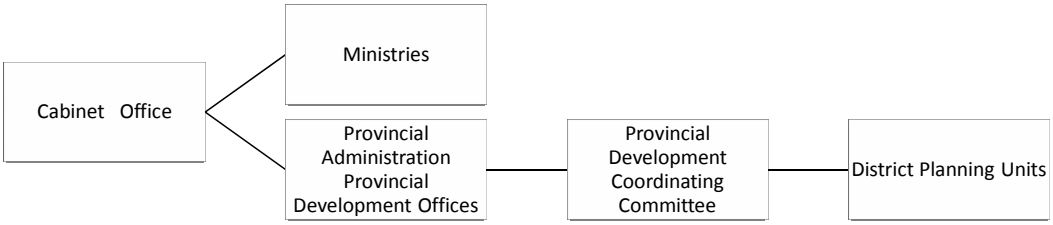
DEVELOPMENT ISSUES OF LUSAKA CITY

CHAPTER-3 DEVELOPMENT ISSUES OF LUSAKA CITY

3.1 Governance of Lusaka City

3.1.1 Relevant Organizations for Key Urban Development and Improvement

The Cabinet Office of the Central Government is the highest executive entity in Zambia. The hierarchic structure of its government is as follows: the Provincial Administration and, the ministries are directly under the Cabinet Office; the Provincial Planning Offices are within the Provincial Administration. The Provincial Planning Secretariat is the entity responsible for preparing the Provincial Development Plan. The Provincial Development Coordinating Committee coordinates the district plans prepared by the District Planning Units. The District Planning Unit in LCC reports to the Provincial Development Coordinating Committee to coordinate the district plans. A Provincial Coordinating Committee meeting is held quarterly. LCC is one of the district councils in Lusaka Province.

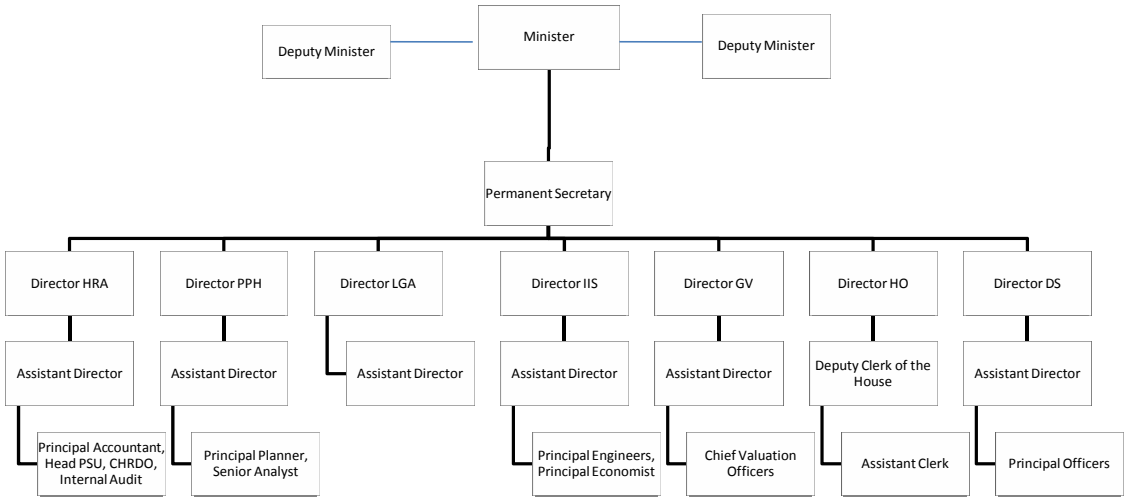


Source: JICA Study Team

Figure 3.1.1 Organization for Urban Development

(1) MLGH

The organization structure of the MLGH is shown in the following diagram:



Note: HRA: Human Resource Administration, PPH: Physical Planning and Housing, LGA: Local Government Administration, ISS: Infrastructure Support Services, GV: Government Valuation, HOC: House of Committee, DS: Domestic Services
Source: JICA Study Team

Figure 3.1.2 Organization Structure: Ministry of Local Government and Housing

(2) Road Development Authority

The Public Road Act of 2002 aims to centralize the road administration in Zambia. Previously, the jurisdiction on roads were jointly administered under the Road Department in the Ministry of Works and Supply, the Ministry of Tourism, the Ministry of Housing and the Local Government (Department of Infrastructure and Support Services), the Ministry of Agriculture, and Local Authorities were administering roads with their jurisdiction. To streamline the road administration in Zambia, the Road Development Agency (RDA) was created.

RDA has nine Regional Engineer's offices to cover each province. The functions of the regional offices are: identification of road projects; procurement of contracts (consultancy and construction); feasibility studies; implementation of projects; supervision; and monitoring and evaluation.

RDA appointed 72 road authorities. The functions of these road authorities are similar to the Regional Engineers' offices. The road authority conducts projects on urban and feeder roads within the council boundaries.

Road projects extending through the council boundaries are conducted by the Regional Engineers' office of RDA and the road authority. Sections not covered by the road authorities are implemented by the Regional Engineers' Office.

3.1.2 Project Implementation System

The fiscal year in Zambia is from January to December. Each department starts preparing its budget for the following year, starting from August. The departmental budget is consolidated by November by the Department of Finance. The consolidated budget is sent to the Finance and General Purposes Committee. After approval is granted, the budget is sent to the concerned councils for final approval. The budget is finally sent to the MLGH. From January, departments start implementing departmental projects. Development project needs are reflected in the zone, ward, and district planning processes.

In Peri-Urban areas, development plans are initiated by the Ward Development Committee (WDC). The WDC requests for infrastructure projects, and then the Engineering Department assesses the projects. The project list is presented to the council. The projects for the wards are financed with a 35 percent ground rent, deposited to the Development Fund.

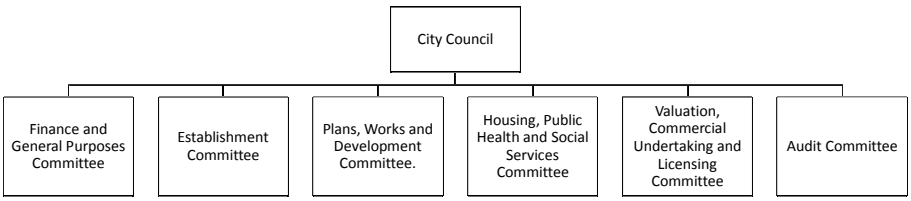
Road development, at the city level, is conducted by the Department of Engineering Service. To develop new roads in the conventional areas within the city boundary, the department prepares an annual work plan, which is discussed with the Plans, Works, and Development Committee and approved by the designated council. For new construction in the work plan conducted in conventional areas, residents are required to pay one-time service charges for the provision of roads. The fees range from ZKW1.5 to 15 million depending on the area.

Public works projects often require land acquisition. There are two land acquisition procedures namely, the compulsory acquisition and the out-right purchase. The difference is the valuation of property and period taken for acquisition. In the compulsory acquisition, the Valuation Department of the Ministry of Land assess the property. This process takes two to three years depending on cases involved. The out-right purchase meanwhile is applied when the land in question is urgently needed. The current market value is considered in appraising the property. The time required for purchase is shorter while the cost of purchase is high.

3.1.3 Organization Structure

(1) Lusaka City Council (LCC)

LCC was created by the enactment of the 1991 Local Government Act and the Local Government Election Act. The town clerk heads the executive structure while the mayor heads the civic structure. LCC consists of seven elected members of the parliament, representing each constituency. It also consists of 33 councilors, representing each ward.[1] The councilor committee structure has six committees: Finance and General Purposes Committee; Establishment Committee; Plans, Works and Development Committee (PWD); Housing, Public Health and Social Services Committee; Valuation (HPPHSS), Valuation, Commercial Undertaking and Licensing Committee (VCUL); Audit Committee.

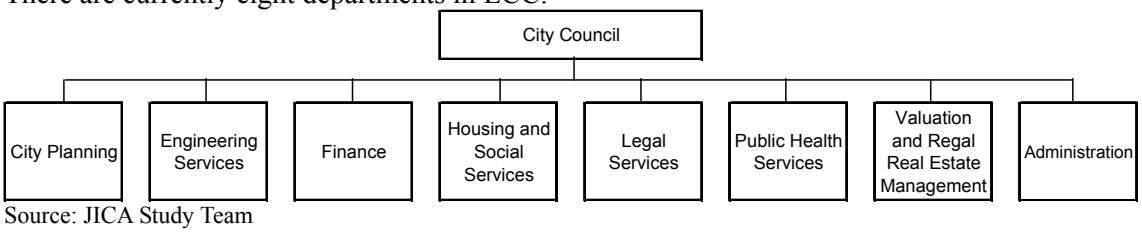


Source: JICA Study Team

Figure 3.1.3 Organization Structure: LCC Committees

Agendas to be discussed during committee meetings are brought from the directors of departments. Financial matters or income or expenses of LCC are discussed in the Finance and General Purposes Committee meeting. The Establishment Committee deals with human resources affairs such as promotion. PWD handles development affairs such as land use and transportation. HPPHSS covers housing, public health, and social services. VCUL's major roles are: valuation for rating; control and management of commercial undertakings; and licensing. The Audit Committee monitors and evaluates the integrity of financial affairs of LCC.

There are currently eight departments in LCC.



Source: JICA Study Team

Figure 3.1.4 Organization Structure: LCC Departments

The composition of human resources by department is summarized in the following table:

[1] UN-Habitat, United Nations Human Settlements Program. Zambia: Lusaka Urban Sector Profile, p.8.

Table 3.1.1 Human Resource Composition by Department

Department	No
Human Resource and Administration	79
City Planning	39
Engineering Service	140
Finance	100
Housing Service and Social	70
Legal Services	30
Public Health Services	42
Valuation and Real Estate Management	23
Total	523

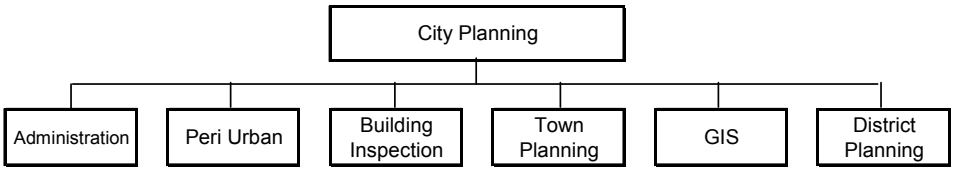
Note: General Workers (Salary Level "G") such as drivers, office cleaning staff are excluded.
Source: Human Resource and Administrative Department, LCC

1) City Planning Department

The City Planning Department has three functions namely, planning, permit processing, and inspection. This department consists of six sections.

The Town Planning Section and the District Planning Section perform tasks related to planning. The forward planning in the Town Planning Section, prepares plans in selected areas of the city. As one of the four districts in the Lusaka Province, the District Planning Section prepares the district development plan, which includes development plans of various sectors.

The major function of the Peri-Urban Section is mainly to resolve land disputes among lease holders. There are 15 personnel in the Peri-Urban Section, which is not enough to cover the entire peri-urban areas. Six members of the Building Inspection Section conduct inspection in the city area. The Administration Section conducts various administrative matters which include human resource management, office equipment procurement, development application reception, and other miscellaneous office works required by the department. The Secretarial Section converts all incoming documents to digital format. The Geographical Information System **(**GIS) section integrates planning information to the GIS system.



Source: JICA Study Team

Figure 3.1.5 Organization Structure: City Planning Department

2) Engineering Services Department

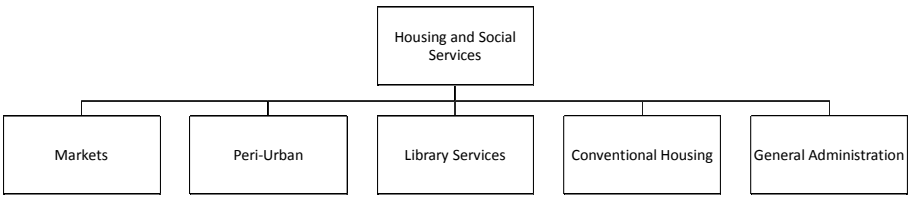
The Engineering Services Department is responsible for provision of all engineering related services to the City of Lusaka in behalf of LCC. The Department has nine sections namely, Road and Drainage, Design, Mechanical Workshop, Electrical, Building Maintenance, Architectural, Quantity Survey, Fire Brigade, and Central Administration. Its current fundings are sourced from the LCC, MLGH and National Road Fund Agency (NRFA). MLGH specifies the location of maintenance facilities.

The two major sections under the Engineering Department, the Road and Drainage, and Design Sections, work closely together. They are responsible for the development, management, and maintenance of roads and drainage infrastructure in the city. About 60% of the total work is contracted to private corporations in Lusaka. The remaining

40% is implemented through in-house capacity of the Department of Engineering Services.

3) Housing and Social Services Department

The Housing and Social Services Department consists of five sections: Markets; Peri-Urban; Library Services; Conventional Housing; and General Administration.



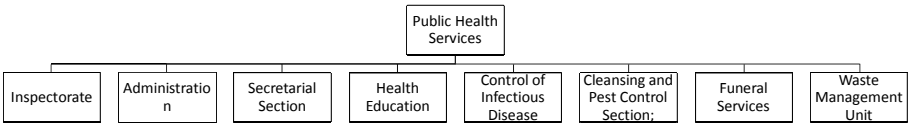
Source: JICA Study Team

Figure 3.1.6 Organization Structure: Housing and Social Services Department

The Peri-Urban Section formed the 33 WDCs that have replaced the previous area based organizations. The Conventional Housing Section has collected ground rent amounting to ZKW3.5 billion, in 2006. The Market Section administers 20 markets in the city. The Community Development Section oversees pre-schools, community schools, skills trainings, and home economics and sports.

4) Public Health Services Department

The sections in the Public Health Services Department include Inspectorate Section, Administration Section, Secretarial Section (Typing Pool), Health Education, Control of Infectious Disease Section, Cleansing and Pest Control Section, Funeral Services Section and Waste Management Unit.



Source: JICA Study Team

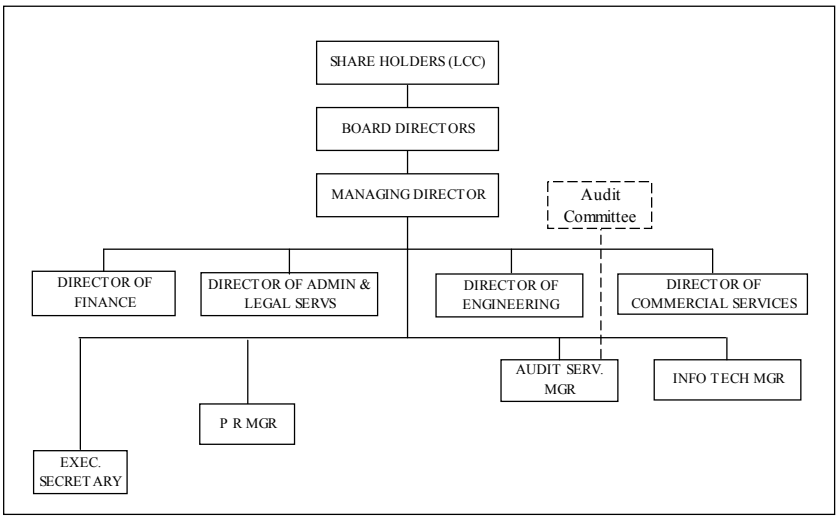
Figure 3.1.7 Organization Structure: Public Health Services

Inspectorate section conducts inspection of meat products, perform measures to control cholera outbreaks, controls nuisance, and monitors water quality. It also reviews licenses and building permits. Only one personnel is assigned to the Health Education Section. It is noted however that seven community-based volunteer's training sessions were conducted in February 2007, where it was realized that the participating volunteers are major in human resources of health education. According to the Human Resources and Administration Department, no staff is presently assigned to the Control of Infectious Disease Section. Cleansing and Pest Control Section conducts pest-control spraying and drain clearing.

(2) Lusaka Water and Sewerage Company

Lusaka Water and Sewerage Company (LWSC) provides water supply and sewerage services to the City of Lusaka. LWSC was first registered in 1988 under the Companies Act and started its operations in 1990. Previously, the water and sewerage department of LCC had roles and responsibilities related to provision of water supply and sewerage services. Currently, this department is the sole shareholder of LWSC, who are leasing

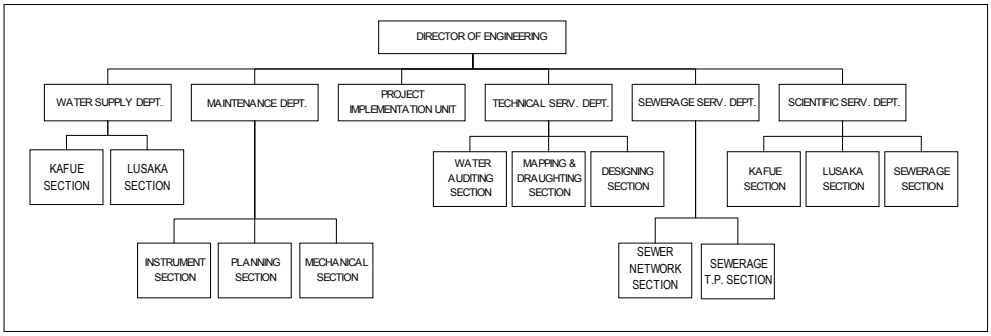
assets from the LCC. During early 2003, LWSC was eventually transformed into a commercial utility, taking full control of the transferred assets.



Source: JICA Study Team

Figure 3.1.8 LWSC Administrative Organization Structure

There are four directorates under the Managing Director of LWSC. The total number of staff is around 500, including skilled workers and drivers. The Directorate of Engineering, which consists of 300 staff, performs technical management such as project planning and supervising, and operation and maintenance of water supply and sewerage facilities.



Source: JICA Study Team

Figure 3.1.9 Organization Chart - Directorate of Engineering

The Water Supply Department and Sewerage Department are in charge of operation of the plants and network facilities for water supply and sewerage respectively. The Maintenance Department meanwhile, carries out maintenance works for the facilities. Water quality for both portable and wastewater is tested and monitored by the Scientific Department. The duty of the Technical Services Department is to initiate extension of water distribution networks, meter installation and UFW monitoring. The Project Implementation Unit has roles and responsibilities related to planning, designing and supervising large-scale projects in cooperation with the donors.

3.1.4 Financial Status

There are national and local taxes imposed in Zambia. The major revenue sources for the national government are the income tax and the value added tax (VAT). Meanwhile, the major revenue sources of LCC are rates (property tax) and ground rent.

The major items of income include government and other grants, levies, rents; and fees

and charges. Grants include health, roads, and others. Levies include rates, personal levies, and others. The grants, rates, and ground rent are the major financial sources of the City. The major items of expenditures are employees, supplies and services, and establishment expenses. About a half of the budget is allocated to employee expenses. The establishment expenses include items such as training expenses, telephone, postage, insurance and others. The expenditure budget for land development was ZMK 2.0 billion, whereas the actual expenditure was ZMK 0.6 billion in 2007. The income and expenditure for the year 2007 is shown in the following table.

Table 3.1.2 Income and Expenditure 2007

Item		Budget		Actual		
		billion ZMK	%	billion ZMK	%	% to Budget
Income	Government & Other Grants	6.48	*9%*	3.08	*6%*	48%
	Levies (Rate-property tax, personal levy, etc.)	26.00	*37%*	16.58	*31%*	64%
	Rent (ground rent and house rent)	4.85	*7%*	3.23	*6%*	67%
	Fees and charges	32.06	*45%*	29.33	*55%*	91%
	Others	1.62	*2%*	0.80	*2%*	49%
	Total	71.01	*100%*	53.02	*100%*	75%
Expenditure	Employees	34.48	*49%*	25.81	*50%*	75%
	Premises	2.71	*4%*	1.71	*3%*	63%
	Supplies and Services	7.83	*11%*	4.65	*9%*	59%
	Transport & Plant	3.95	*6%*	4.06	*8%*	103%
	Establishment Expenses	6.41	*9%*	4.66	*9%*	73%
	Others	15.63	*22%*	10.79	*21%*	69%
	Total	71.01	*100%*	51.68	*100%*	73%

Source: Finance Department, LCC

The Rating Act, 1997 (as amended) is the basis of real estate valuation. The rating authority which is the Valuation and Real Estate Management of LCC is the authority responsible to perform valuations for not less than five years according to the amended act. However, due to lack of valuation surveyors in LCC, the work is contracted to private valuation survey companies.

The rate of the standard corporate tax, one of the revenue sources of the national government, is 35%. The personal tax rates range from 0% to 35%, depending on income earned. The personal income tax schedules are summarized in Table 3.1.3.

VAT was introduced in 2005 as additional financial source of the national government. Its current rate for the year 2008 is 17.5 %. LCC is exempted from income taxes under Schedule 2 of the Income Tax Act (CAP 323).

Table 3.1.3 Personal Income Tax Schedule

Unit: ZMK

	Income from	Income to	%
First	0	500,000	0
Next	500,001	1,200,000	25
Next	1,200,001	5,200,000	30
Over		5,200,000	35

Source: PriceWaterhouse Coopers, Zambia Tax Data 2007/2008

According to the 2007 income statement of LWSC, their revenue is about ZMK 78 billion while their operating expenses cost about ZMK 79 billion. Hence, there is a loss of about ZMK1 billion, before tax was imposed.

3.1.5 Public/Private Partnership (PPP) / Private Sector Participation (PSP) Status

The major activities of LCC's PPP are in the areas of solid waster management, market operation, and operation of the bus station. Currently, the Waste Management Unit of

the Department of Pubic Health has been operating with the private sector for collection of solid waste in the City of Lusaka. Although it is not actually a partnership, private sector's participation is observed in road and drainage maintenance works.

3.1.6 Initiatives Commissions

The report "Zambia: Lusaka Urban Sector Profile" was prepared by UN-HABITAT in 2007. This forms part of the Rapid Urban Sector Profiling for Sustainability (RUSPS). The project is designed and implemented by UN- HABITAT and financed by European Commission, Government of Italy, the Netherlands, Finland and Belgium. The issues of governance were raised in the report such as chronically lacking financial resources and qualified personnel and accountability of governance. The direction of the governance, according to the report, is decentralization.[2]

3.1.7 Issues to be addressed

(1) Weak Human Resource Management Administration

All the administration sections of the Working Group have weak administrative capacity, mainly due to poor documentation capabilities of the staff and lack of office equipment. A human management system, which is the basis of capacity development, at an individual level, does not exist (list of staff are in word processor form instead of an established database). The system suggested in the Officer's Annual Performance Appraisal Report is not applied, except when a city employee is promoted. A time management system is not implemented, making it difficult to calculate overtime work, if any. Due to lack of office equipment, the staff uses PCs in the IT Section in the Financial Department for any business requirements, no matter how minimal.

Human resource data management system and associated performance evaluation system has not been developed. Position description, which is a basis of recruitment, has not been submitted by some departments to the Human Resource and Administration Department. Annual reports that express accomplishment of an organizational unit have also not been prepared in some departments. Generally, due to lack of staffs, organizations are not able to implement even small incremental improvements for their jurisdiction.

The Human Resource and Administration Department needs to develop a human resource management database through the assistance of the IT Section of the Financial Department. This is recommended to improve the administration capacity of the departments under the Working Group members. For this purpose, there should be at least one PC available for the administrative officer in each department of the Working Group. For updating the employee information in a timely manner, a reporting procedure also needs to be improved.

(2) Revised Town and Country Planning Act

The status of the draft bill of Town and Country Planning Act is not known as of February 22, 2008. On October 2007, a discussion document for the preparation of the Urban and Regional Planning Bill was submitted to MLGH. The report presents a new participatory and transparent planning process with the concept of integrating development planning with local planning. The bill has not been adopted, however, it is expected that the direction of planning decision making will be done at lower levels of the government. With this revision, there may be other related laws that need to be consequently revised.

[2] UN-HABTAT, Zambia: Lusaka Urban Sector Profile. p.4.

SIDA is currently preparing the draft bill. The decentralization policy of governments will be addressed in the draft bill, which would affect emphasis on capacity development planning. The basic capacity of the City Planning Department and Engineering Services Department needs to be augmented as a capacity development plan, incorporating possible effects from the revised Town and Country Planning Act.

(3) Clarification of Road Administration

The road administration in the City seems confused with current system of the three funding sources and three project directorates. The previous line of command appeared simpler (from NRFA to MLGH to LCC). The new arrangement after the Public Road Act 2002 put LCC into a position under three higher institutions, namely RDA, Department of Infrastructure and Support Services (DISS) of the MLGH, and NRFA. Unless the institutional arrangement is clarified to demarcate road administration, such as trunk, main, and district roads to be administered by RDA and other local roads to be administered by LCC, an efficient road administration would not be possible for the City and for RDA, DISS of the MLGH and NRFA.

The committee of ministers has set a direction for RDA, local authorities, and NRFA. The roles of RDA are development and maintenance of trunk, main and district roads, and bridges. The road (local) authorities handle the urban and feeder roads. NRFA's role is to manage the financial affairs. Once the roles of RDA and the Road Authorities are defined, appropriate funds shall be allocated from NRFA to RDA and the road authorities.

The key issue is the capacity development of the road authority, which includes the Department of Engineering Service of LCC. As part of the decentralization process, the department should have sufficient technical and financial capacities, while the roles of RDA and the local governments are defined.

(4) Raising Revenue from Property Tax and Ground Rent

Property tax is the fundamental financial source for LCC. According to the financial statement for the year 2005, LCC has rates debtors amounting to ZMK10.5 billion (fair provision[3]) and ground rent debtors amounting to ZMK 19.4 billion. Collection of debts and continuing collection of rates and ground rent are crucial since December 2005, indicating liabilities that exceed the assets by ZMK 7,334 million. The property tax (rates) of 1.0% for residential and 1.5% for others have been adopted in 1995. Revaluation was supposed to be conducted every five years however, due to limited financial resources, the valuation process has been delayed considering that building and development permits have already been issued as part of the rapidly growing City of Lusaka. Currently, SIDA has been working with the Financial Department to upgrade the system of property tax collection or billing of LCC.

Rating (property taxation) in conventional areas is the role of the Valuation and Real Estate Management Department. This department needs to expand operation capacity and efficiency of property taxation. For this purpose, more surveyors and appraisers will be required.

As for ground rent, the Housing and Social Services Department is responsible for the collection. The collection rate (the difference between the budget and accentual collection) has increased from 14% (2003) to 65% (2007). The effort of collection shall be further strengthened by enhancing the capacity of the Peri-Urban Section.

[3] LCC is expecting a default level of 30%. The actual balance is ZMK15 billion.

3.2 Economic Development Trend

3.2.1 Macro-economy

The national economy has experienced ordeal on structural adjustment and privatization in the last decade, resulting in economic stagnation or low economic growth in 1990s. However, it has gradually gained the momentum on economic growth after 2000. The following table shows economic performance of Zambia during 1994-2005.

Table 3.2.1 GDP(Y) and Investment (I) at 1994 Constant Price during 1994-2005

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Y	2,240	2,177	2,328	2,405	2,360	2,413	2,499	2,621	2,708	2,846	2,999	3,156
I	254	314	375	472	612	744	957	1,257	1,409	1,657	1,822	1,865

Note: The figures are expressed by ZMK' billion.
Sources: CSO

Average annual economic growth (g) turned out to be 1.84% and average propensity of investment to GDP (I/Y) was 19.9 % during 1994-2000. During 2000-2005 g and I/Y were 4.78 % and 51.9 %, respectively. The marked difference shows a sharp increase of average propensity of investment to I/Y from 19.9 % during 1994-2000 to 51.9 % during 2000-2005. The investment-led economic growth after 2000 was primarily attributed to the government deregulation policies in the fields of foreign exchange, customs and investment promotion.

Zambia has exerted efforts to shift from its dependence on resource-based economy (mining) to non-traditional industries. Hence, export of non-traditional products increased from USD 245 million in 2000 to USD 555 million in 2005.

Table 3.2.2 Zambian Exports during 2000-2005

Year	2000	2001	2002	2003	2004	2005
NT	245	280	323	360	474	555
Total	784	901	928	1,084	1,587	2,079

Note: NT (Non-traditional exports). Figures are expressed by USD million.
Source: SADC

Non-traditional export products in Zambia are comprised of agricultural commodities, engineering products, processed foods, textiles and others. Like other landlocked African countries, proximity is the central issue affecting the industrial productivity, particularly in the fields of non-traditional industries. Proximity refers to accessibility to markets, customers, suppliers, competitors, supporting industries and governments. Lusaka is geographically the only place meeting the proximity requirements in Zambia, and thus, economic concentration including investment in the City can not be taken for granted.

Economic concentration in the City can be measured by the number of establishments and its shared GDP. The following table shows the number of establishments in all of Zambia and Lusaka as of November 2007.

Table 3.2.3 Number of Establishments in Zambia and Lusaka

Categories	All Zambia	Lusaka
1. Agriculture	409	142
2. Mining and quarry	65	22
3. Manufacturing	972	485
4. Electricity, gas and water	7	4
5. Construction	546	199
6. Wholesale, retail, hotel, restaurant and trading	3,978	1,942
7. Transport and communications	444	277
8. Financial services	84	46
9. Real estate, IT, R&D, and business activities	868	389
10. Community and social services	555	330
Total	7,928	3,836

Note: The CSO database does not cover all establishments so that the above figures would be less than actual number of them. The figures represent the number of establishments for each category
Source: CSO

About a half of establishments in Zambia is concentrated in Lusaka. The shares of Lusaka are almost 50% in manufacturing and commercial/hotels and restaurants/trading sectors, and about 45% in real estate/IT/R&D/business activities.

There has been no official statistics on GDP by region. The database (VAT revenue) of the Zambian Revenue Authority is tentatively used in order to estimate the GDP shared by Lusaka and its GDP by sector. VAT revenues in 2006 were ZMK1,705,450 billion in Zambia and ZMK 879,131 billion in Lusaka. About 52 % of total VAT revenue was contributed by Lusaka. The following table shows VAT revenues for Zambia and Lusaka in 2006.

Table 3.2.4 VAT Revenues for Zambia and Lusaka in 2006

Sector	Zambia	Lusaka	Share (%) by Lusaka
Agriculture	56,964	7,797	13.7
Mining and quarry	154,659	----	0.0
Manufacturing	197,582	104,524	52.9
Financial, real estate and business	166,797	163,518	98.0
Commercial and other services	1,129,446	603,292	53.4
Total	1,705,448	879,131	51.5

Note: VAT revenues are expressed by ZMK million.
Source: Zambian Revenue Authority

Based on Table 3.2.4 above, the GDP share of Lusaka is estimated to be about 14 % in the agricultural sector, 53 % in manufacturing sector, 98 % in financial/real estate/business sector and 54% in other sectors. The GDP shares of Lusaka by sector are only indicative and are subject to further analysis.

Despite the economic concentration in the City, urban employment is still prevails in the informal sector. As of year 2005, the employment status is 41% for the informal sector and 40% for formal sector. Meanwhile, 19% are unemployed as of the same year. About 60 % of labor force in the City is either jobless or working with unstable status and without social security. According to Living Conditions Monitoring Survey Report 2004 from CSO, about 75 % of the employed in informal sector is engaged in non-agricultural sector, namely, the tertiary sector. The monthly expenditure of the employed in informal sector is in the range of ZMK 200,000 to ZMK 300,000 which is close to poverty threshold (ZMK280,000) guided by CSO. Gradual reduction of informal sector employment appears to be closely linked to poverty alleviation.

3.2.2 Urban Agriculture

This section deals with the status quo of urban agriculture in the Study area. Urban agricultural stakeholders are largely classified into small farmers, emergent (family type

commercial) farmers and commercial entrepreneurs. The following table shows the number of farmers, farm land and cultivated land by farmer category in Lusaka.

Table 3.2.5 Typology of Urban Agriculture Stakeholders in Lusaka

	Total number	Arable land (ha)	Cultivated land (ha)
Small farmer	1,537	5,030	2,702
Emergent farmer	110	830	453
Commercial farmer	6	2,132	661
Total	1,653	7,992	3,816

Source: Lusaka District Office, Department of Agriculture

The current total number of urban agriculture stakeholders 1,653. This consists of 1,537 or 93% small farmers, 110 emergent farmers and six commercial farmers. The average cultivated land area per farmer is 1.8 hectare for small farmer, 4.1 hectare for emergent farmer and 110 hectare for commercial farmer. Vegetables such as cabbages and tomatoes are high value-added commodities of urban consumption, which gives an incentive to the majority of farmers in the urban agriculture.

The following table shows farm income on the gross margin basis per hectare by commodity and farmer category.

Table 3.2.6 Farm Income per Hectare by Commodity and Farmer Category

	Small farmer	Emergent farmer	Commercial farmer
Cabbages (ZMK 1,000)	12,508	20,883	34,110
Tomatoes (ZMK 1,000)	5,475	21,090	43,660
Maize (ZMK1, 000)	1,017	1,289	3,497

Source: Lusaka District Office, Department of Agriculture

A typical small farmer cultivating 1.8 hectare produces cabbages and tomatoes and earns farm income of ZMK 17,983,000 in total (consisting of ZMK 12,508,000 cabbage plus ZMK 5,475,000 tomatoes) per year and an income per month is estimated to be about ZMK 1,400,000. Income on gross margin does not include fixed costs such as machinery and equipments, hence, net income per month would be lower than ZMK 1,400,000. Suppose a farm household is comprised of five persons, the average farm income per person is estimated to be ZMK 280,000 per month, which is equivalent to the subsistence level of per capita expenditure according to poverty threshold guided by CSO. Meanwhile, for the household of an emergent farmer, supposing he is cultivating four hectares that produces cabbages and tomatoes, his farm income earning will be ZMK 83,946,000 in total (consisting of ZMK 41,776,000 for cabbage and ZMK 42,180,000 for tomatoes) per year and the monthly income is estimated to be ZMK 6,995,500. The discrepancy of farm income between small and emergent farmer would entail the subjects on how small farmers could enhance their income.

3.2.3 Industrial Development

Lusaka City satisfies proximity requirements of its markets, customers, suppliers, competitors, supporting industries and governments. Thus, nearly half of the manufacturing establishments and its GDP are concentrated in the City. The following table shows the number of manufacturing establishments between 1999 and 2007 in Lusaka.

Table 3.2.7 Number of Manufacturing Establishments in 1999 and 2007

	Manufacturing sub-sectors	1999	2007
1	Food products and beverages	108	121
2	Tobacco products	2	4
3	Textiles	8	4
4	Wearing apparel, dressing, and dying of fur	90	16
5	Tanning and dressing of leather, luggage, handbags	8	7
6	Wood and wood/cork products, straw/plaiting materials	11	21
7	Paper and paper products	11	7
8	Publishing, printing	54	67
9	Coke, refined petroleum products	0	0
10	Chemicals and chemical products	37	37
11	Rubber and plastic products	8	23
12	Non-metallic mineral products	21	0
13	Basic metals	42	5
14	Fabricated metal products	16	41
15	Machinery and equipments	11	9
16	Office, accounting and computing machinery	0	0
17	Electrical machinery and apparatus	4	12
18	Radio, television and communication equipments	1	0
19	Medical, precision and optical equipments	0	4
20	Motor vehicles and trailers	2	4
21	Other transport equipments	2	1
22	Furniture	53	6
23	Recycling	1	0
	Miscellaneous industries		76
	Construction and building materials		20
	Total	490	485

Source: Lusaka Integrated Development Plan 2000 (1999 data), CSO (2007 data)

There is little difference between 1999 and 2007 with respect to the number of manufacturing establishments. Nevertheless, some changes are observed in terms of industrial development after 2000.

(1) Textile and wearing apparel

As a whole, the textile sector has been relatively declining following tariff liberalization of export markets. The major market of Zambian, cotton yarn and cloth, used to be exported to EU. South Africa has now taken over exporting of these products after fully utilizing the available preferential scheme such as African Growth Opportunity Act (AGOA). Zambia has almost lost its competitiveness in export markets due to its present low utilization of AGOA. The garment sector has been also in sharply declining due to the reasons such as termination of multi-fiber agreements and lack of government policy for revitalization of the sector. A sharp decline of establishments can be observed in the wearing apparel.

(2) Rubber and plastics

The industry of rubber and plastic products is a typical supporting industry with both backward and forward linkages. The industry's products are basically consumed for domestic markets. A sharp increase of establishments is observed in the industry, which could lead to promotion of foreign investment in supporting the industries.

(3) Fabricated metals

The major fabricated metal products (engineering products) include semi-finished/finished non-ferrous metal products (copper rods and cables, metal sheets, strips and coils) and finished metal by-products (radiator ingots and metal railway sleepers). The fabricating industry has a close backward linkage with mining industry and forward linkage with electrical, electronic, and transport equipment industries. The fabricated metal industry is certainly competitive and promising in the future. A sharp

increase of establishments is observed in this industry.

(4) Wood products and furniture

Zambia covers a wide forest area of more than 9 million ha, producing high-valued woods such as teak, mahogany, rosewood and pine. Woods and its byproducts produced by small manufacturers are mainly for domestic markets. However, Lusaka exports high-valued wood byproducts such as particle boards and plywood, to South Africa, Zimbabwe and Botswana. An increase of establishments is observed in the wood industry, while the furniture industry lost its domestic market due to fierce competition with imported furniture. Presently, there are only six remaining furniture companies in Lusaka.

(5) Construction and building materials

There was a housing and building construction boom in Lusaka City after 2000. Consequently, 20 manufacturing firms were established to produce construction and building materials.

3.2.4 Commercial Development

Lusaka is an attractive consumer market supported by more than one million of population, as well as potential business markets, making it one of the core trading centers in SADC countries. Like other capital cities, Lusaka has multi-dimensional commercial activities in the fields of wholesale/retail trade, utility and transportation services, hotel businesses, real estate, financial services and high-class business services such as distribution services handling tradable goods and IT technology. The following table shows the number of commercial establishments, including their respective activities, between 1999 and 2007.

(1) Wholesale and retail trade

The wholesale and retail trade sector comprised three sub-sectors, namely, i) sale and maintenance and repair of motor vehicles, ii) general wholesale business, and iii) retail trade and repair of household goods.

Table 3.2.8 Number of Establishments in Wholesale/Retail Sector

Wholesale and retail trade	1999	2007
Sale, maintenance and repair of motor vehicles and motorcycles and automotive fuel	212	153
Wholesale trade and commission trade, except for motor vehicles and motorcycles	225	400
Retail trade, except for motor vehicles and motorcycles, Repair of personnel and household goods	1,427	1,222
Total	1,864	1,775

Source: CSO

Although the number of establishments decreased from 1,864 in 1999 to 1,775 in 2007, the wholesale and retail trade still represents the largest sub-sector in the tertiary sector.

(2) Hotels and restaurants

The number of hotel and restaurant establishments sharply decreased from 656 in 1999 to 165 in 2007.

(3) Real estate, renting and business activities

This category of business trade includes of i) real estate business, ii) renting of machinery and equipments, and personal and household goods, iii) computer-related activities, iv) research and development, and v) other business activities.

Table 3.2.9 Number of Establishments in Real Estate/Renting/Business

Real estate, renting and business activities	1999	2007
Real estate activities	28	123
Renting of machinery and equipments and personal and household goods	17	5
Computer and related activities	25	12
Research and development	5	0
Other business activities	337	249
Total	412	389

Source: CSO

Increase in the number of establishments is observed in real estate business. Others trades including renting, computer business, R&D and general businesses show the less active trends.

(4) Transport, storage and communications

This business category is comprised of i) land transport, ii) air transport, iii) supporting transport activities such as cargo handling and storage and warehouses, and travel agents, iv) post and telecommunications.

Land transportation services are dominated by small private companies transporting passengers by mini-buses. The number of establishments operating cargo handling, storage and warehouses is still small, indicative of an economy that is inwardly oriented and relatively weak in import and export activities.

The following table shows the number of establishments in transport, storage and communications in 1999 and 2007. Increase in the number of establishments can be observed in land transport, supporting transport activities, travel agents and post and telecommunications.

Table 3.2.10 Number of Establishments in Transport Storage and Communications

Transport, storage and communications	1999	2007
Land transport	103	132
Air transport	15	5
Supporting transport activities, travel agents	112	115
Post and telecommunications	19	23
Total	249	275

Source: CSO

(5) Financial intermediation

This category is comprised of i) financial intermediation except insurance and pension funding, ii) insurance and pension funding, and iii) activities auxiliary to financial intermediation. This category is dominated by financial intermediaries representing banking, leasing and credit dealing. Auxiliary activities include securities and administration of financial markets. The following table shows the number of establishments in financial intermediation between 1999 and 2007.

Table 3.2.11 Number of Establishments in Financial Intermediation

Financial intermediation	1999	2007
Financial intermediation except insurance and pension funding	62	34
Insurance and pension funding	3	12
Activities auxiliary to financial intermediation	46	
Total	111	46

Note: The 2007 CSO database does not include active auxiliary to financial intermediation.
Source: CSO

After 2000, institutional reform such as consolidation was carried out for the banking sector, resulting in the decrease in the number of banking institutions. Meanwhile, the number of companies for insurance and pension funding has increased, indicating a take-off of development of financial markets in Lusaka.

3.2.5 Major Income Sources of the Urban Poor

(1) Major Income Sources

According to the Person Trip Survey conducted by the JST, in the unplanned urban settlements (UUS) in Lusaka City where most of the residents belong to poor groups, major occupations (income sources) are shown in Table 3.2.12. Jobless people account for 28.7% in UUS and 19.2% in the other area. Table 3.2.12 implies that occupations with a higher social status, such as government officials and teachers, are distributed more in other areas than in UUS.

Table 3.2.12 Major Income Sources of the Urban Poor in Lusaka City

No.	Occupation	UUS	PUS
1	Officials of Government /Public organization	1.5%	5.8%
2	Business Man/Woman	15.9%	14.7%
3	Craftsman, Skilled worker	5.9%	4.4%
4	Clinical Worker	0.6%	2.4%
5	Service Worker, Shop, Market Worker	2.6%	2.9%
6	Farmer, Forestry Worker, Fisherman	0.7%	1.0%
7	Trader, Related Worker	2.9%	1.8%
8	Plant & Machine Operator, Assembler	1.3%	1.0%
9	Labor, Casual Worker	2.9%	2.3%
10	Driver (truck, taxi, bus)	3.3%	2.6%
11	Teacher, Professor	1.5%	4.1%
12	Military, Police, Security	2.7%	3.0%
13	Student (H.S. & Univ.)	9.0%	19.4%
14	Housewife	20.5%	15.4%
15	Jobless	28.7%	19.2%
	Total	100.0%	100.0%

Note: Sample Numbers of Interviewees, UUS; 5215, Planned Urban Settlement (PUS); 5,448.
Source: Household Interview Survey of PT Survey by the JST

The result of the Community Profile Survey conducted by the JST in September - October, 2007 implies the kinds of business that exist in unplanned urban settlements in Lusaka City. That is, ordinary citizens run groceries, bars/taverns, hotels/guesthouses, second hand clothes shops, restaurants, etc. Some people are engaged in carpentry, poultry, petty vegetable trading, brick making, tailoring, etc. Most of these livelihood activities are confronted with a problem on instability.

Major income source in Lusaka does not come only from occupation in Table 3.2.12, but also from Income Generating Activities (IGA) conducted by CBOs and NGOs. Ministry of Community Development and Social Services register CBOs and NGOs in economic empowerment activities for the disadvantaged groups in Lusaka. Table 3.2.13 presents details of IGA activities among registered CBOs and NGOs.

Table 3.2.13 Income Generating Activities of CBOs and NGOs

Ward	No. of Org.	IGA engaged					
		Tailoring	Food Processing	Livestock & Farming	Industrial related	Craft	Finance
1. Nkoloma	2	1	0	1	0	0	0
2. Chawama	2	0	0	0	0	0	0
3. John Howard	1	1	0	0	0	0	0
6. Kabwata	1	0	1	0	1	0	0
7. Libala	2	1	2	1	0	1	0
8. Chilenje	2	2	2	0	0	0	0
9. Kamulanga	1	1	1	1	0	0	0
10. Kanyama	1	1	0	0	0	0	0
11. Harry Mwanga Kumbula	4	4	1	0	0	0	1
12.Munkolo	2	2	1	0	0	1	0
16. Kabulonga	2	0	0	2	0	0	0
19. Ngwerere	2	1	1	1	1	1	1
20. Chaisa	2	1	1	0	0	0	1
21. Justine Kabwe	1	0	0	0	0	0	0
22. Raphael Chota	2	1	0	1	0	0	0
23. Mupulungu	5	4	1	3	0	0	0
25. Kapwepwe	1	0	0	0	1	0	0
26. Lima	2	2	1	0	0	0	0
27. Mwembeshi	1	1	1	0	0	0	0
28. Matero	2	2	1	0	0	1	0
29. Chainda	2	1	1	0	0	1	0
30. Mtendere	2	2	1	0	0	0	0
31. Kalingalinga	4	0	0	0	3	0	0
32. Chakunkula	2	0	2	0	0	0	0
33. Munali	2	2	1	0	0	1	0
TOTAL	50	30	19	10	6	6	3
Tailoring:	Knitting, Tie & Die, Door Mat Making						
Food Processing:	Jam making, Baking, Peanut Butter, Mushroom Growing						
Livestock & Farming:	Poultry, Flower Cultivation, Gardening, Farming, Pig Farm						
Industrial related:	Stone Crushing, Making of Brick, Wax making, Charcoal, Car wash						
Craft:	Bead making, General Craft making						
Finance:	Micro Finance, Village Banking						

Source: Department of Community Development, under the Ministry of Community Development and Social Services

Average income level of people dealing with income generating activities is approximately ZMK 250,000 – 350,000 per person per month, however, this is not based on a regular monthly income. The income from these activities however supports household economy, considering 75.0% of households in UUS live below the overall poverty line (USD1/day/capita).

Several organizations produce almost similar products and quality of most is low. Surplus products and people with same skills are common in Lusaka, leading to decrease in sales.

Vision 2030 aims to gain USD 1,639 as a preferred scenario of GDP per capita in 2030 for middle income countries. This is more than five times of the situation in 2006.

The gap between current household economic condition and Vision 2030 needs to be narrowed with additional income from regular basis jobs. It is noted the IGA would be assisted until 2025 when the GDP reaches USD 1,000.

Informal sector income opportunity such as IGA should be transferred to formal sector income opportunity, aiming to expand and improve regular basis job in the latter sector. Hence, the important issue is to create more jobs on a long-term basis in the formal sector, especially for the UUS residents.

(2) Income Level

The annual household income in Lusaka City is shown in Table 3.2.13. In unplanned urban settlements, the income bracket of less than ZMK 600,000/year accounts for 19.9% of the total sample households (5,448 households). Provided that the overall poverty is defined as less than USD 1 per day per capita, the poverty line is calculated using the following formula.

Overall Poverty Line = (USD 1/day/capita * ZMK 3,820.71/USD) * (5.04 capita/household) * (365 day) = ZMK 3,820.71*5.04*365/year/household = ZMK 7,028,578/year/household

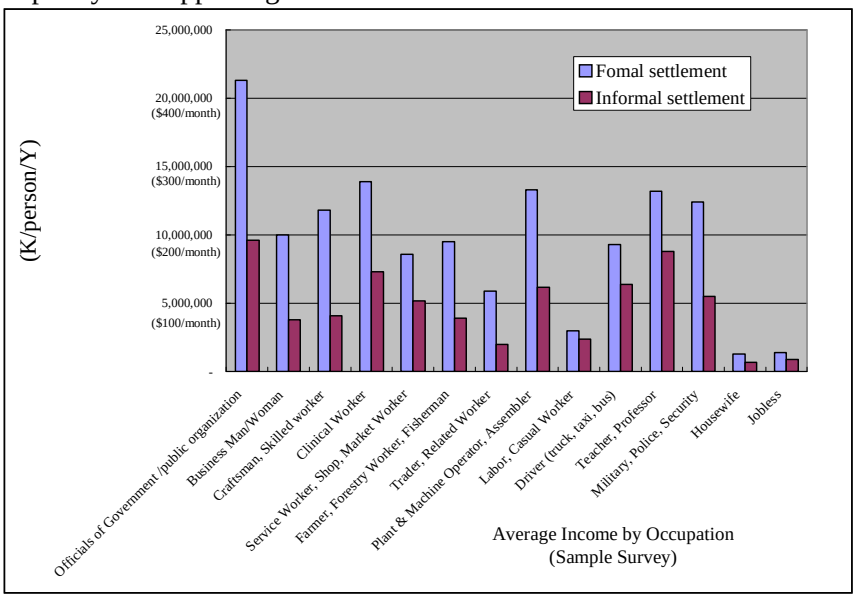
Judging from this definition, Table 3.2.14 shows that at least 42.9% of the planned settlement residents and 75.0% of the UUS residents live on income below the overall poverty line.

Table 3.2.14 Annual Household Income in Lusaka City by PUS/UUS

Income Bracket (thousand ZKW)	PUS		UUS	
	(%)	Cumulative	(%)	Cumulative
No Answer	0.6	0.6	0.8	0.8
Less than 600	10.2	10.2	19.9	19.9
600 - 1,200	8.2	18.4	17.9	37.8
1,200 - 3,000	11.5	29.9	18.5	56.3
3,000 - 6,000	13.0	42.9	18.7	75.0
6,000 - 9,000	11.8	54.7	9.9	84.9
9,000 - 12,000	10.3	65.0	5.8	90.7
12,000 - 24,000	12.3	77.3	5.3	96.0
24,000 - 36,000	7.7	85.0	1.3	97.3
Above 36,000	14.5	99.5	1.9	99.2
Total	100.0	100.0	100.0	100.0

Source: Household Interview Survey of PT Survey by the JST

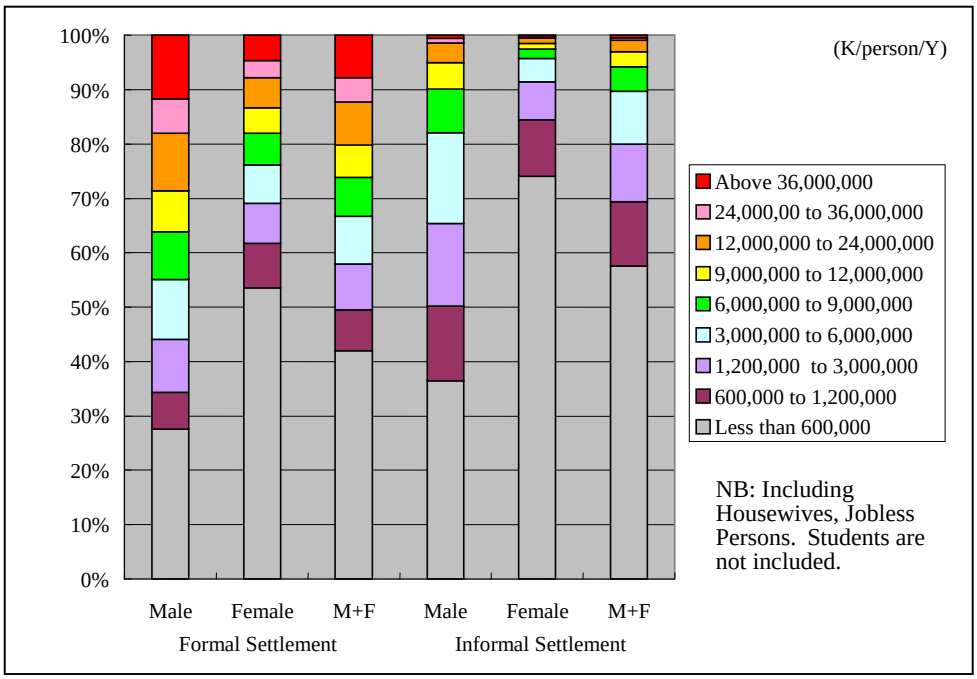
Figure 3.2.1 presents the average monthly income in Lusaka City by occupation and by PUS/UUS. Government officials, clinical workers, plant and machine operators, teachers, social security related occupations are occupations with comparatively higher income. Generally for each profession, workers living in formal settlement earn more than those living in informal settlement. It will be necessary, therefore, to establish a long-term policy for supporting the livelihood in UUS.



Source: Household Interview Survey of PT Survey by the Study Team

Figure 3.2.1 Average Monthly Income in Lusaka District by Occupation and by PUS/UUS

Figure 3.2.2 presents the average monthly income in Lusaka City by PUS/UUS and by gender. Generally, both men and women in UUS earn far less than those in PUS. The fact that more than 70% of the women in UUS earn less than ZMK 600,000 yearly implies the seriousness of poverty of this social group. Accordingly, it is important to create sustainable income sources that commensurate labors' skills, especially for female groups living in UUS.



Source: Household Interview Survey of PT Survey by the Study Team

Figure 3.2.2 Average Monthly Income in Lusaka District by PUS/UUS and by Sex

3.2.6 Issues on Economic Development

Lusaka economy appears to take off towards the long-term economic development, possibly a driving force to push Zambia into the middle income status in the future. Nevertheless, urban economic structure is still at the premature stage. The major issues on economic development of Lusaka City are summarized below.

1) The major constraint is the unhealthy economic structure dominated by unemployment and informal sector employment. This is solely ascribed to a fragile formal sector that is not strong enough to absorb employment from informal sector. Thus strengthening of formal sector will be a key issue to reduce informal sector employment in the mid and long term span.

2) Urban poverty has been a chronic problem for a long time in Lusaka City. The extreme poverty can be observed for part of unplanned urban settlers with annual household income of less than ZMK 600,000. Majority of them is either unemployed or belong to informal sector. Thus the short term strategy for alleviating unemployment conditions is vital.

3) Urban agriculture dominated by small farmers would require strategy for improvement of their economic status in order to revitalize the role of urban agriculture that basically provides vegetables and staple crops to urban consumers.

4) Lusaka, satisfying proximity requirements, would be the core for industrial (manufacturing industry) development. Industrial development is closely linked to trade and investment policies hence, industries should create strategies with respect to competitiveness and employment creation, and SME promotion.

5) Commercial sector in Lusaka's economy appears to mostly consist of small units

of businesses particularly dealing in wholesale and retail trades. Commercial sector will need reshuffling in the progress of commercial area development. Furthermore, the wholesale and retail business sub-sector need to trade higher-class goods and services.

6) Transportation service, particularly land transport is relatively weak, with mini-bus services provided for short distance travels. Land transport companies would also need reshuffling to cope with the more extensive services to accelerate progress on urban development.

7) Financial sub-sector recently experienced reshuffling (consolidation and merger) to strengthen competitiveness of the banking sector. This direction would be further required towards an open economy which is significant for the future of SADC.

8) The need for higher-class services would motivate private sectors to make efforts on diversifying business activities towards trade liberalization in SADC. For instance, import and export businesses such as depot or distribution services could be established.

3.3 Urban Development Trend

3.3.1 Land Use

(1) Definition of the Study Area

Although the official study area has been given by the boundary covering adjacent areas of Lusaka District around 850 km^2, actual study area by JST has been set and examined to formulate its integrated Master Plan by the larger area (860 km^2) beyond the official Study Area, where several built-up areas (facilities and residential development) are observed as continued urban sprawl beyond the boundary of the official Study Area.

(2) Existing Land Use in Greater Lusaka Area

Lusaka, the capital city of Zambia is one of the largest urban districts, with 33% share of total urban population in the country. The major built-up area (around 269 km^2) consists of Central Business District (CBD) area in the city center, organized residential quarters and disordered residential quarter (UUS) and conglomerate industrial area near the city center. Several urban settlements beyond the boundary of Lusaka City have spread towards adjacent districts of Kafue, Chongwe and Chibombo, where irrigated agriculture land is predominant with small holdings and large commercial agribusiness areas owned by farmers.

The distribution of existing land use areas in Lusaka City and Greater Lusaka area is calculated by GIS database, which the JST has mapped based on the satellite imagery (2007) and topographic data.

(3) Land Use Change from 2000 to 2007 of Lusaka City

Land use changes between data of 1999/2000 by the Lusaka Integrated Development Plan (LIDP 2000) and existing land use data by GIS analysis is examined as shown in Table 3.3.1. Major changes of land use are identified through comparison of the two available data. This indicates that residential area including formal settlement, informal settlement and rural small holdings have drastically increased shares from 35 % to 50%, out of total land area of the City. Meanwhile, a large decrease of natural or unutilized lands in urban fringe area from 47 % share to under one-third as 14% was observed.

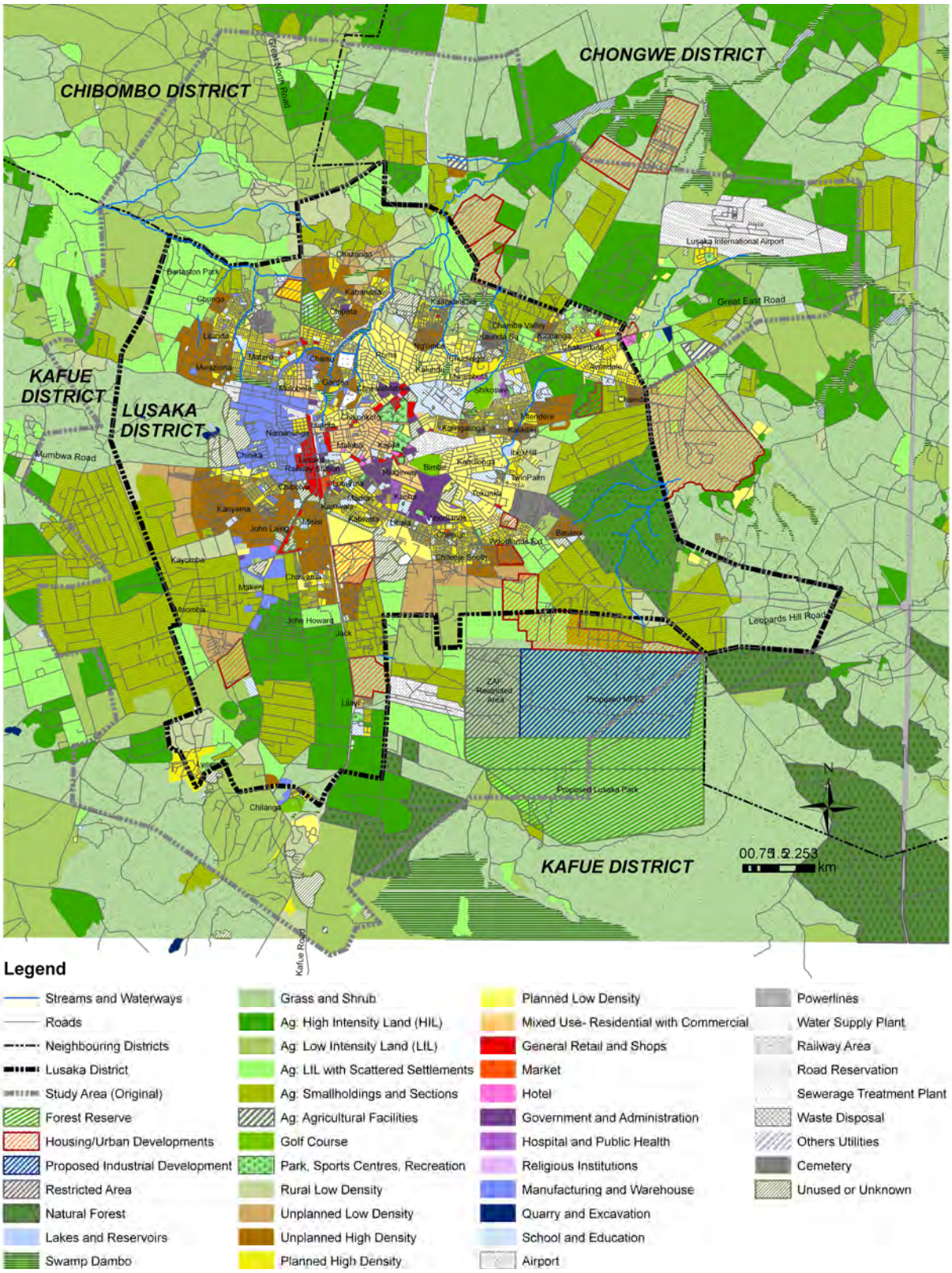
Table 3.3.1 Land Use Change of Lusaka District from 2000 to 2007

Land Use		Land Use in Lusaka District (unit Ha)				
		LIDP2000*[5]	share	2007*[6]	share	change
1	Residential	14,942	35.3%	21,176	50.0%	6,234
	Formal Settlement[1]*	*4,818*	11.4%	*6,847*	*16.2%*	*2,028*
	Proposed Housing Area[2]*	*1,455*	3.4%	*1,155*	*2.7%*	-
	Informal Settlement[3]*	*2,910*	6.9%	*4,851*	*11.5%*	*1,941*
	Small Holdings (incl low dense)	*5,759*	13.6%	*8,323*	*19.7%*	*2,565*
2	Commercial and Business	251	0.6%	1,064	2.5%	814
3	Industry	1,176	2.8%	1,350	3.2%	174
4	Transportation and Utilities *[4]	215	0.5%	863	2.0%	648
5	Institutions (education, hospital) *[4]	1,058	2.5%	1,252	3.0%	195
6	Administration (gov, military) *[4]	142	0.3%	525	1.2%	383
7	Park and Recreation	396	0.9%	415	1.0%	19
8	Cemetery	248	0.6%	319	0.8%	72
	Built-up area	18,428	43.5%	26,966	63.7%	8,838
9	Natural Area or Open Space	-	-	6,373	15.1%	-
10	Unutilized Land/Agric-mixed	19,929	47.1%	6,142	14.5%	-13,787
11	Agriculture (irrigated)	3,979	9.4%	2,856	6.7%	-1,123
Total		42,337	100.0%	42,337	100.0%	-

Source: *1 = Formal settlement includes Statutory Housing areas, planned housing development areas, other organized residential areas, *2 = Proposed housing area indicates areas under planning or under construction of housing development and under sale/settlement at the year of 2008, *3 = Informal Settlement includes Statutory Improvement Area (SIA), spillover settlement from SIA or current formal settlement, *4 = Areas having a gap between LIDP 2000 and 2007 are different definition of property and category (e.g. po), *5 = the Lusaka Integrated Development Plan (LIDP 1999/2000), *6 = JST (GIS analysis with 2007 satellite imagery adjusted by control-total of LIDP1999/2000)

From above table, share of each type of settlement has largely increased such as formal settlement area (from 11% to 16%), informal settlement area (from 7% to 11%) while remote rural-urban areas exhibit the largest change by 21% share increase.

Geographical distribution of land use change is identified in Figure 3.3.1, which indicates slight incidences of conversions from agriculture land to industrial area along Kafue Road, and urban sprawl of residential area in the southern and northern part of Lusaka. It also indicates many new housing development projects beyond the boundary.



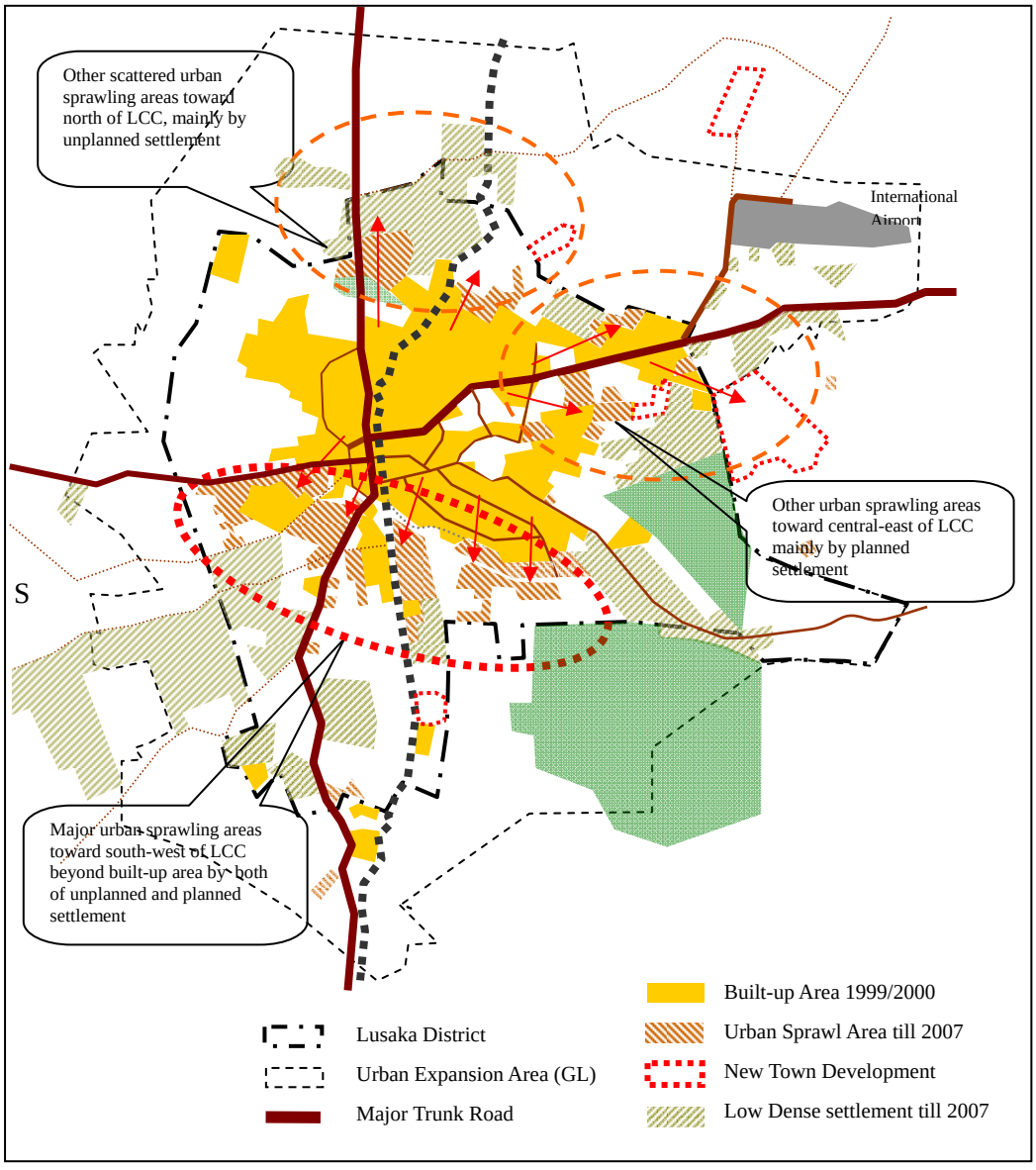
Source: JICA Study Team (GIS mapping 2007)

Figure 3.3.1 Land Use of Greater Lusaka Area in 2007

(4) Expansion of Built-up Area from 2000 to 2007 in Greater Lusaka Area

As discussed in previous sections, many land use changes were observed between 1999/2000 (LIDP) and 2007 (based on existing land use). Similarly built-up areas have also changed significantly beyond Lusaka City, after 1999/2000. In Table 3.3.2 and Figure 3.3.2, expansions of built-up areas are identified mainly by residential areas. This includes formal settlement in the southern part of Lusaka such as Woodland, Chilenge, informal settlement in the northern part along Great North road such as Kabanana, N'gombe and the southern part by Kanyama, Jack.

Built-up area has increased its share from 43.5 % to 63.7%, out of the total land area of Lusaka City. Meanwhile, expansion of built-up area in Greater Lusaka area has occupied by around 10% out of its total built-up area (except small-holdings with agricultural land) of the actual study area estimated by GIS mapping.



Source: JICA Study Team (GIS mapping 2007)

Figure 3.3.2 Expansion of Built-up Area between Land Use 2000 (LIDP) and Existing 2007

Table 3.3.2 Land Use of Lusaka District and Greater Lusaka (Study Area) 2007

Land Use	Lusaka District 2007*[1](ha)	Greater Lusaka*[2](ha)	
		Adjacent Areas*[3]	Total
1 Residential	21,176	1,789	32,965
Formal Settlement	*6,847*	*330*	*7,176*
Proposed Housing Area	*1,155*	*1,581*	*2,736*
Informal Settlement	*4,851*	*27*	*4,879*
Small Holdings (incl low dense)	*8,323*	*9,851*	*18,174*
2 Commercial and Business	1,064	26	1,091
3 Industry	1,350	36	1,387
4 Transportation and Utilities	863	1,836	2,699
5 Institutions (educ, hosp, military, etc.)	1,252	42	1,294
6 Administration (government, agency)	525	-	525
7 Park and Recreation	415	67	482
8 Cemetery	319	-	319
Built-up Area	26,966	13,796	40,762
9 Natural Area or Open Space	6,373	14,782	21,155
10 Unutilized Land/Agric-mixed	6,142	8,832	14,974
11 Agriculture (irrigated)	2,856	6,268	9,124
Total	42,337	43,678	86,015

Note: *1 = GIS analysis with 2007 satellite imagery and the topographic maps adjusted by control-total of LIDP1999/2000, *2 = Greater Lusaka Area is equivalent to the Study Area by GIS analysis with 2007 satellite imagery and the topographic maps, *3 = Adjacent Areas are composed of the parts of three Districts of Kafue, Chongwe and Chibombo.
Source: JICA Study Team (GIS mapping 2007)

It should be noted that majority of new housing development areas are located out side the area of Lusaka City, where land subdivision was implemented just next to its boundary. The total area of new housing development in Chongwe District as a part of the Greater Lusaka area, reaches 1,581 ha as a total. On the other hand, small-holdings land use including farmers and some business uses has already spread since 1975 into adjacent District of Kafue, where JST observed conversion of farmers' businesses to other types of ventures.

(5) Issues of Land Use toward Appropriate Land Use Formation

Land use issues are identified as follows based on the current changes and observation made by JST, in terms of appropriate land use management and control.

1) Adequate suburban and rural land use control for Greater Lusaka Area
   - Enforcing agriculture land use control for use change, including small holdings (farmers) and other economic activities in order to sustain a green buffer area for Lusaka
   - Guiding settlement and urbanization by appropriate urban planning such as "Zoning Control" with effective infrastructure
   - Preserving natural environmental area with strict controls regarding urban biodiversity and water resource charging
   - Well-organized coordination with Lusaka and adjacent three districts (Kafue, Chongwe, Chibombo) for urban planning
   - Introducing "Growth Control Boundary" for urban growth management
2) Consideration of mixed land use concept
   - Introducing mixed use category taking into account current land use trend (residential + commercial + business) and modern livable urban lifestyle
   - Giving opportunities to small business activities in living area by allowing land

use control of mixed-use category

3) Enforcing "Land Use Zoning" system to formulate appropriate land use form
   - Empowering current development regulation system in conjunction with land use zoning system
   - Applying zoning system covering all Greater Lusaka area
   - Enhancing adequate density control within each zones for development permission (especially for industry, residential, commercial)

4) Securing public use of land with appropriate capacity and location setting
   - Appropriate public utilities area designation (water plant, sewerage plant, retaining pond, transportation facilities, cemetery, waste disposal site, etc.)
   - Securing and creating a green environmental area by land use zoning, including river-edge green, park and recreation area, green control area for water recharging, agriculture area for buffer green in the urban sprawl, locations)

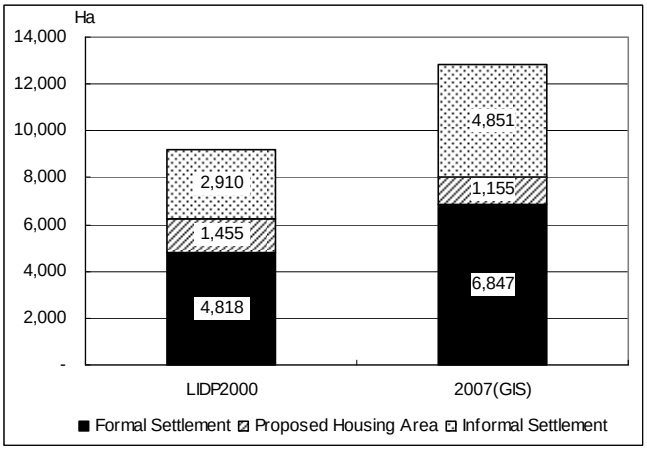
3.3.2 Urban Development Trend by Key Land Use Category

(1) Agricultural Area and its Development

Agriculture area is defined as irrigated agricultural land and other related areas including mixed patched cultivation area in combination with bush and shrub areas tilled by small-farmers from the existing land use. The total area of agriculture has decreased from 3,979 km^2 (9.4% of Lusaka District) to 2,856 km^2 (6.7% of Lusaka City) where mainly residential development and some industrial development has encroached. Majority of farmers in Lusaka City are small-scale farmers, presently producing cabbages and tomato as fresh vegetable to city's consumers, while commercial farmers have settled out side Lusaka City, Chongwe and Kafue districts, with large capital investment to manufacture domestic and export-oriented products.

(2) Residential Area and its Development

As described in previous section, residential area is one of the highest growth in terms of land use category in Lusaka, exhibiting increase from 14,942 km^2 (35.3% of Lusaka District) to 21,176 km^2 (50.0% of Lusaka District) in seven years. There is a considerable trend observed that informal settlement (such as improved area and non-declared disordered settlement) has grown more rapidly than the formal settlement area. This is indicated with an annual average increase ratio of the informal settlement as 7.6 % and 5.1 % of formal settlement, respectively.



Source: JICA Study Team (estimated by GIS analysis in satellite imageries)

Figure 3.3.3 Comparison of Land Use Change in Residential Area between LIDP 2000 and Existing 2007

It is a considerable factor for current residential area development to note its large-scale development out side Lusaka City, but within the Greater Lusaka area (Detailed discussion on housing projects will be presented in subsequent sections). Chongwe district has implemented large-scale housing projects located adjacent to the Lusaka International Airport. Some of these projects are already being sold by a real estate company.

In contrast, housing project for public sector is being built next to the existing residential area, which is mostly concentrated in the southern part of Lusaka City.

Table 3.3.3 Current Major Residential Development Projects and their Status

Project	Location of Project					
	Lusaka District	ha	status	Other Districts	Area (ha)	Status
Private Sector	• Salama	104	US	• Meadow Avondale	873	UC
	• Lilayi	253	UC	• Kwamwena Valley	121	UC
	• Legacy South Gate	55	UP	• Ndeke Village	406	US
	• South subdivisions	n.a	UP	• Vorana Valley	182	UP
	total	412	--	--	1,581	--
Public Sector (LCC /MoL)	• S-Woodland	201	US	--	--	--
	• Kamwala	208	US			
	• Libala-south	184	US			
	• Bauleni-ext	12	F			
	• New-kanyama	70	F			
	• North Forest	68	US			
total		743	--	--	--	--

Legend: UP = under planning, UC=under construction, US = under settled, F = already built-up
Source: LCC, Private Real Estate Company

(3) Commercial and Business

Commercial and business activities are concentrated in the central business area, where CBD has been established along Cairo Road and Independence Road, with a large city market complex. Recently, the project for revitalization of market places was funded by EU, such as Sowet market and others.

There is a new trend of commercial establishments being development including i) American-style, mega-mall development along Great East Road such as Mandla Hill Complex, Arcade Shopping Center, and Shoprite Whole Sale along Kafue Road, a new shopping center on Leopard Hill road, and ii) infill-commercial facilities development by dispersed distribution in residential area. Additionally, hotel and other tourism businesses were also established in the City, near the Government district, such as Pamodzi Hotel, Inter-continental Hotel and Holiday Inn.

(4) Industrial (including warehouse) Development and its Trend

1) General

Industrial areas including warehouses in Namununga of central part of Lusaka have remained almost stable, during the past seven years. However, there are some new expansions observed in areas along Kafue Road, which is recognized as one of the Regional Economic Corridors. Many of the industrial facilities are manufacturers and warehouses dealing with Copper-belt mining industry and food processing, mechanics, construction material and furniture. According to statistical information (Zambia Investment Center), investments in Lusaka dominated the total investment in 2006.

2) Proposed Industrial Development

(a) Multi-Facility Economic Zone (MFEZ)

MFEZ is currently planned as a Presidential project in the ex-forest reserve area No. 26 and No.55 (6,718 ha total area), at South Chilenge. This covers two

districts of the northern-west part of Kafue District and the southern-west part of Lusaka City.

Since the MFEZ has just launched its preparation for development in 2006, the government stakeholders, in association with international assistance, are involved in the Master Plan and its feasibility study for the project site covering 2,100 ha.

(b) Other Industrial Development Area

Investment boom for other forms of industries in Africa are also observed in Zambia. This includes a mining firm established by a Chinese investor. Chinese investments are also expected in Lusaka with the establishment of an industrial development complex (500 ha) adjacent to Lusaka International Airport, where industrial products will be manufactured for export.

(5) Administration, Government, Other Governmental Institutions

Business centers except CBD, Government district in Cathedral Hill and Ridgeway serve as national administrative centers in the Capital of Zambia. Most of the administrative services are situated along the Independence Avenue, where the State House is also located. To the North, in Olympia Park, the National Assembly building exists. (This institution provides national administration services.)

These facilities and land use are also stable without any major changes and development.

(6) Education and Health

Major higher educational and health institutions are located in Lusaka City. The facilities such as the Chainama Mental Hospital and the University of Zambia are situated along the Great East Road. The Evelyn Hone College and Zambia Centre for Accountancy Studies are found along the Church Road. Meanwhile, University Teaching Hospital is located near the Government precinct along Independence Avenue.

(7) Transportation

The main road network in Lusaka formed an urban area pattern along the Great North Road, Great East Road, Kafue Road and Cairo Street. North-South railway line divides the urban area into western side and eastern side. This creates a certain disadvantage in carrying out smooth linkages between the two urban areas.

There is also an old airport nearer to the center of the City which is no longer used by civilians. Meanwhile, Lusaka International Airport is located in the eastern side of Lusaka, beyond its administration area in Chongwe District.

There is a larger area provided as yard for the railway near the Lusaka station in the CBD area. Other areas such as bus terminals are not significant in terms of land use in Lusaka

(8) Public Utilities and Cemetery

In terms of large occupancy of land use, sewerage treatment system including aeration ponds are situated in Chingwele, Garden, Chamba Vally, Chakunkula in the orthern edge of built-up area of Lusaka. Three large municipal cemeteries also exist such as Chingwele Old, New Chingwele and Leopard Hill Cemetery. A large facility of solid waste disposal yard is also situated in Chingwele area.

These nuisance facilities raised issues on how to settle expanding public administration capacity. Relocation of these nuisance facilities, without causing negative impacts to

local residents, also formed part of the issues. It is noted that one of the reasons for the refusal of designating the province as Greater Lusaka area, was this nuisance facilities which affect the living areas in adjacent districts.

(9) Park and Recreational Use

The majority of recreational facilities consist of private open spaces, such as Lusaka Turf and Polo Club and the Agricultural Showgrounds, Chainama Hills Golf Club, the Lusaka Club and Central Sports Club and Municipals Clubs and the Lusaka Golf Club.

In addition to the above the sports complex Independence Stadium exists on the outskirts of the city, off the Great North Road. Other sports facilities are situated within institutions such as universities and other higher education facilities. There area many public open spaces in communities, however these are not well maintained and are not ideal for recreational activities.

There is a newly proposed Lusaka Park in Kafue District, just next to MFEZ industrial development area. This consists of the Lusaka forestry, wildlife sanctuary and a recreation park operated by the Zambia Wildlife Authority (ZAWA) and Forestry Department of MoTENR. The concept of this park development aims to attract tourism development opportunities, taking advantage of its proximity to Lusaka City.

(10) Natural Environment

There are three local forest reserves in Lusaka City. These are the Lusaka North Forest Reserve No. 28, Lusaka East Forest Reserve No. 27 and Lusaka South Forest Reserve of No. 26 and No. 55. Among these, the South Forest Reserve of approximately 7,000 ha was established to prevent soil erosion, protect Chalimbana River System and provide lumber.

However, this South Forest Reserve seems severely affected by illegal operations including sand mining, quarrying, charcoal burning and subsistence farming. Due to lack of funding, enough protection to the forest reserves from illegal land use practices is not provided. Hence, this threatens the original functional purpose of the forest reserves.

(11) Issues from Current Urban Development Trend

The following issues are identified based on the current development trend in terms of appropriate formulation of development and management.

1) Consideration of development permission for large-scale development
   - Consolidation of development permission in terms of large scale development within a certain limit, under the obligation of adequate and necessary infrastructure and land use (housing and industry development)
   - Enhancing information management system for effective and smooth management for development permission
   - Consolidation of related administration for development permission
2) Strong coordination and cooperation for nuisance urban facilities
   - Provision of well organized development plan with public consultation
   - Consideration of a larger beneficiary by initiating fair incentives to local communities
   - Adequate technology to be applied to facilities development without negative impact on surrounding environment
3) Promote provisioin of fundamental urban facilities

- Securing citizen's daily life through inevitable and minimum provision of health, education facilities and infrastructures
- Improving conditions of facilities such as roads, utilities and transportation, market and other public establishments

4) Encouraging more competitive and attractive urban development

- Strategic development for supporting business function for industrial and business development, to meet the international level of service
- Enforcing more amenity in living environment and working place by green and waterfront environment with attractive recreational facilities
- Enhancing adequate density control within each zone for development permission (especially for industry, residential, commercial)

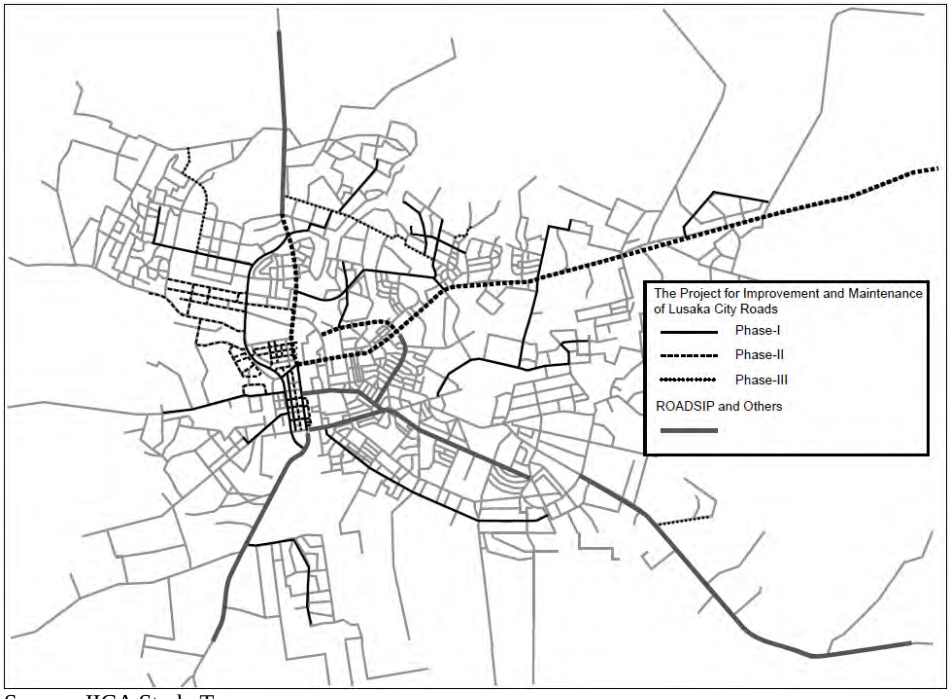
3.3.3 Transportation System

(1) Road Network

Major roads in Lusaka have been significantly improved over the last ten years, under the Road Sector Improvement Programme Phase-I (ROADSIP-I) and the Project for Improvement and Maintenance of Lusaka City Roads (by JICA).

ROADSIP-I is a 10-year programme from 1998, aimed at rehabilitating and maintaining the road network of Zambia, including urban roads. In Lusaka, a total of 90 km roads were rehabilitated by the government under ROADSIP-I funding scheme. Funding sources of ROADSIP-I are i) the government (GRZ) - both as direct and donor counterpart, ii) Donors, and iii) the Road Fund. At present, fuel levy is the major source of the Road Fund.

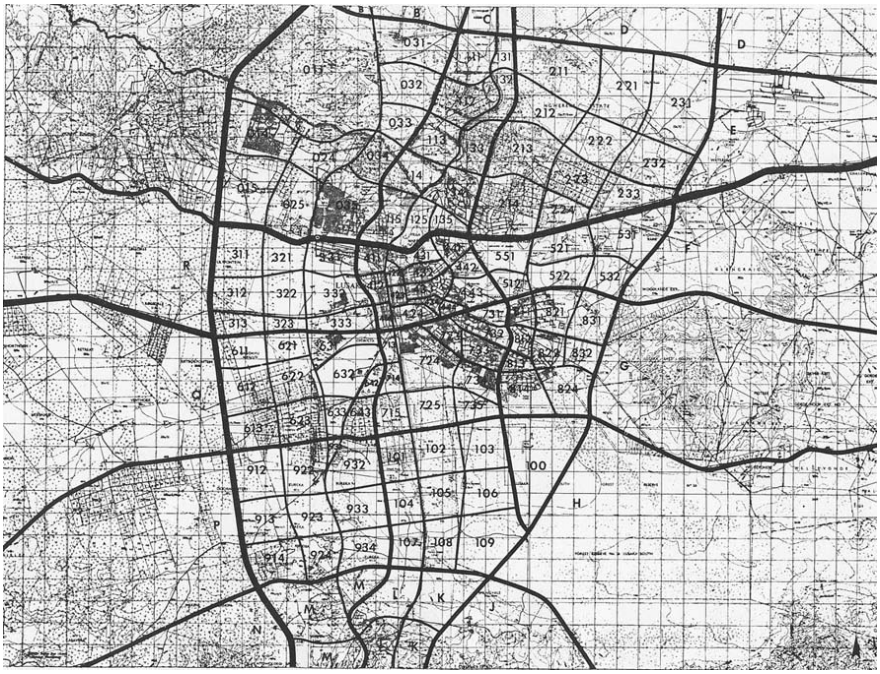
The JICA project improved trunk roads such as Great East Road and Great North Road, access roads to compounds, major roads in the town and the industrial area, and other major roads which were heavily deteriorated. The total length of the improved roads is 126 km.



Source: JICA Study Team

Figure 3.3.4 Road Network Development in Lusaka

Lusaka City has core road network with a total length of 1,600 km. Although roads were improved in the last 10 years, the road network has not been significantly expanded. This was based on observed few changes in the road network 40 years ago, when the study for the Greater Lusaka City Development Plan was carried out. The Greater Lusaka City Development Plan estimated that the population of Lusaka would reach 1.2 million in 2000. It also anticipated that the road network would not be sufficient with the impending traffic demands in the City. Based on this, the plan proposed an expansion of the road network as shown in Figure 3.3.5. With its current population of over a million, the existing road network seems to accommodate the traffic demand.



Source: Greater Lusaka City Development Plan (Doxiadis Associates, 1975)

Figure 3.3.5 Road Network Plan as per Greater Lusaka City Development Plan

Since the number of motor vehicles cause traffic congestion in the City, it was proposed to construct ring roads or bypass roads to divert traffic flow. However, such roads have not been constructed because the upgrading or rehabilitation of the existing roads was prioritized.

(2) Public Transport – Bus and Rail

A state owned bus company in Zambia, the United Bus Company of Zambia (UBZ), was closed down in 1995 after the introduction of the liberalization and privatization of the economy. Subsequently, the government granted tax exemptions for minibus imports, which increased the number of minibuses in Zambia. Currently, the bus service in Lusaka is provided by private companies.

Zambian Railway (ZR) runs through Lusaka north and south, providing inter-city passenger service and freight service. During the process of privatization, the concession over the operation of ZR was given to Railway Systems of Zambia (RSZ) in 2004. However, passenger service of the railway became worse as there were only three passenger trains for each direction per week. There was a commuter rail service in the 1990s, connecting George and Chilenje townships passing through the center of the City, with a total length of 16 km (Njanji Commuter Services). The commuter trains discontinue the service in 1998 due to a train accident. The Government intends to re-open the commuter railway line.

Nevertheless, the World Bank intends to promote non-motorized transport.

(3) Road Traffic

Vehicle population is rapidly increasing. The data of registered vehicles are only available after 2001 when the Zambia Traffic Information System was introduced. Currently, 152,411 vehicles are registered in Lusaka.

Traffic congestion is observed at major intersections and within the City, during peak hours. The roundabouts at both ends of Cario Road are heavily congested. The congestion at the intersection of Addis Ababa Drive and the Great East Road is also serious. In the City, traffic is also heavy on the three bridges that cross over the railway, and on the streets around bus terminals. No essential measures to alleviate traffic jams have taken place so far.

Traffic safety is becoming one of the most important issues in Lusaka. For traffic safety, humps were constructed on many roads to reduce vehicle speed.

(4) Airport and Air Traffic

Lusaka International Airport is located 27 km east of the center of the City, with a 3.9 km long and 45 m wide runway. The airport is operated by the National Airport Corporation Limited (NACL). The total number of passengers in 2006 was approximately 550,000 including 76,699 passengers for the domestic flights. Lusaka City Airport located at the center of the city is no longer operational.

(5) Legal and Institutional Reform

A series of legal and institutional reforms were implemented in 2002. The Government approved the Transport Policy, in May 2002. According to the Transport Policy, the Public Road Act No.12, the Road Traffic Act No.11, and the National Road Fund Act No.14 were enacted on 31 December 2002. From these acts, the following three agencies were formed.

(a) Road Development Agency (RDA)

RDA replaced the Roads Department and the Department of Infrastructure and Support Services as the implementing agency for road construction, rehabilitation and maintenance under the Public Road Act.

(b) Road Transport and Safety Agency (RTSA)

RTSA replaced National Road Safety Council as the implementing agency for road transport and safety under the Road Traffic Act.

(c) National Road Fund Agency (NRFA)

NRFA replaced National Road Board in dealing with national road funds under the National Road Fund Act.

Above reforms are still in progress.

3.3.4 Urban Infrastructure Development

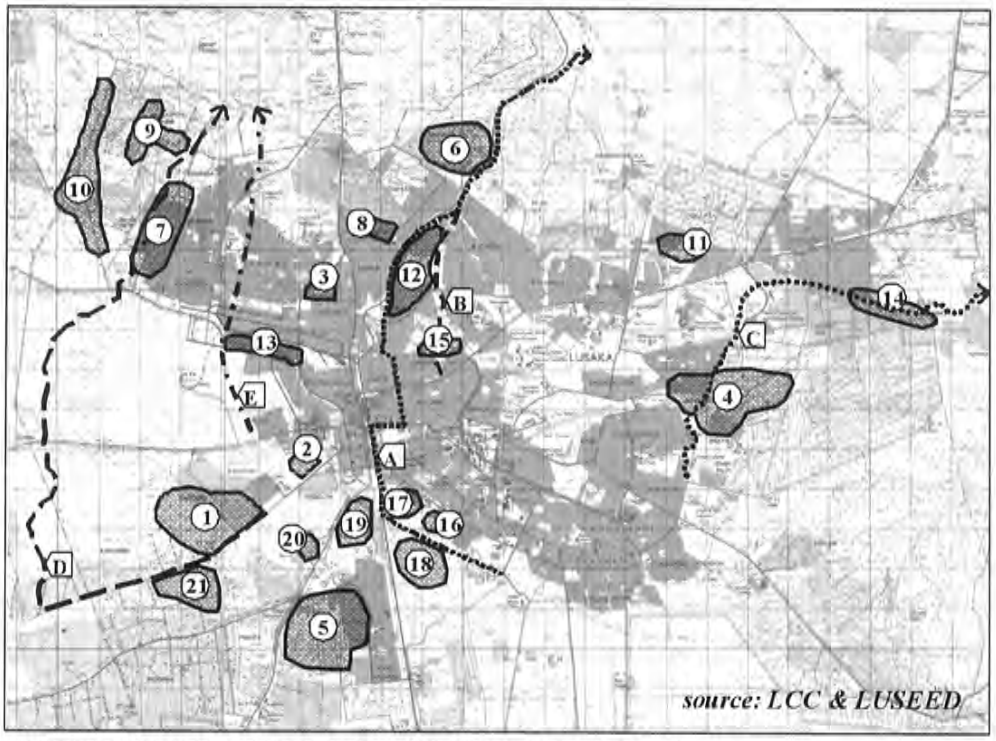
Drainage System

There are no quantitative information on drainage system, therefore, together with the Engineering Services Department of LCC, the current situations is summarized in the following discussions.

Major drain system of the City consists of unlined ditch dug beside the unpaved/soil

collector roads and arterial road. Other major facilities are:

1. Underground drainage system, mainly in CBD, Kamwala Trading Center (KTC), Light Industrial Area, Villa Elizabetha and other shopping centers.
2. Road side drains, unlined and lined ditches with road crossing culverts.
3. Outfall drains discharging district rainwater to outside (refer to Figure 3.3.6).
   A. Chilenje – Libala – Kamwala – Garden – Ngwerere stream
   B. Northmead – Luangwa – Ngwerere stream
   C. Ibex – Kabulonga – Kalikikiki – NRDC – Avondale – Great East road
   D. Kanyama – Makeni area
   E. Industrial area – Matero – Barlastone – Chunga stream



Serious Inundation Area *[during rainy season 2007-2008]*

01. Kanyama; almost entire compound
02. Soweto Market area; mainly along access road
03. Emmasdale; area bordered by Vubu-GrtNorth-Lumumba roads
04. Kalikiliki; almost entire compound
05. Chawama; most part of compound incl. Kuku
06. Chazanga-Kabanana; most part of compounds
07. George; some area mainly roads
08. Mandevu; mainly north of Catholic Church
09. Barlastone Park; some area and along main roads
10. Kasupe; some area and along main roads
11. Kaunda Square Stage 1; some area
12. Garden; some area incl. Chilulu and Luangwa compounds
13. Industrial area; some area incl. Food Reserve Agency
14. Avondale; along Simon Mwansa Kapwepwe
15. Northmead; alogn Manchichi road near Northmead BS
16. Kabwata
17. Kamwala
18. Kamwala South
19. Misisi
20. John Laing
21. Makeni

Source: LCC and JICA Study Team

Figure 3.3.6 Serious Inundation Observed Site during Rainy Season (Oct 2007 – Feb 2008)

In the rainy season of 2007, Lusaka experienced floods during the second week of December. Generally there are 11 major frequent inundation areas (site no.1, 2, 4, 6, 7, 12, 15, 16, 17, 18, 19 of Figure 3.3.6), however 15 seriously flooded areas were observed in this rainy season (site no.1-15 of Figure 3.3.6). After January 2008, the number of seriously flooded areas increased to 21.

Consequently, these flooding incidents have caused a cholera outbreak in Chipata compound.

The major causes of flooding are determined as below:

1. Increasing runoff coefficient due to urbanization, without implementing any corresponding countermeasures such as construction of retention ponds and diversion channels.
2. Lack of sufficient drainage system, especially in the area with unlined ditches, and in flat and low lying areas.
3. Insufficient maintenance, e.g. outfall drains filled with garbage and completely blocked with the development of illegal structures above the outfall.
4. Lack of management capability and budget to satisfy the present system, prepare drainage sector improvement plan and sufficient emergency measurement at the site.

Power Supply

Zambia Electricity Supply Company (ZESCO) is the largest electricity utility organization running and operating power stations, transmission lines and distribution networks under the jurisdiction of the Ministry of Energy and Water Development (MEWD).

In 2007, 99.5% of electricity in Zambia is generated by three biggest hydro power plants covering around 98% of total production. These plants are Kariba North (600MW), Kafue Gorge (900MW) and Victoria Fall (108MW). Small scale diesel power plants operating in remote areas will be abandoned soon after expansion of the national grid, due to high costs assumed at USD 0.19-0.26 /kWh, in 2006.

To increase power generation capacity, Power Rehabilitation Project (PRP) commenced through financial assistance (USD 250 millions) from the World Bank, African Development Bank, etc. It involves mainly rehabilitation and upgrading of the current system. Moreover, expansion of Kafue Gorge Lower (750MW) and Kariba North (expansion 360MW) are proposed while Itezhitezhi (120MW) is under implementation. Therefore, the critical situation on power supply will continue until the PRP is completed.

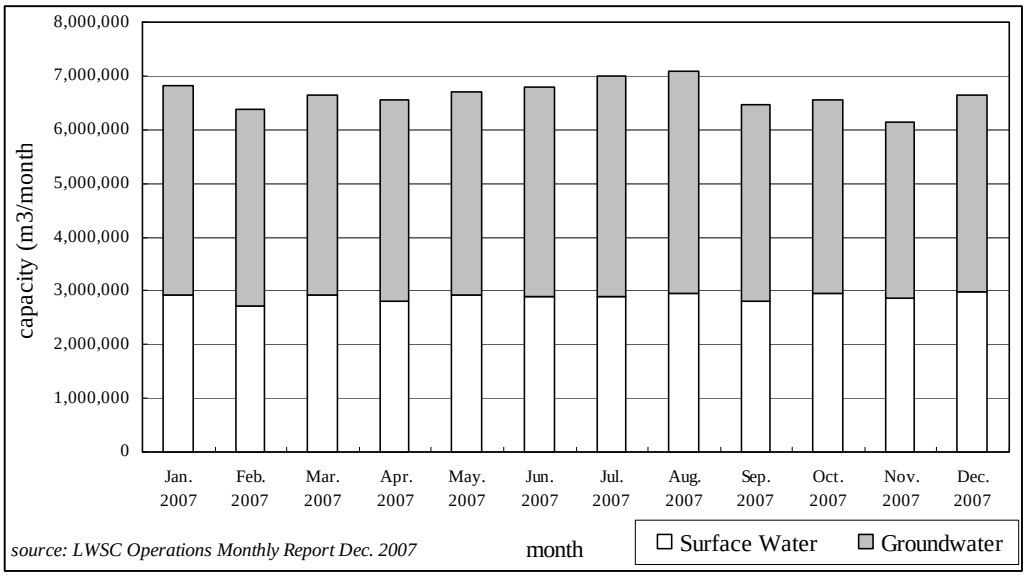
However, based on the statistical information from CSO in year 2006, the household in Lusaka City using electric lights is only about 62%, while 36% use candle lights. Meanwhile, about 58% use electricity for cooking, while 41% use charcoal for cooking. It means that more than 30% of households in Lusaka are still not utilizing electricity due to various reasons such as financial incapability. This also implies that demand for electricity is expected to increase in the future.

Water Supply

Water use in Lusaka City is supplied by LWSC, and several water trusts. LWSC has 72 boreholes and one surface water supply system called Iolanda Water Works, which utilize the water source from Kafue River. There are also 12 water trusts supplying to unplanned urban settlement, which are supported by donors and NGOs. However, there is no any record on private/individual well information for domestic, industrial and commercial users.

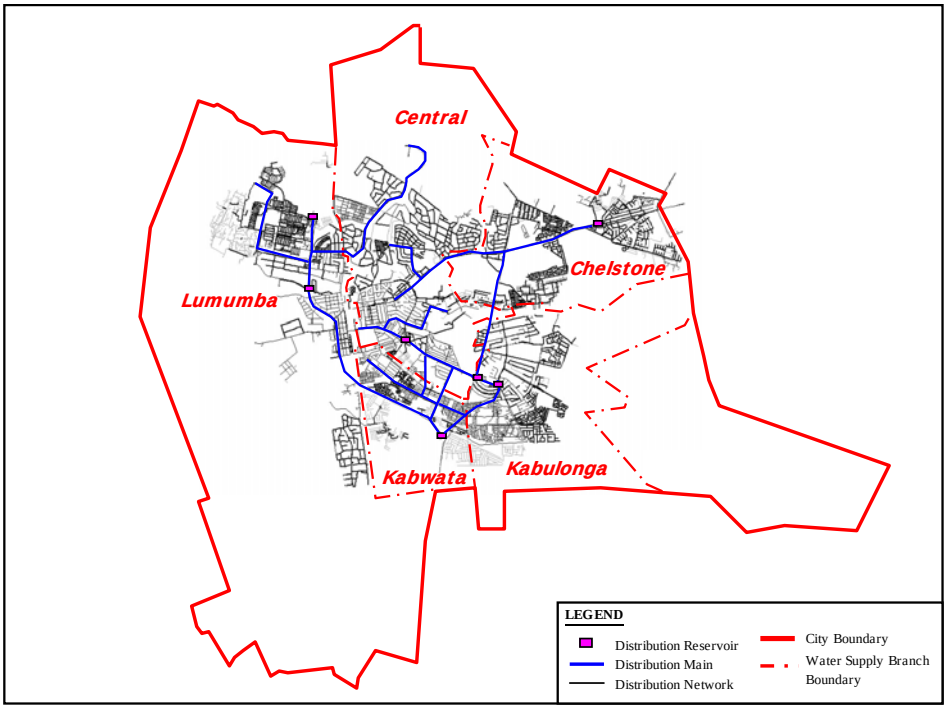
LWSC's average daily production capacity in 2007 is 218,000 m^3/d, in which Iolanda Water Works produces the 94,800 m^3/d (43%). There is no sufficient record related to water trusts, however it was assumed based on the questionnaire survey done by the JST that they produce about 5,500 m^3/d. Therefore, around 223,500 m^3/d of water is supplied to Lusaka by public services with sufficient water quality.

In August 2007, nearly 50% of the Lusaka district was already covered by the water distribution network. The total pipe length of 1,306 km consists of 22,748 metered connections (out of 50,448 connections). Thus, the metered ratio of only 45% caused Unaccounted for Water (UFW) of 48%. This is very high and affects to the financial reliability of the LWSC as well as the supply service to the people of Lusaka.



Source: LWSC

Figure 3.3.7 Monthly Water Production of LWSC for year 2007



Source: LWSC

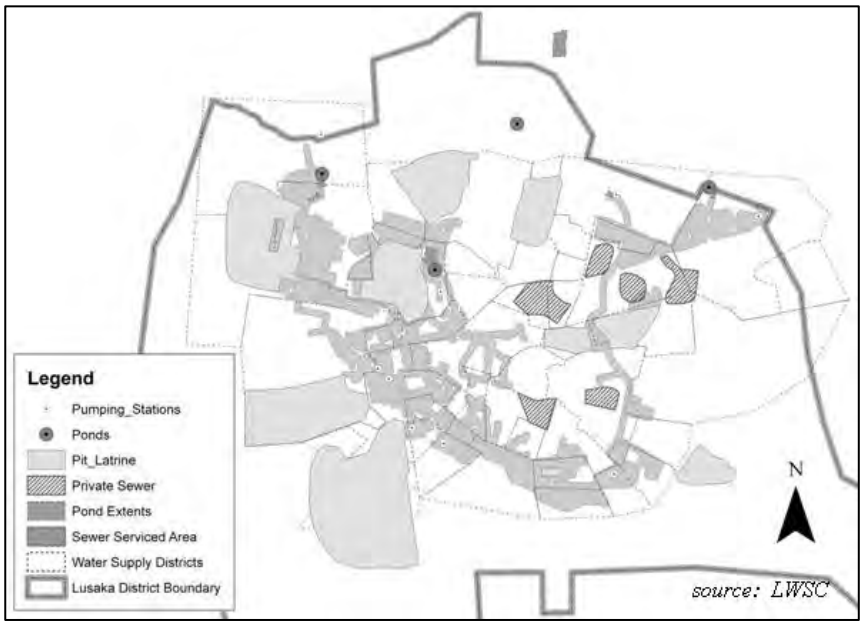
Figure 3.3.8 Water Distribution Network of LWSC

Sustainability of the groundwater resources is not secure in terms of quality and quantity. The contaminations from domestic wastewater (mainly coliform) and industries (chemical) were commonly observed. Also, considering the trend from 1970 to 2007, the number of boreholes (wells) was increased nearly four times while the capacity increased only by nearly twice. This means that the average capacity of the borehole is reduced to about half. This trend of reduction of capacity is also observed

in boreholes in Schist and Dolomite at Sheki-Sheki.

Sewerage

Sanitation treatment system in Lusaka consists of; i) sewerage treatment plant, ii) septic tank, and iii) pit latrine. The coverage ratio of sewerage system managed by LWSC is only about 35% of the City, including adjoining area of CBD, industrial area, and middle and high density area in the southern part along Buruma and Chilimbulu roads. Figure 3.3.9 shows the area covered by major sanitation treatment system.



Source: LWSC

Figure 3.3.9 Collection Sewer Network and Treatment System of LWSC

Based on the Living Conditions Monitoring Survey Report 2006 done by CSO, the common toilet facilities in Lusaka City are pit latrine (considered most common with 66% of the number of facilities) and flush toilet (individual and communal; 28%). Ventilated Improved Pit (VIP) meanwhile seems unpopular.

Sewerage system managed by the LWSC consists of sewer lines with total length of 405 km, six sewerage treatment systems with two trickling filtration plant and five stabilization ponds (combination of both system). The actual treated capacity (62,600 m^3/d) is below the design capacity (66,850 m^3/d), however, the effluent water quality does not meet the target, mainly due to the aging facilities.

Waste Management

In 2003, th semi-autonomous and multi-disciplinary organization Waste Management Unit (WMU) was established under the LCC. Its function is to manage the solid waste services of Lusaka City. It is mandated to plan, organize, execute, and supervise waste management services, including waste collection in UUS and PUS areas within the City.

Chunga Sanitary Landfill is the only disposal site in Lusaka City, where all wastes are being treated. Danish International Development Assistance (DANIDA) initiated construction of new dumping site next to the old one in 2007, which is assumed to be used for approximately ten years.

Waste collection method is different in peri-urban and conventional areas. Under the management of WMU, a total of 76 Community Based Enterprise (CBE) collect wastes

in the peri-urban area in 2007. The collection system differ depending on the amount of the paid fee, i.e. i) people utilize their own waste bin (called container, or skip) and pay a few thousand Kwacha/month, and ii) designated staffs from CBE collect the waste from the household, which is more costly. CBE shall pay for the collection of the waste container to WMU while the balance between the income and expenses will be used to cover the staff salary and maintain the equipment. However, many CBE's faced financial and operational problems, causing inefficient sanitary services.

In the conventional and commercial areas, WMU has cooperated with private waste management companies. These companies collect wastes from each household in areas divided into 12 Waste Management Districts. The minimum monthly cost of ZMK 8,000 and the maximum of ZMK 50,000 were set based on areas' population density. The Chunga Sanitary Landfill site charges ZMK 20,000 for up to 1,000 kg of waste dumped.

Table 3.3.4 Waste Management District in Conventional and Commercial Area

No.	Area
A	Barlestone, Matero, Lilanda
B	Emmasdale
C	Chudleigh, Kalundu, Olympia, Olympia Extension, Roma
D	Kamwala Commercial Area, Central Business District, Thorn Park, Villa Elizabetha
E	Longacres, Northmead, Rhodes Park
F	Chamba Valley, Chelstone, Chudleigh
G	Avondale, Chainama, NRDC
H	Handsworth, Ibex Hill, Kabulonga, Sunningdale, Helen Kaunda
I	Arakan, Kabwata, Kamwala, Libala, Madras, Ridgeway, UTH, Chilenje
J	Nyumba Yanga, State House, Woodlands, Woodlands Extension
K	Industrial Areas (Heavy), Industrial Areas (Light)
L	Buckey, Lilayi, Makeni

Source: Waste Management Unit, Lusaka City Council

Source: Waste Management Unit, Lusaka City Council

Figure 3.3.10 Lusaka Waste Management District

There are two major problems in the waste management area. The first is the illegal dumping on drainage, open space, and road side in peri-urban area, which cause risk to public health, environment such as outbreak of disease in rainy season, and less efficient drainage. The second is the capacity of the CBE to operate and manage the system, with no specific guidelines as well as public instructions. Therefore, there are various waste collection methods, waste management and billing systems among the CBEs.

3.3.5 Living Environment

(1) Overview of Living Environment in Lusaka

1) Definition and Background

(a) Definition of Living Area in Lusaka

In the Lusaka district, there are two categories of residential areas namely, the UUS which is commonly called compound or peri-urban, and PUS which is either called conventional or housing area. The UUS is an area declared by the MLGH as squatter's area, or as area subject fo improvement based on the Statutory and Improvement Areas Act 1974. PUS meanwhile is declared as an authorized housing area.

(b) Residential Development in Public and Private Sector

The government has taken several measures on residential development. In terms of housing for public sector, the National Housing Authority (NHA), a fully government-owned institution, is the only designated main implementing agency in the country. NHA has annually provided over hundred of housing units over the recent years at project sites of Ibex Hill, Nyumba Yanga, Chainama and Woodlands Extention.

LCC's involvement is in the development of schemes to subdivide housing lots in public lands, based on the prepared layout plans. According to LCC, the aim of development scheme is to offer housing lots to all the citizens particularly to the low income group. There are, at present, six sites under the development schemes namely, Chalala, South of Woodlands Extention, Kamwala South, Libala South, Bauleni Overspill and New Kanyama.

Large-scale housing developments by private sector have been recently initiated. The following table shows the major housing developments implemented by private sector, and the outline of the projects.

Table 3.3.5 Major Housing Developments in the Greater Lusaka

Name	Area (ha)	Number of Plots	
		Housing	Others
Lilayi	248.6	3,731	N.A.
Meanwood Avondale	1,613.9	5,055	27
Salama	104.0	728	20
Kwamwena Valley	120.6	1,712	25
Voma Valley	181.5	1002	20
NdekeVillage	405.8	4512	68

Source: http://www.lilayiestate.com/, et al

2) Water Supply

There are 15,693 households, equivalent to 5.9% of peri-urban area of Lusaka District, who own individual water supply connections. The remaining 250,811 households still depend on non-individual connections, consisting of communal tap, kiosk, and hand pump with a total number of 1,038 connections.

One out of 246 households utilizes non-individual connection. Based on supply capacity, residents resort to varying types of non-individual connection. Nevertheless, considering the operation and required time to obtain water, the number of non-individual connections is still less than the demand. Therefore, as identified during the community profile survey, seven out of 14 UUS requested water supply as an urgent service to be improvement.

In residential areas, also based on the survey, there seem no special problems with

regard to connections, except during dry season when water supply is occasionally limited.

Table 3.3.6 Connection Type of Non-Individual Water Supply in UUS in Lusaka District

Non-individual connection	Communal Tap	Public Tap	Kiosk	Hand Pump	Total
Functioning Number	87	260	679	12	100 %
(%)	8.4 %	25.0 %	65.4 %	1.2 %	100 %

Source: Survey result from NWASCO and GTZ, 2005

3) Sanitation: Toilet facility

About 92.7% of people in UUS mostly depend on pit latrine. About 44.6% of those in the in residential area also use pit latrine. There is also apparent difference in the use of flush toilet - 7.3 % in UUS area and 55.4% in residential area.

Communal toilet used by 41.2% in UUS, 41.2% and 26.8% in residential area, has problems related to maintenance. It is also noted that pit latrines located in frequently inundated area often subjected to sanitary issues such as outbreak of diseases when human wastes overflow as floods occurs.

Table 3.3.7 Type of Toilet Used in UUS and Residential Area

Area	Own pit latrine	Communal pit latrine	Own flush toilet	Communal flush toilet	Total
UUS area	54.2%	38.5%	4.6%	2.7%	100 %
Residential area	23.9%	20.7%	49.3%	6.1%	100 %

Source: Result from Community Profile Survey, LUSEED 2007

4) Density and Living Space Conditions

(a) Population density in Greater Lusaka area and Lusaka City

There is a general perception that density of urban settlement in Lusaka's urban area is low (2,560 pop/km^2) as compared to other countries' such as Nairobi (4,160 pop/km^2), Maputo (4,199 pop/km^2) in the southern African region, and Bangkok (3,608 pop/km^2), El Djazair (9,386 pop/km^2) in the middle-income regions. However, high-dense settlement in UUS in Lusaka City appears critical.

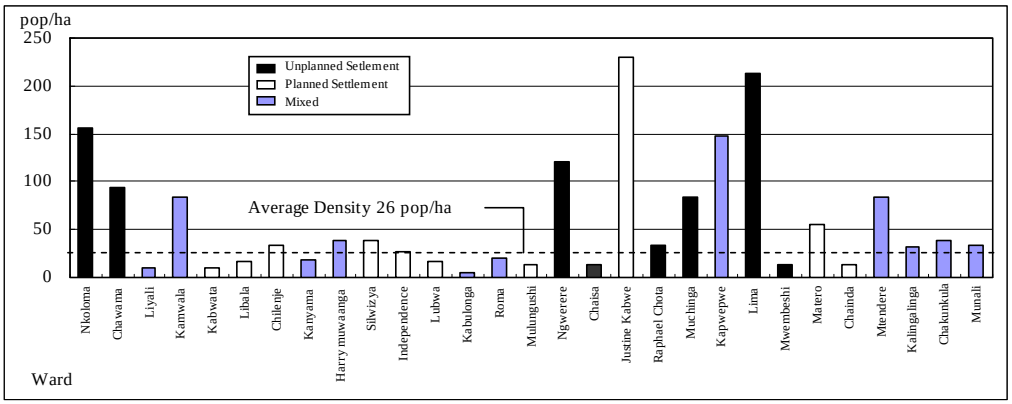
Based on the information on current population density in Greater Lusaka (CSO 2000), population density of adjacent three districts namely, Kafue, Chongwe and Chibombo, where .small are towns and settlement is dispersed, is very low in 2000 with less than 1.0 population/km^2.

On the other hand, Figure 3.3.11 and 3.3.12 shows the population density of Justin Kabwe (230 pop/ha), Lima (213 pop/ha), Nkoloma (230 pop/ha) and Kapwepwe consist of high-dense settlement ward located in Lusaka City.

Table 3.3.8 Gross Population Density Distribution in Greater Lusaka

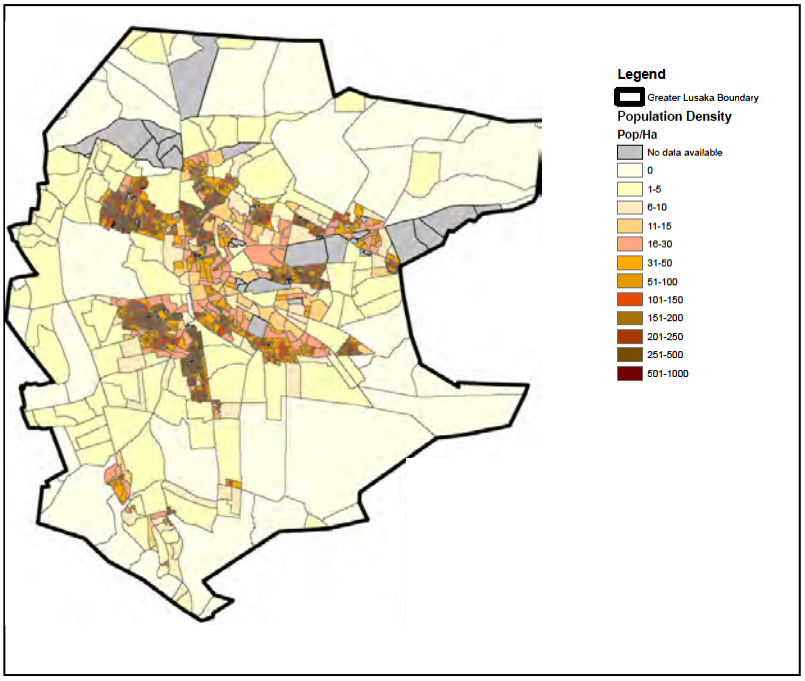
Location	District	Area ha	Population	Density
Lusaka District	Lusaka	42,337	1,084,703	25.6
Greater Lusaka Area	Kafue	22,362	24,341	1.1
	Chongwe	15,623	11,138	0.7
	Chibombo	5,452	2,933	0.5
		85,773	1,123,114	13.1

Source: Census 2000/ CSO



Source: Census 2000/ CSO

Figure 3.3.11 Gross Population Density by Ward in Lusaka District



Source: JICA Study Team (GIS analysis based on Census 2000 of CSO)

Figure 3.3.12 Gross Population Density Distribution by SEA in Greater Lusaka Area

(b) Living Space Condition

About 195 housing units are estimated to be constructed in Greater Lusaka by year 2000. Assuming that housing requirement is equal to the number of households (219 thousand), the shortage of housing units by year 2000 is estimated to be 24 thousand units. This shortage implies that large number of households live together in the same house, commonly known as multi-household house.

The housing lot density in Lusaka City is comparatively low due to predominance of detached houses, although there are opinions that tight density condition in dwelling with several households exist. The UUS is mostly made up of self-built houses in relatively low density area.

The average housing density in the built-up areas of the UUS is roughly 30 units/ha, while the density in crowded housing area such as Matero is estimated to be 15-20 units/ha. Because of unavailability of vacant land in the built-up areas, new settlers have actively constructed housing units in the surrounding areas.

In terms of floor area per head, there is wide gap between the PUS and the UUS.

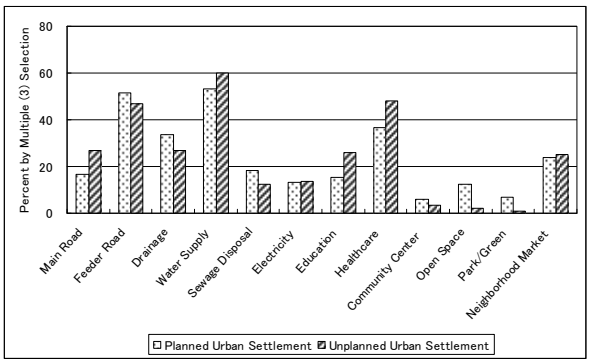
The floor area per head of typical settlements in the UUS ranges from 5.7 m^2 to 8.3 m^2, while in PUS such as Mandevu and Matero, area per head is 12.4 m^2 and 13.2 m^2, respectively.

5) Legal Status for Living

The difference in status of land tenure and income level between those in the UUS and the PUS are considerable. Insecurity of land tenure remains a critical issue in the UUS. Residents in legalized UUS obtain occupancy license in terms if issued residency rights. This means that there is actually no secure land ownership. Therefore, most of the residents can only keep their houses as temporary dwelling places, built with substandard materials. Details are further discussed in section 2.3.2 "Land Tenure and Urban Development Control".

6) Access to Fundamental Urban Services

The improvement needs of infrastructure facilities and public services in the PUS and the UUS show similar trend. The top three improvement priorities for both PUS and UUS are water supply, feeder road and healthcare. The succeeding priorities are improvement of drainage, main road, education and neighborhood market. However, the sequencing of these subsequent priorities is different for PUS and for UUS. The demand for improvement needs of main road and education in the UUS are higher than those in the PUS.



Source: Household Interview Survey of PT Survey by the JICA Study Team

Figure 3.3.13 Improvement Needs of Infrastructure and Public Services

(2) Issues of Living Environment

Issues of living environment are identified as follows based on discussions in the "Vision and Strategy for Urban Development Plan of Greater City of Lusaka" published in 19 February 2008. These were justified through household interview survey and community profile survey. Said issues can be classified into three categories such as physical environment, institutional arrangement and social conditions.

1) Physical Environment

- Effective and efficient provision of massive infrastructure facilities and public services in both the PUS and UUS, especially water supply, healthcare, roads and drainage, as part of Basic Human Needs
- Effective and efficient provision of massive quantity of dwelling places such as social housing, private flat, collective housing and multiuse buildings
- Upgrading of substandard housing compounded with unsecured land tenure, lack of affordable finance and construction materials, and absence of adequate infrastructure facilities and public services

2) Institutional Arrangement

- Establishment of land development mechanism and integrated development

measures in order to provide infrastructure facilities and public services through efficient and effective procedures

- Establishment of effective and efficient mechanism for housing development in order to meet the massive needs for housing
- Establishment of mechanism for obligatory provision of low-cost housing and reserved land for resettlement in order to support people affected by the development
- Streamlining of land registry system and promotion of land registry with 99-year leasehold in order to secure land tenure status
- Provision of affordable housing finance and favorable taxation in order to promote upgrading of housing standards

3) Social Improvement

- Encouraging local industries in order to provide job opportunities for urban poor, especially for those unemployed in the UUS
- Encouraging community's social and economic activities for the betterment of living conditions

3.3.6 Social Facility Development

(1) Education

The educational system and the number of basic and secondary schools in Zambia are as shown in Figure 3.3.14.

There are 7,632 basic and secondary schools in Zambia in 2005, of which 566 (7.4%) are located in Lusaka Province.

		Age	Ed Year
Tertiary	Doctorate / Masters / Bachelors	30	24
		29	23
		28	22
		27	21
		26	20
		25	19
		24	18
		23	17
		22	16
		21	15
		20	14
		19	13
Secondary	High School	18	Grade 12
		17	Grade 11
		16	Grade 10
Basic	Upper Basic	15	Grade 9
		14	Grade 8
	Middle Basic	13	Grade 7
		12	Grade 6
		11	Grade 5
	Lower Basic	10	Grade 4
		9	Grade 3
		8	Grade 2
		7	Grade 1

Vocational Training Programmes

	Population (2005)		Province	Gr.1-4	Gr.1-7	Gr.1-9	Gr.8-12	Gr.1-12	Gr.10-12	Total	(%)
Number of schools	1,607,596	13.9%	Lusaka	53	259	171	25	50	8	566	7.4%
	1,194,742	10.3%	Central	144	452	198	24	14	3	835	10.9%
	8,741,098	75.7%	Others	1,146	3,355	1,381	192	112	45	6,231	81.6%
	11,543,436	100.0%	National	1,343	4,066	1,750	241	176	56	7,632	100.0%

Source: Educational Statistical Bulletin 2005, Ministry of Education

Figure 3.3.14 Educational System and Number of Schools in Zambia

Table 3.3.9 presents the number of schools by province, providing lower basic, middle basic, upper basic, and high school education. With regards to demographic distribution, Lusaka Province has a rather big number of secondary schools and small number of basic schools, as compared to the central and other provinces.

Table 3.3.9 Distribution of Basic and Secondary Schools by Province

		Lusaka		Central		Others		Total	
Secondary	High School	83	17.5%	41	8.7%	349	73.8%	473	100.0%
Basic	Upper Basic	246	11.4%	236	10.9%	1,685	77.8%	2,167	100.0%
	Midde Basic	480	8.0%	664	11.1%	4,848	80.9%	5,992	100.0%
	Lower Basic	533	7.3%	808	11.0%	5,994	81.7%	7,335	100.0%
Population (2005)		1,607,596		1,194,742		8,741,098		11,543,436	
Demographic Ratio (2005)		13.9%		10.3%		75.7%		100.0%	

Source: Educational Statistical Bulletin 2005, Ministry of Education

Table 3.3.10 meanwhile presents the number of schools per 10,000 persons, by province. It is noted that in Lusaka Province, only the secondary school exhibits a higher rating than the correspondent average figure (0.52 > 0.41). The figure ratings are opposite those for the central and other provinces.

Table 3.3.10 Number of Schools per 10,000 Persons by Province

		Lusaka	Central	Others	Total
Secondary	High School	0.52 > average	0.34 < average	0.40 < average	0.41 = average
Basic	Upper Basic	1.53 < average	1.98 > average	1.93 > average	1.88 = average
	Midde Basic	2.99 < average	5.56 > average	5.55 > average	5.19 = average
	Lower Basic	3.32 < average	6.76 > average	6.86 > average	6.35 = average

Source: Educational Statistical Bulletin 2005, Ministry of Education

There are two universities falling directly under the Ministry of Education (MOE) in Zambia. One is the University of Zambia (UNZA) located in Lusaka, and the other is the Copperbelt University (CBU) located in Copperbelt Province.

It appears that higher level educational institutions are concentrated in Lusaka Province and Copperbelt Province.

1) Basic School

As shown in Table 3.3.11, the enrolment percentage of basic school (Grade 1-7) is 84.04% in Lusaka Province.

Table 3.3.11 Enrolment Percentage by Gender and Province (Basic - Grade 1-7)

Province	Male	Female	Total
Lusaka	81.64%	86.43%	84.04%
Central	101.28%	101.41%	101.35%
National	95.28%	95.88%	95.58%

Source: Educational Statistical Bulletin 2005, Ministry of Education

Table 3.3.12 shows that the enrolment percentage in basic school (Grade 1-9) is 83.88% in Lusaka Province. This figure implies that most of the elementary schoolchildren (Grade 1-7) complete the junior high school course (Grade 8-9).

Table 3.3.12 Enrolment Percentage by Sex and Province (Basic - Grade 1-9)

Province	Male	Female	Total
Lusaka	82.09%	85.64%	83.88%
Central	100.09%	99.47%	99.78%
National	94.03%	92.89%	93.46%

Source: Educational Statistical Bulletin 2005, Ministry of Education

2) Secondary (High) School

In Lusaka Province as well as nationwide, the number of schools offering high school education (83) is even less than the schools offering basic education (558). As for the number of classrooms, the high schools in Lusaka Province consist of a total of 530, while basic schools comprise not less than 4,369.

3) Infrastructure of Basic and Secondary Education in Lusaka City

As of 2006, there are 330 basic schools and 69 secondary schools in Lusaka City as shown in Table 3.3.13. More than half of the basic schools are operated by the community and 19.4% by private sector. GRZ owns only 30% of the existing basic schools. As for secondary (high) schools, private sector accounts for 58% of the total, while 39.1% are operated by GRZ.

Table 3.3.13 Number of Schools in Lusaka District (2007)

2007	Number of Schools		
	Basic	Secondary	Total
Community	167	2	169
GRZ	99	27	126
Private	64	40	104
Total	330	69	399

2007	Percentage of Schools		
	Basic	Secondary	Total
Community	50.6%	2.9%	42.4%
GRZ	30.0%	39.1%	31.6%
Private	19.4%	58.0%	26.1%
Total	100.0%	100.0%	100.0%

Source: JICA Study Team based on the data provided by MOE

The main issue in the educational sector in Lusaka Province is to raise the school attendance rate in basic education to the national average level, and enhance the secondary education program.

(2) Vocational Training

1) Vocational Institutions and Running Agency

The Ministry of Science Technology and Vocational Training (MSTVT) provides vocational training through training institutions established throughout the country. There are also other types of school such as private, NGO, community, etc. As of 2007, there are 268 officially registered institutions across the nation, of which 25 are operating under MSTVT. Lusaka Province has 95 institutions, of which seven (7) are under MSTVT. Copperbelt Province meanwhile has 59 institutions, where seven (7) of which are under MSTVT.

Table 3.3.14 presents the ownership of the existing vocational schools in Lusaka. "Private" heads the list with 46.3% followed by NGO (11.6%), Church (10.5%), Trust (9.5%), and others which are below 9%.

Table 3.3.14 Ownership of the Existing Vocational Schools in Lusaka

Owner	Number	%
Private	44	46.3%
NGO	11	11.6%
Church	10	10.5%
Trust	9	9.5%
MSTVT	7	7.4%
Community	6	6.3%
Company	3	3.2%
Others	5	5.3%
Total	95	100.0%

Source: JICA Study Team based on the data provided by TEVETA

All the registered institutions are graded according to quality and facility, as presented in Table 3.3.15.

Table 3.3.15 Number of Registered Institutions in Lusaka and Central Districts (2007)

	Lusaka	Central	Total
Grade 1 (Very Good)	14	1	18
Grade 2 (Good)	41	2	40
Grade 3 (Satisfactory)	40	9	54
Total	95	12	112

Source: JICA Study Team based on the data provided by TEVETA

Graduates from vocational schools are considered qualified. The qualification levels are as shown in Table 3.3.16.

Table 3.3.16 Qualification Levels of Graduates from Vocational Schools

Applied Science, Engineering, Paramedical	Business Studies/ Administration
Technologist (Diploma)	Diploma
Technician (Advanced Certificate)	Advanced Certificate
Craft Certificate	Certificate (of Marketing)
Trade Test Certificate	-

Source: JICA Study Team based on the data provided by TEVETA

Generally, it takes two years to acquire a certificate and three years diploma, to complete the courses.

The vocational institutions are financially supported by Technical Education, Vocational and Entrepreneurship Training Authority (TEVETA), which is a running agency for vocational training, in accordance with the national provision, Technical Education, Vocational and Entrepreneurship Training (TEVET).

2) Samples of vocational training institutions

Table 3.3.17 presents the profile of two existing vocational institutions in Lusaka City.

Table 3.3.17 Curricula Demand and Employment Rate of Vocational Schools (Samples)

	Lusaka Business and Trading College	Dzithandizeni Trades School
Type	Public	Community
Location	Ward No. 15 (Planned Settlement)	Ward No. 19 (Unplanned Settlement)
Establishment	1956	1978
Owner	MSTVT (Government of Zambia)	Community Based Organization
Training Period	2 years	6 months
Course	- Business Accounting - Chartered Institute of Marketing - Computer Studies - Engineer drawing - Finance & Economics - Secretarial Studies - Automotive Mechanics - Bricklaying & Plastering - Carpentry & Joinery - Machining & Fitting - Plumbing and Sheet Metals - Power Electrical - Food & Beverage - Hotel & Catering - Weaving Textile & Dying	- Carpentry - Tailoring
Number of Trainees (2007)	About 1,200 Persons	About 35 Persons
Expenses to be Paid to School	4,500,000 kwacha/ year/ trainee	630,000 kwacha/ 6 months/ trainee

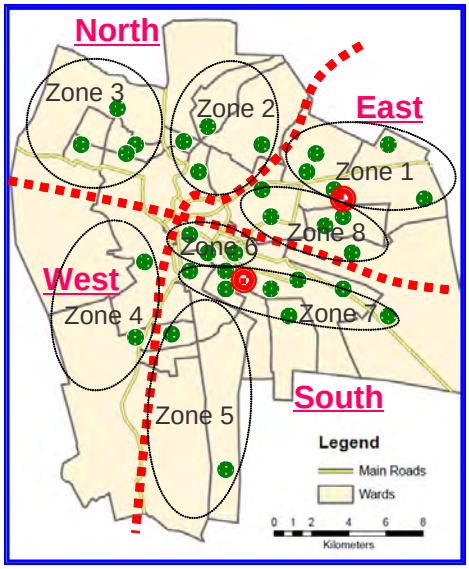
	Lusaka Business and Trading College	Dzithandizeni Trades School
Qualification Level	Craft Certificate	Trade Test Certificate
Grade (2007)	2	2
Employment Rate	20-30%	* Most of graduates make living individually in informal sector.

Source: JICA Study Team

It is reported that there is an enormous gap of technical level between the graduates from the existing vocational schools and those that suit foreign investors' needs. In this context, the main issue for the vocational training sector in Lusaka Province is to enhance the training program with a view on meeting the demand of qualified human resource in the future.

(3) Health

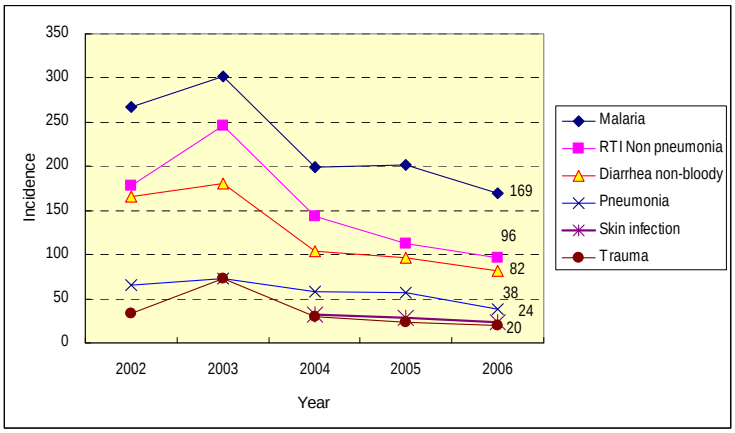
1) Infectious Diseases



Many infectious disease cases are reported every year in Lusaka City. The cases of malaria, Respiratory Tract infections (RTI) non pneumonia, pneumonia, and skin infection in 2006 are reported to be 283,100, 161,923, 63,383 and 40,575, respectively. But in general incidence of these diseases has decreasing since 2003, as shown in Figure 3.3.15. AIDS ranks first among the mortality cases with a CFR (= total deaths per 1,000 admissions) index of 225.6 in 2006, followed by meningitis with a CFR index of 131.8.

Source: JICA Study Team based on information from LDHMT

Figure 3.3.15 Location of Hospitals and Clinics in Lusaka City



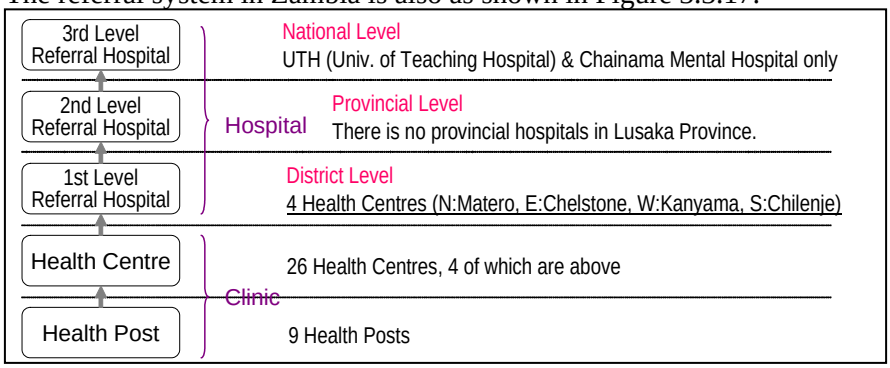
Source: Health Management Information System (HMIS)

Figure 3.3.16 Incidence (= cases per 1,000 people) of Infectious Disease in Lusaka District

2) Healthcare Providers

As shown in Figure 3.3.16, Lusaka City has four operational areas providing

healthcare: North, East, South, and West. Each area has one to three health zones, which total to about eight health zones. There are two national hospitals and 35 clinics in Lusaka. The distribution of these is presented in Figure 3.3.16. There are no hospitals or clinics in nine out of 33 wards. Each operational area has one health center that is being upgraded to district level as shown in Figure 3.3.17. The referral system in Zambia is also as shown in Figure 3.3.17.



Source: JICA Study Team based on information from LDHMT

Figure 3.3.17 Healthcare Providers in Lusaka City

Table 3.3.18 presents the current catchment copulation of the clinics in Lusaka City. According to this table, it seems urgent to improve the service quality and install necessary equipment in the 1st level referral hospitals, and to establish more health posts which are presently insufficient.

Table 3.3.18 Current Catchment Population of the Clinics in Lusaka District

	Number (2007)	Current Catchment Population	Ideal Catchment Population
1st Level Referral Hospital *	4	327,214	80,000 - 200,000
Health Center	22	59,493	30,000 - 50,000
Health Post	6	218,143	Around 7000

*Actual four (4) 1st Level Referral Hospitals has not met the required level yet.
Source: JICA Study Team based on information from LDHMT

(4) Sanitation

1) Solid Waste

According to "Strategic Municipal Solid Waste Management Plan for Lusaka City" (Oct. 2003), the annual volume of solid waste in the City was 290,000 tons, of which 233,000 tons (80.4%) was generated in the residential area in 2002. Putrefied waste accounted for about 40% of the total volume.

Two different solid waste collection systems are implemented in Lusaka City as shown in Table 3.3.19.

Table 3.3.19 Solid Waste Collection Systems in Lusaka District

	Collection Unit	Waste collector	Collection of Fee
Conventional/ Commercial Areas (Planned Settlements)	Waste Management District (12 Districts in Total)	Private Waste Management Companies Awarded with a franchise contract	Collectors are to set and collect fees. Fee level is subject to a ceiling set by LCC.
Unplanned Settlements	Settlement (on compound unit basis)	CBE: Day-to-day Management and Primary Waste Collection MWU: Secondary Waste Collection and Transportation to Landfill Site	CBE are to collect waste fees and ensure that secondary waste collection should be pre-paid for.

CBE: Community Based Enterprise
Source: LCC brochures (Waste Collection Services for Conventional Areas/ Waste Collection Services in Peri-urban Areas)

Lusaka City has one landfill site in Chunga which is about 7 km to the north-west from the city center. This landfill site, which opened early 2001 and had been developed until March 2007, is currently the only designated disposal site for Lusaka. The present filling area covers approximately four hectares, i.e. single cell only, of which the capacity period is about five years. According to WMU, which is the responsible organization for the landfill site, four more cells will be developed in the future in order to increase the capacity for another 20 years.

The main issue for the solid waste sector is to improve the waste collection rate at district level, and financial status of CBEs at community level, in peri-urban areas.

2) Toilet

According to the data from CSO, in the urban area of the four districts (Lusaka, Chongwe, Kafue, and Chibombo), the local people use various type of toilet facilities: own pit latrine (40%), communal pit latrine (28%), own indoor flush toilet (18%), own outdoor flush toilet (7%), and others (7%).

With a view on improving the actual unsatisfactory sanitary situation, installation of VIP shall be enhanced in the short and middle-term. Indoor flush toilets shall be gradually introduced to households based on their affordability in the long run.

(5) Accessibility to drinking water

According to the data from CSO, main drinking water sources in the urban area of the four districts (Lusaka, Chongwe, Kafue, and Chibombo) are as shown in Table 3.3.20. 45% of the people use public taps, while 31% have their own taps.

Table 3.3.20 Main Drinking Water Sources in the Urban Areas of the 4 Districts including Lusaka (2006)

Main Source	%
Public Tap	45%
Own Tap	31%
Other Tap	13 %
Borehole	6%
Protected Well	2%
Unprotected Well	1%
Unknown	2%
Total	100%

Source: CSO

The main issue at district level is insufficiency of available water quantity. New water resources shall be developed to sustain water supply for the whole district.

Another problem is the limited accessibility to clean water on a daily basis. Suspension of water supply often occurs due to the actual vulnerable supply system. Therefore, continuous maintenance of the existing system as well as the construction of new water supply system is necessary.

With regards to water charge collection at community level, many residents are reluctant to pay for water due to some reasons, such as the lack of meters at water points. Citizens' awareness of the importance to establish a sustainable water supply system seems to be unsatisfactory.

(6) Energy

According to "National Energy Policy, May 2008 (Ministry of Energy and Water Development)", woodlands and forests are estimated to cover about 50 million hectares or 66 % of Zambia's total land area. The main sources of wood fuel are natural woodlands and agricultural lands. Given the very low income levels and the abundance

of wood resources, it is foreseen that wood fuel (firewood and charcoal) would continue to dominate Zambia's energy consumption. In 2004, it accounted for over 70% of total national energy consumption. Households accounted for about 88% of wood fuel consumption. Cooking and heating are the major household uses of wood fuel. According to information from the Ministry of Energy and Water Development 60.9% of households use firewood for cooking, 24.3% use charcoal and only 13.8% is used electricity.

Table 3.3.21 shows the average cost of energy against the total monthly expenses for a family of six in Lusaka. Currently, the cost of charcoal and electricity account for 16.7% (one-sixth) of the family expenses.

Table 3.3.21 Cost of Energy against the Total Monthly Expenses for a Family of Six in Lusaka

	Monthly Expenses (kwacha)	%
Total	1,835,300	100.0%
Charcoal	182,000	9.9%
Electricity	125,000	6.8%

Source: Jesuit centre for theological Reflection: Social Conditions Programme (January, 2008).

CHAPTER-4

DEVELOPMENT STRATEGY OF LUSAKA

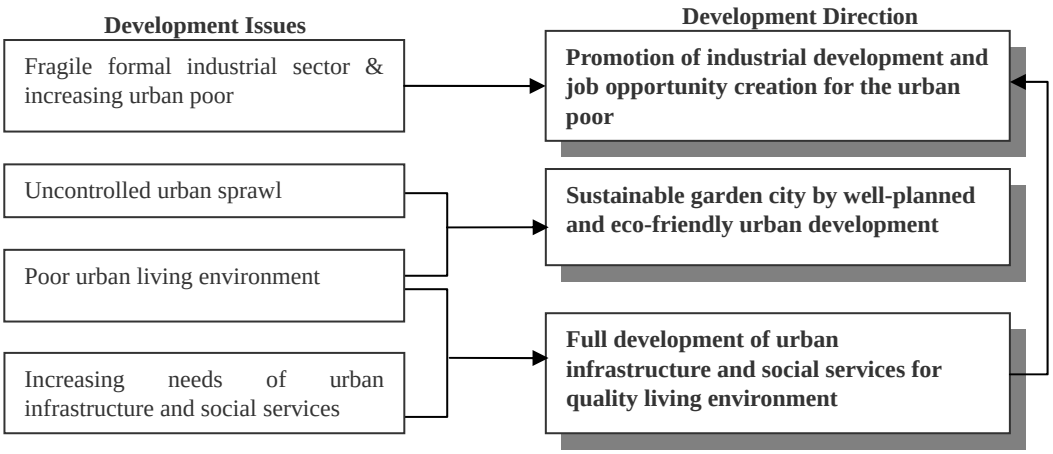
CHAPTER 4 DEVELOPMENT STRATEGY OF LUSAKA

4.1 Development Vision and Framework

4.1.1 Development Vision

(1) Development Direction

Taking account of the role and issues of Lusaka, development direction towards 2030 is set as 1) Promotion of industrial development and job opportunity creation for the urban poor, 2) Environmentally sustainable and well controlled urban growth/development and 3) Full service of urban infrastructure and social facilities for both formal and informal settlements, to address essential issues on the socio-economic development of Lusaka.



Source: JICA Study Team

Figure 4.1.1 Development Direction of Lusaka

The followings illustrate backgrounds of development direction.

1) Role of Lusaka City

Lusaka City as the Capital of Zambia plays a lead role in the region, being the magnate for regional trade and the gateway to national and international markets. The infrastructure in and around Lusaka is an essential element to link the provinces in the country and other neighboring countries. It could generate favorable relations in trade and industry in the domestic and international markets. The City also plays an important role for the region's workforce as it promotes employments.

Lusaka will play also a key role in initiating economic development in the region as the industrial center for both national and international investments toward National Development Goal of "**Middle Income Country in 2030**", making it the region's economic development force.

2) Regional Development Linkage for Economic Development

Development linkage among provinces in the region covering Lusaka, central and southern provinces is inevitable to initiate economic development in terms of resource integration for agriculture and tourism sector development. It is necessary for the region to promote its growth in the global market and attend to social and environmental concerns.[1]

[1] Current economic development areas in Zambia have been formulated by 1) leading conventional industrial economic province of Copperbelt with Nodola, Kitwe urban centers, 2) tourism economic province of Southern with Livingstone urban center, and 3) Capital urban economic center for service industry and hub function of regional

3) Establishment and Development of Regional Corridors with Strategic Economic and Infrastructure Development and Market Integration

Regional corridors for competitive economic development of Zambia will be important to enhance by implementing efficient transportation infrastructures, urban centers, and industrial estates to serve investments in the region. Conducive investment environment, quality infrastructure, and institutional support must be provided in order to attract high value-added industries/investments and increase competitiveness.

4) Strengthening of Urban-Rural Linkages with the Development of Rural Areas

Rural area in the region needs to strengthen its urban-rural linkages, while growth is primarily driven by industrialization and urban development, taking into account the rural agro-industrialization, eco-tourism, etc. with adequate infrastructure.

(2) Vision of Lusaka City Development

As the vision in the Lusaka District Development Plan 2006-2011 states "A world class, economically strong, green, and friendly city by the year 2030", Lusaka needs to be built as a modern and thriving capital city, symbolizing the whole country and functioning as a national and regional center for policy, culture, science, technology, education, economy, and international trade.

Furthermore, its adjacent districts Kafue, Chongwe and Chibombo would be affected by the economic and social development of Lusaka which must be formulated through the integrated development for Greater Lusaka area.

In this context, the vision of Greater Lusaka development can be descried in "Stimulating the sustainable, environment friendly and economically strong development of Greater Lusaka to attain the community hope and opportunity, by providing a world class and competitive business and living environment by the year 2030".

Further details of the vision as follows are characterized by the acronym ECHO, signifying "Economically strong, Environmental Friendly and Community Hope and Opportunity":

ECHO of social and economical challenges in Lusaka to neighboring countries

- Economically active Lusaka is realized and amount of job opportunity is created through the industrial investment and expansion of foreign trade, etc., consequently achieving income increase of the urban poor.

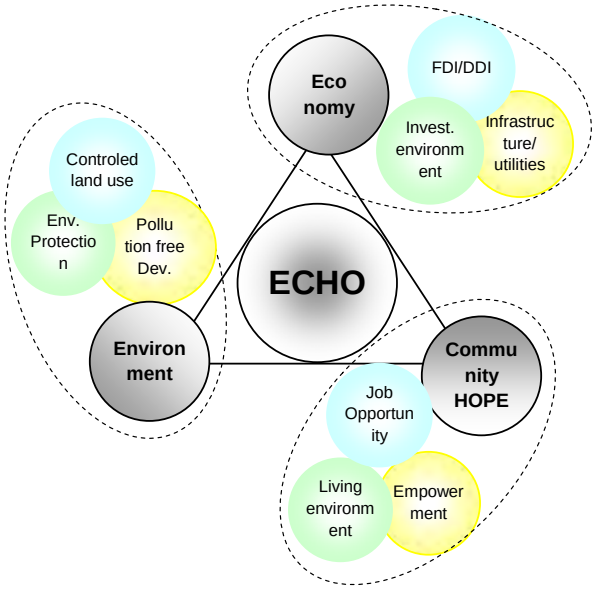
ECHO of environmentally sustainable and eco-friendly city of Lusaka

- Sustainable garden city is realized through eco-friendly urban development, land use control, appropriate environmental protection, eco-friendly urban transportation network, etc.

ECHO of prosperous benefit to the communities for hope and opportunity

- Living environment in the formal/informal settlements is upgraded with the provision of appropriate road network, safe/sufficient water supply, adequate drainage management, etc.

agriculture development.



Source: JICA Study Team

Figure 4.1.2 Vision Diagram for Greater Lusaka Development

4.1.2 Development Framework

The National Long Term Vision 2030 forming rallying points for all development efforts in the next twenty five years clearly spells out that the country will be in the prosperous middle income status by the year 2030. Lusaka City will be mandated to lead missions that will fulfill the goal of Vision 2030. To accomplish the vision of Greater Lusaka development proposed in the preceding section, time frame is divided into three stages, namely, 1st stage (present to 2015), 2nd stage (2016-2020) and 3rd stage (2021-2030).

This section deals with the development framework where the basic indicators are set in the time frame of year 2030. Population is the fundamental indicator related to all aspects of Lusaka City development plan. Macro-economy including performance of economic sectors are also the important indicators for the urban and infrastructural development plan. Population and economic framework are presented in the following sections:

(1) Social Framework

Greater Lusaka comprised Lusaka City and part of Chongwe, Kafue and Chibombo. Population of Greater Lusaka according to year 2000 census was 1.1 million. This includes the 1.0 million population of Lusaka City and 0.1 million population of the surrounding districts. Three scenarios are taken into account in order to project the future population of Greater Lusaka.

1) Scenario 1

Scenario 1 is based on Population Projections Report (November 2003) of CSO which covers population projection up to the year 2025. The CSO projection is based on cohort method capturing three components of population change, namely, fertility, mortality and migration. Mortality includes impact of HIV/AIDS prevalence on the population. Both external and internal migration is taken into account to estimate in-migrants. For instance, one out of 17 people was a migrant in Lusaka Province according to the 2000 migration statistics. The CSO projection on migration covers youth migrants from other area to Lusaka, based on the above migration rate.

The following table shows population projection of CSO. Population in Greater Lusaka is estimated to be about 2.1 million by year 2030. Scenario 1 turns out to be

conservative with a low-growth projection.

Table 4.1.1 Estimation of Greater Lusaka Population based on CSO Projection

	2000	2010	2015	2020	2025	2030
Lusaka	1,072	1,397	1,578	1,728	1,869	**2,089**
Surrounding	19	25	28	31	36	**46**
Total	1,091	1,422	1,606	1,759	1,905	**2,135**

Source: CSO

2) Scenario 2

Scenario 2 is based on World Urbanization Prospects, the 2001 Revision, published by Department of Economic and Social Affairs, United Nations. In some cities, the urban population is concentrated in a single city or urban agglomeration. The UN Report focuses on urban population of primate cities and the degree of primacy is measured by the proportion of the urban population living in primate cities. The primacy rate of Lusaka City used to be 22 percent in 1975 and 31 percent in 2000. Trends in the degree of primacy considerably vary among cities depending on geographical condition and missions of primate cities in the national development. The UN Report projects increase in the degree of primacy to estimate the urban population of Lusaka City in the future. The urban population of Lusaka City was projected to be 2,733,000 with a primacy rate of 40 percent in 2015.

The following table shows urban population of Lusaka City projected by UN and population of Greater Lusaka estimated by the JST based on annual average urban population growth rate of the UN projection.

Table 4.1.2 Estimation of Greater Lusaka Population based on UN Method

Unit: 1,000 pop

	2000	2010	2015	2020	2025	2030
UN projection	1,653		2,733			
UN application	1,091	1,524	1,801	2,003	2,239	2,503

Source: UN-World Urbanization Prospects 2001, JICA Study Team

Annual average urban population growth rate between 2000 and 2015 in Lusaka City was estimated at 3.4 % in the UN report. The future population of Greater Lusaka is estimated as follows:

Firstly, the annual urban population growth rate of 3.4% is applied to base the data (1,091 thousand, population in the census year) to estimate the population of 1,801,000 by year 2015.

Secondly, by fixing the degree of primacy of Grater Lusaka to around 33 %, population is estimated to be 2,503,000 by 2030. Annual average growth rate is around 2.25 % between 2015 and 2030.

Finally, the annual growth rate of 2.25 % is applied to estimate population in 2020 and 2025.

Scenario 2 seems to be a medium-growth projection, where population is estimated to be about 2.5 million by year 2030.

3) Scenario 3

Despite of annual average urban population growth rate (3.6%) between 1980 and 2000 in Lusaka Province, CSO used a lower growth rate (about 2.25%) to project the urban population of Lusaka City (Scenario 1). Scenario 3 is thus set out by referring to the past trends of urban population growth.

The following table shows population projection of Greater Lusaka based on past trends.

Table 4.1.3 Estimation of Greater Lusaka Population based on Past Trends

Unit: 1,000 pop

	2000	2010	2015	2020	2025	2030
Projection	1,091	1,553	1,854	2,213	2,641	3,152

Source: JICA Study Team

The annual average population growth rate is applied to the base data (1,091,000 census of population) to estimate the future population. Scenario 3 depicts a high projection with a population estimated to be about 3.2 million by 2030. The primacy rate (share of Grater Lusaka in total urban population) would be about 43% in 2030.

4) Population Framework

Projections of the three scenarios are plotted in the diagram below. The difference of population projection between scenarios would be just 0.13 million in 2010 which would be 1.01 million in 2030. Taking into consideration the missions of Lusaka City, its primacy rate in the future would be maintained at the prevailing rate of at least 33% which is higher than the current rate. Thus, the future population would range between Scenarios 2 and 3 (2.6 -3.2 million), as shown shaded area in the diagram.

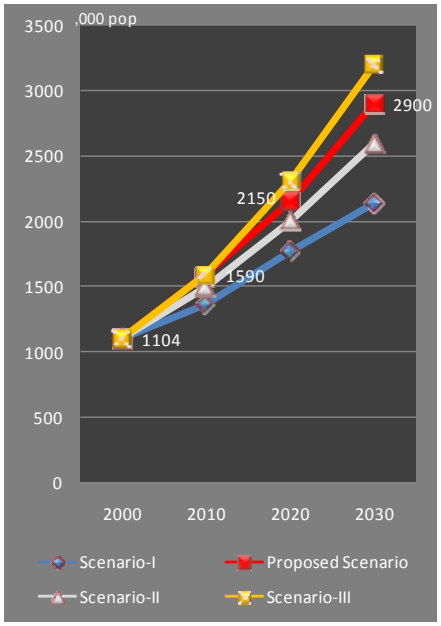
Finally, planned population of Lusaka City is determined as 2.9 million by the year of 2030, as shown in Table 4.1.4.

Table 4.1.4 Population Framework of City of Lusaka

District		Population (1,000)				Increase (1,000)		
		2007*	2015	2020	2030	2007-2015	2007-2020	2007-2030
Lusaka		1,385	1,740	1,920	2,480	355	535	1,095
Lusaka Adjacent Area	Kafue	34	60	100	190	26	66	156
	Chongwe	21	40	100	160	19	79	139
	Chibombo	13	30	30	70	17	17	57
	sub-total	68	130	230	420	62	162	352
Total (Greater Lusaka)		1,453	1,870	2,150	2,900	417	697	1,447

Note: Population in 2007 is estimated by JICA study Team

Source: JICA Study Team



Scenario-I
-Growth based on CSO projection
-Natural growth oriented
-Capping urban population increase

Scenario-II
-Growth based on UN projection
-Natural + Social growth
-Multi-growth poles in Zambia

Scenario-III
-Growth based on Current Urbanization
-Social growth oriented + Natural
-Single-growth pole in Zambia

Source: JICA Study Team

Figure 4.1.3 Population Framework of Greater Lusaka

(2) Economic Industrial Framework

The macro-economic framework would guide development of Lusaka's economy in

terms of basic indicators such as GDP, employment and economic contributors or establishments. Since there has been no official data on GDP per region, the GDP shared by Lusaka City remains indicative. The growth in the employment sector and economic contributors would be closely correlated to the economic growth rate of Lusaka City. Economic framework is presented in the following sections.

1) Macro-economy

Revenue gained from VAT by Lusaka City would determine its approximate GDP share. Based on the latest national account of the year 2005 expressed based on 1994 as constant price, Lusaka GDP is estimated as follows:

Table 4.1.5 Estimation of Lusaka GDP in 2005 at 1994 Constant Price

Unit: ZM Billion

Sector	Lusaka GDP	Share(%) of VAT by Lusaka
Primary sector	**63**	
- Agriculture	63	14
- Mining and quarry	0	0
Secondary sector	**372**	
- Manufacturing	177	53
- Others	195	53
Tertiary sector	**1,092**	
- Wholesale/retail trade	306	53
- Financial/real estate/business services	511	98
- Others	275	53
Total	**1,527**	

Source: JICA Study Team

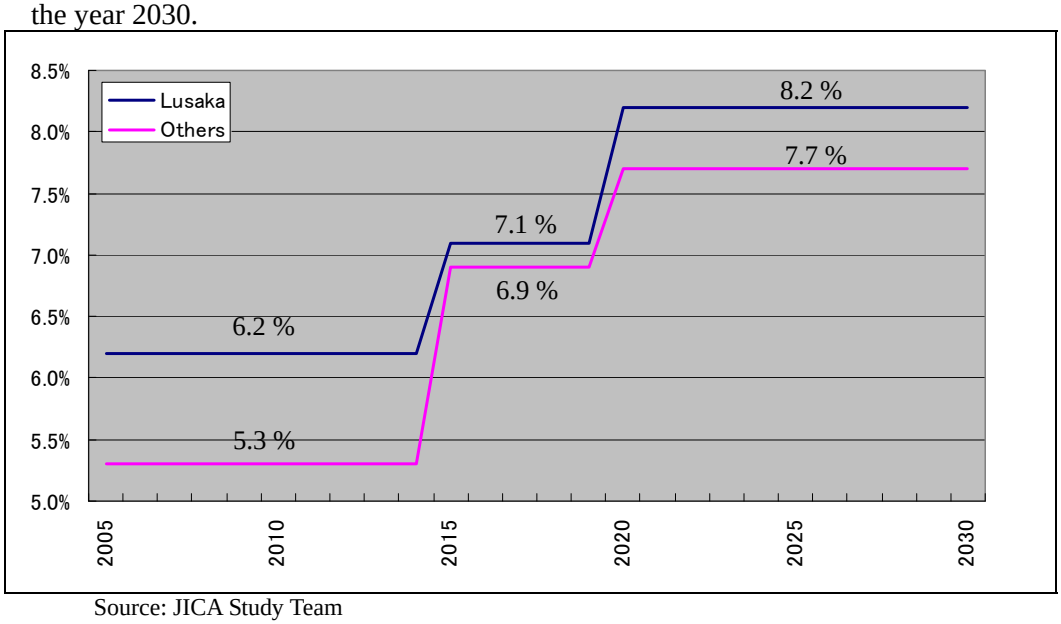
Lusaka's GDP in 2005 is estimated to be about ZMK 1,527 billion in real terms, which is approximately 53 % of the national GDP before imposing tax on products (ZMK 2,904 billion) in 2005. The primary sector accounts for ZMK 63 billion or 4% of Lusaka's GDP while the secondary sector accounts for ZMK 372 billion or 24%. The tertiary sector governs with a, share of 72% to Lusaka GDP.

The national long term Vision 2030 proposes the ambitious economic growth forecast aiming to include the country in the middle income status group by year 2030. The government anticipates a stage-wise growth of the national economy, which is 6 % between 2005 and 2010, 8 % between 2011 and 2015, 9% between 2016 and 2020, 10 % between 2021 and 2025, and 11% between 2026 and 2030. This economic growth scenario would require tremendous efforts of all stakeholders and thus a more realistic scenario should be achieved. In the course of the Study, the government made a downward revision of GDP growth rates towards 2011 in "Green Paper" stating 5.8% in 2008, 5.0 % in 2009, 5.5% in 2010 and 6.0 % in 2011. The JST accordingly proposes a conservative economic growth scenario of 5.8 % between 2005 and 2015, 7.0 % between 2016 and 2020, and 8.0 % between 2021 and 2030. This growth path would achieve the ideal GDP in 2030, which is more than five times of that in 2005.

Considering the national goal on economic growth, the next task is to determine the growth path of Lusaka City based on its missions for national development. To achieve a high economic growth, the country needs collective inputs of resources including capital investments, resulting in further concentration of economic activities in the City. This would be supported by the concept of the City's urbanization, in accordance with population projection discussed in the section related to population framework.

Zambia is tentatively divided into Lusaka and other areas in order to estimate their

respective economic growths. The following figure shows the economic growths by the year 2030.



Source: JICA Study Team

Figure 4.1.4 Economic Growth in Lusaka and Other Areas

Lusaka is expected to take a lead in the economic growth with 6.2% between 2005 and 2015, 7.1 % between 2016 and 2020, and 8.2 % between 2021 and 2030. GDP in other areas is estimated as the difference between national GDP and Lusaka's GDP. Other areas are also expected to achieve economic growth with 5.3 % between 2005 and 2015, 6.9 % between 2016 and 2020, and 7.7 % between 2021 and 2030. This growth path would lead to achieving Lusaka's GDP goal by 2030, which is close to six times the current GDP of 2005 in real terms.

Sector share of GDP in 2005 was 24 % for the primary sector, 23% for the secondary sector and 53% for the tertiary sector. Sector share of Lusaka's GDP in 2005 is estimated to be 4% for the primary sector, 24 % for the secondary sector and 72% for the tertiary sector. Since it is difficult to determine actual sector share of Lusaka's GDP by year 2030, approximations were carried out based on the current sector share.

Table 4.1.6 Estimation of Lusaka's GDP based on Constant Price from 1994 to 2030

Unit: ZMK billion

Sector	2005	2015	2020	2030
Primary sector	**63**	**111**	**157**	**345**
- Agriculture	63	111	157	345
Secondary sector	**372**	**668**	942	**2,071**
- Manufacturing	177	322	454	1,000
- Utility/construction	195	346	488	1,071
Tertiary sector	**1,092**	**2,007**	**2,826**	**6,216**
- Wholesale/retail trade	306	558	785	1,729
- Financial/real estate/business	511	731	1,312	2,888
- Hotel/transport/community/recreation	275	518	729	1,599
Total	**1,527**	**2,786**	**3,925**	**8,632**

Source: JICA Study Team

2) Industrial and commercial development

Economic development in Lusaka will promote progressive industrial and commercial establishments. There are currently 485 existing manufacturing establishments and 2,854 commercial establishments in Lusaka. Commercial sectors are involved in wholesale/retail trade, hotels/restaurants, transportation services, real estate/renting/business, financial intermediation, construction and utilities. Based on

the existing manufacturing and commercial establishments, their future increase in number by year 2030 is estimated as follows:

Industrial (Manufacturing) establishments

a) Firstly, the average value-added per establishment in 2005 is estimated to be ZMK 365 million as per 1994 pricing.
b) Secondly, assuming that technical progress would contribute to increase of manufacturing productivity, the average value-added per establishment would increase in proportion to the improvement in marginal product of the invested capital. Currently, the marginal product of capital is 0.1 based on national account statistics, and could increase to 0.13 in 2015, 0.16 in 2020 and 0.18 in 2030.
c) The number of establishments after 2005 is estimated based on the increase of average value-added per establishment.

Commercial establishments

a) Commercial services basically serve urban residents in Lusaka. Population in Lusaka is currently estimated to be 1.2 million as of 2005. Hence, the population per commercial establishment is 420.
b) Population in Lusaka City after 2005 would be 1.8 million in 2015, 2.1 million in 2020 and 2.9 million in 2030. These almost correspond to the determined median value between scenarios 2 and 3.
c) The number of establishments would increase in proportion to the increase of urban population, assuming that population per establishment would decrease to 400 in 2015, 380 in 2020, and 360 in 2030.

The following table shows estimation of the number of establishments.

Table 4.1.7 Estimation of Number of Establishments

Sector	2005	2015	2020	2030
Manufacturing establishments	485	680	780	1,520
Commercial establishments	2,854	4,280	5,000	6,660

Source: JICA Study Team

3) Employment

The CSO publishes a quarterly statistics on nationwide formal sector employment. The following table shows the statistics during 2000-2005.

Table 4.1.8 Formal Sector Employment of Zambia during 2000-2005

	Agri	Mining	Manuf	Elect	Const	Trade	Trans	Finan	Service	Total
2000	59,377	35,042	47,782	5,049	13,828	52,336	46,719	31,483	184,371	476,347
2001	59,248	34,966	47,679	5,038	13,798	52,223	46,618	31,415	184,331	475,316
2002	43,819	37,245	67,752	7,316	2,406	50,812	21,566	52,727	145,763	429,406
2003	64,096	48,597	39,385	10,832	3,467	53,450	26,725	28,555	141,697	416,804
2004	65,136	46,078	45,340	12,217	5,787	44,460	26,510	31,880	138,691	416,228
2005	56,139	45,821	55,709	12,389	14,343	65,012	19,378	54,032	176,110	498,943

Source: CSO

Total formal sector employment in Zambia varied in the range of 499,000 to 410,000 during 2000-2005. The year 2005 shows a sharp increase of formal sector employment from 2004. In 2005, the manufacturing shares about 11% of total employment while the tertiary sector constitutes 63% of total employment.

Although there is no published data on formal sector employment by province, in Lusaka City, it is estimated based on national data and its number of establishments. The following table shows estimation of sector –wise formal sector employment in Lusaka in 2005.

Table 4.1.9 Estimation of Formal Sector Employment in Lusaka (2005)

	Agri	Mining	Manuf	Elect	Trade	Trans	Finan	Service	Total
2005	8,200	0	28,000	7,080	31,740	12,090	29,590	84,500	201,200

Source: JICA Study Team

The long-term formal sector employment of Lusaka is estimated in proportion to the increase of the number of establishments as follows[2]:

Table 4.1.10 Employment Framework of Lusaka by Formal and Informal Sector

Item		2005	2015	2020	2030	Reference
Population		1,200,000	1,870,000	2,150,000	2,900,000	
Labor Force (age 15-64)		725,000	1,098,000	1,352,000	1,911,000	Cohort Projection
Economically Active		479200	722510	887670	1251000	65% Share of LF
	Formal Sector Emplotment	201,200	309,900	419,000	725,400	
	Informal Sector Employment	179,100	275,300	335,500	400,500	
	Sub-total	380,300	585,200	754,500	1,125,900	
	Unemployment	98,900	137,310	133,170	125,100	

Source: JICA Study Team

Table 4.1.11 Formal Sector Employment Framework of Lusaka by Industrial Sector

Sector	2005	2015	2020	2030	Reference
Primary	8,200	8,500	8,700	9,000	Agriculture*, mining
Secondary	28,000	41,300	57,700	143,900	Manufactur, construction, etc.
Tertiary	165,000	260,100	352,600	572,500	Trade business, finance, administration, etc.
Total	201,200	309,900	419,000	725,400	

Note: Agriculture employment was separately estimated by JICA Study Team

Source: JICA Study Team

4.2 Development Strategy of Lusaka

4.2.1 Economic Development Strategy

After the country's ordeal on structural adjustment and privatization over the last decade, Zambia appears to have taken off and prepared towards the coming regional globalization in the SADC markets. The government has made publicized the long term Vision 2030 implying that Zambia would become one of the middle income countries by the year 2030. To fulfill the government policy and facilitate the country's direction towards regional integration, Lusaka will be no longer a mere capital city, but would be mandated to take lead in regional economy in the future. Lusaka is geographically endowed with proximity requirements such as markets, customers, suppliers, competitors, supporting industries and government. It exhibits potentials in achieving a dynamic economic development in the region.

Nevertheless, Lusaka has several issues concerning economic development. The following table shows the City's strengths, weaknesses, opportunities and threats.

[2] Taking into account gradual formalization of informal economy along with the overall economic growth, annual increase (1.0% to 2.5%) in employment per establishment is applied for purpose of the projection. Formalization of the informal sector requires not only the growth but also proactive policy measures such as business entity registration, appropriate taxation, as well as incentives for informal business owners and employees to formalize their business e.g. provision of social securities and welfare services, etc. Lower case scenario estimated by JICA Study Team suggests larger increase in informal sector employment: 236,300 in 2015, 319,200 in 2020, and 490,000 in 2030.

Table 4.2.1 SWOT Analysis of Lusaka

Strengths	Opportunities
1. Capital city with good investment climate 2. Lusaka as a regional hub in the southern African countries 3. Upward trend of urban economy because of the latest surge of FDI to Lusaka	1. Towards regional integration with SADC as a gateway 2. Free Trade Area by 2008, Customs Union by 2010, Common Market by 2015 3. Possibility of regional logistics hub for dry cargo 4. Sustainable FDI flow and financial centre in the future
Weaknesses	**Threats**
1. High transport costs to major regional ports or capital cities in the southern African countries 2. Extensive area of unplanned urban settlements 3. Dominance of urban poor below poverty threshold expenditure of K 280,000 per month 4. Heavy dependence of urban consumption on imported goods 5. Dominance of informal sector employment 6. Challenge for capacity building of the employed in industries	1. Economic value of unplanned urban settlement in almost nil. 2. Unplanned urban settlement would put a burden on Lusaka economic development. 3. Termination of Zambia Social Development Fund, used to be financed for community development in Lusaka 4. Upward trend of urban land price

Source: JICA Study Team

Strengths and Opportunities

Strengths imply the favorable economic circumstances surrounding Lusaka City. For instance, the surge of FDI to the capital city would make Lusaka launch the investment-led economic growth, facilitating establishment of the strong manufacturing based in the City. The economic growth would make Lusaka a regional center towards regional integration with SADC as a gateway in the future.

Weaknesses and Threats

Lusaka still shows the profile of a low income country, particularly, the presence of UUS. About 35 % of urban population was reported to reside in the UUS in 2000. The weaknesses relating to UUS are poverty, unemployment and informal sector employment. These weaknesses might be regarded as threats to further economic development since such a mass of illegal settlers is unfavorable to the society with middle income economy, where legality is observed by all economic entities.

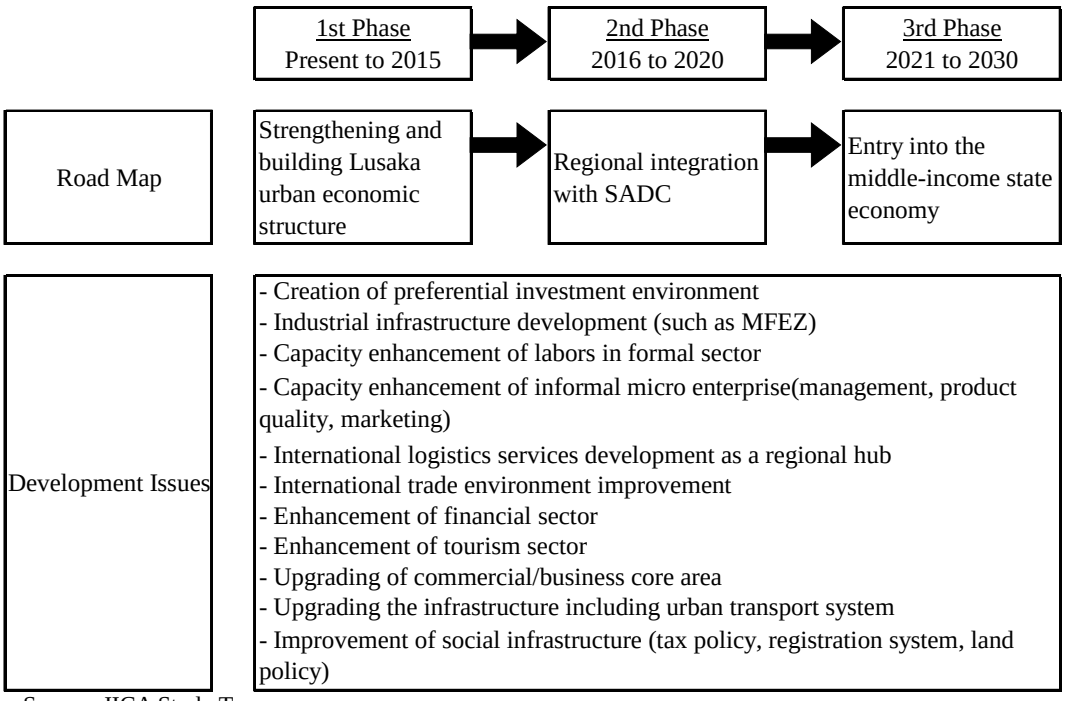
Zambia as a landlocked country is handicapped or constrained by high transportation costs of major regional ports or capital cities in SADC countries. Lusaka as a gateway is also handicapped by the poor road network or inefficient railway operation connecting to neighboring countries.

Lusaka still faces challenges for a sustainable capacity building of the relevant stakeholders, the government, those employed in industries, leaders in the community development and entrepreneurs in private sector. Humanitarian development appears to have been put aside so far. Thus, despite a handful of resource persons currently available, the majority needs basic education and training. Economic development will require uplifting of the majority's capacity.

Community development is a practical approach to socio-economic development in urban communities. Financial assistance to communities has been provided by donors

or international organizations hence, termination of external assistance challenges sustainability of community development. Vulnerability of Lusaka's dependence on foreign assistance should be gradually diminished by initiating domestic funding for community development.

Analysis on strengths, weaknesses, opportunities, and threats (SWOT) would guide the needed stage-wise economic development of Lusaka. The City would firstly require strengthening of its urban economic structure then shift to uplifting of the urban economy and the society in harmony with the regional globalization. The following figure shows strategies for Lusaka's economic development.



Source: JICA Study Team

Figure 4.2.1 Strategies for Lusaka Economic Development

First Phase (Present to 2015)

The first phase will be the crucial period to establish urban economic structure that comprises legally-registered or formal economic sectors. Tremendous efforts will be required to diminish informal sector activities. To do so, two approaches can be considered. One is the investment promotion for industrial development, which provides assistance local industries in expanding the formal sector business. Lusaka is currently benefiting from foreign and domestic investment in the manufacturing sector, in which is about 170 investment projects amounting to USD 500 million and 10,600 employments during 2000-2006. Expansion of formal sector would trigger shifting of employment from informal to formal sector. In this respect, training of basic skills on technology, management including administration and accounting will be required for those employed in the informal sector. The other approach is to motivate creation of legally-registered, self-employed business, which would require community and financial assistance. Lusaka virtually needs this type of community-based assistance mechanism that would cover the UUS. It is noted that social funds used to be available in urban communities but was terminated a few yeas ago. Revival of such a social fund will be necessary for employment creation in the community level.

Formal sector development will need associated measurements, such as improvement of tax policies (i.e. expansion of corporate tax base, efficient collection system of property tax), registration system (i.e. simplified registration with minimum transaction cost

would help increase of company registration, otherwise many of will remain outside formal sector) and land policies (i.e. enactment of land use regulation is not effective though such a regulation was legalized by the Town and City Planning Act).

Infrastructural development (water supply and sewerage, community road development and improvement of UUS) for basic human needs will be the focus of this First Phase.

Second Phase (2016 to 2020)

The second phase is regarded as the intermediate path to the next stage where in Lusaka will consequently be the center of the middle income country. SADC is scheduled to form the uniform trade regimes which are the SADC Customs Union by 2010, the SADC Free Trade Area by 2015. Member states have so far been implementing tariff phase-down and reduction of most favored nations. Though the initial difficulty in attaining the customs union is envisaged, a regional integration through uniform trade regime is expected to be gradually formed.

The year 2015 would earmark Zambia as a member state of regional integration. Lusaka will be mandated to play the role in the gateway to SADC markets. Its economy will increasingly interact with regional economies. The industrial sector would face an international division of labor by which some local industries subcontract with neighboring companies in SADC countries. A wide variety of cargo across SADC markets will be actively moved so that Lusaka will have a chance of leading the international trade business such as inland clearance depot for cargos transported by railway. Lusaka would be required to upgrade its profile appropriate in becoming a regional hub center. To accomplish this, the second phase will be the likely period to redevelop part of the urban area into business and commercial spots to provide higher-class services. The existing market places and part of UUS will be the targets for redevelopment.

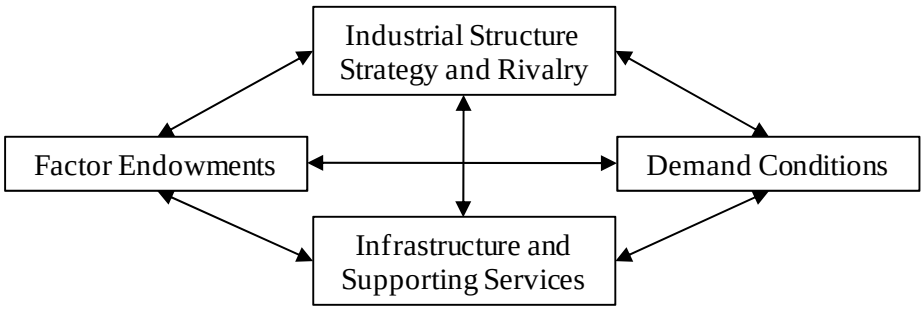
Third Phase (2021 to 2030)

Lusaka's economy will be upgraded to an economic structure that satisfies the middle income economy. A Greater Lusaka urban development will culminate in the third phase while both industrial and commercial sectors would require reshuffling (consolidation or merger) to compete against neighboring countries in the integrated economy. A financial sector is expected to play the role in regional banking and reshuffling private sector through financial markets. The government including the LCC will be required to reshuffle their organizations towards the change of economic structure. Infrastructural development will shift from basic infrastructure to that which provides high-class services such as urban railway and communications.

4.2.2 Industrial Development

(1) Zambia's Competitiveness

The country's competitiveness can be explained considering a range of attributes that shape the economic environments, which provides the basis for comparative advantage. Porter's diamond model is still an effective pattern in identifying Zambia's competitiveness.



Source: JICA Study Team

Figure 4.2.2 Porter's Diamond Model for Zambia's Competitiveness

Factor endowments

Zambia is relatively well endowed with natural resources but the country's agricultural and forestry resource base remain under-utilized, owing to infrastructure constraints and lack of farm labors. Zambia is a landlocked country bordering eight countries, which provide opportunities for cross-border investment. Zambia features a relatively high rate of urbanization, which affects pattern of infrastructure development around the major urban centers and fosters local dependency on a relatively well-functioning food distribution system. The country enjoys its industrial labor cost advantage but such advantages seem wasted primarily because of poor skills in technology and management.

Infrastructure

Major arterial roads are relatively well maintained but road transportation costs cause disadvantages to Zambian transportation firms since trucks, parts and fuel mostly imported. Diesel fuel and tires (part) are reported to share over 50% of the costs of transportation. The cost of transport is influenced by the delays in the borders. It is, for instance, reported that it normally takes seven days (three days driving and four days at the borders) from Lusaka to Johannesburg. Zambia enjoys power surplus (exporting electricity within the region) and a relative endowment of water resources but it has poor access to utility services.

Demand Conditions

The ordeal of privatization led to the contraction of domestic demand, resulting in flux of foreign enterprises out of Zambia, associated with erosion of formal sector employment between 1997 and 2002. Nevertheless privatization gradually promoted new foreign investment, which triggered the latest economic growth. Zambia entered into a number of trade agreements that have been granted with preferential access to external market. The country currently enjoys a steady increase of non-traditional exports including horticulture/floriculture, textile/garments, engineering products, and processed foods.

Industrial Structure

Industrial structure is still dominated by resource-based industries such as copper mining and agriculture-related industries. The policy reforms and privatization gave rise to an influx of large foreign investments in the agro-processing and food distribution in the areas of sugar, cotton ginning, poultry breeding, wheat milling, dairy processing and food/grocery retailing. Large foreign-owned enterprises dominate domestic market share, export earning and formal sector employment.

Nevertheless the relatively medium-sized locally-owned enterprises have to survive by diversifying product range and market outlets. Emergence of the rising lower middle

income strata in Lusaka facilitated the medium-sized enterprises to diversify product range to primarily cater lower and middle income consumers. Business diversification led to formation of different business groups. Presently, there exist many business groups dealing with various products and services.

The establishment of Shoprite supermarket in Lusaka has changed local suppliers' structure, resulting in creation of packaging industry, first food chain, the firm supply chain with farmers, and local manufacturers/service companies. This is an indication of a successful linkage between a larger foreign retail service enterprise and local suppliers.

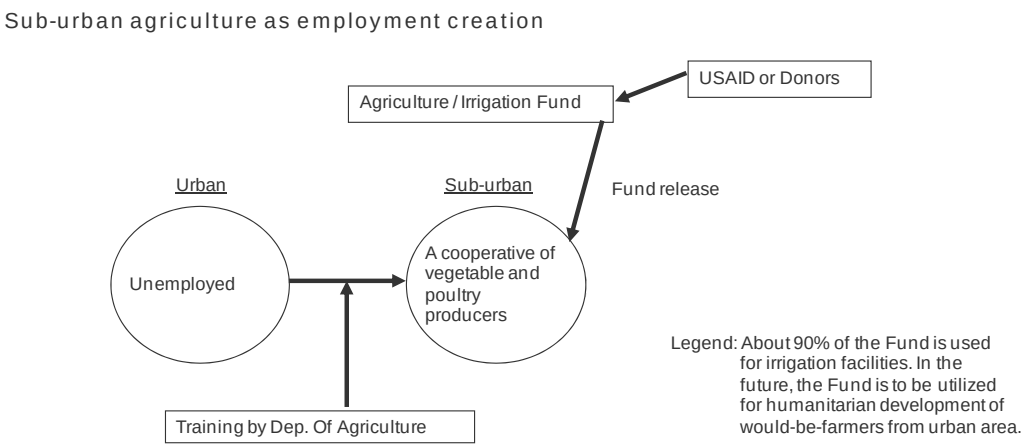
Conclusions

Needless to say, the country's comparative advantage lies in abundance of agricultural and mining resources. The country's economy has been long dependent on primary resources such as copper mining and primary agricultural commodities. The question is how to increase added value while making maximum use of local resources. This challenge appears to be dependent on how to exploit a range of country attributes. For instance, although Zambia entered regional trade agreements inside SADC and COMESA, its market has still been viewed as the end to supply chain by foreign investors (demand conditions). The relatively high transportation cost further makes it difficult for Zambian economy to link with regional market (a key bottleneck of infrastructure and supporting services). Zambia needs a sizable amount of investments for its transportation infrastructure and services. Industrial structure is dominated by larger foreign enterprises and domestic business groups consisting of different manufacturers/services operating simultaneously. The current industrial structure does not contribute to strengthening of a vertical supply chain linkage between the primary and secondary sectors, which could bring about increase of added value. In conclusion, Zambia still needs efforts to exploit a range of country attributes in order to strengthen the country's competitiveness.

(2) Urban Agriculture

Urban agriculture currently produces high value commodities such as tomato, baby corn, beans and peas, and some of these are exported to the EU. Agribusiness dealing with high value commodities would be a promising business venture. Two commercial firms and one farm cooperative successfully exports vegetables to the EU. The existing cooperative which operates nine small farms is a good example of a collective business of small farmers. The poultry is also a typical industry in peri-urban area, exporting broiler to neighboring countries.

Urban agriculture would promote job opportunities for the unemployed or those employed in the informal sector. The Department of Agriculture (DOA) accounts the irrigation fund for mainly rehabilitation of irrigation facilities. About 10% of the fund is currently used for capacity building of agricultural cooperatives. The use of funds will gradually shift to capacity building of the relevant stakeholders according to a DOA designated representative. The following figure shows a possible scheme of training for the unemployed to learn the field of vegetable farming.



Source: JICA Study Team

Figure 4.2.3 Strategy for the Training of Unemployed in Sub-urban Agriculture

(3) Industrial Promotion

The government affirms determination of the country's inclusion the middle income status groups by year 2030. To achieve this mission of Vision 2030, the country needs a strategy for industrial development in constructing high-order economic structure towards 2030.

Industrial promotion towards 2015

Zambia's economy is still dependent on selected primary resources for export and increased import penetration, coping with domestic demand for a broad array of miscellaneous products. The country has so far experienced vulnerability of economy to international price fluctuation of primary commodities, and flux of foreign enterprises out of Zambia at the time of economic recession. In this respect, the country needs to broaden the variety of export products and facilitate import substitution of consumer products.

Industrial promotion strategy towards 2015 would be;

Strategy-A To extend end of supply chain to regional markets for some competitive products

Strategy-B To diversify consumer products primarily aiming at middle income consumer group

Strategy-C To upgrade fabricated metal technology for production of high value parts and equipments

Strategy-D To exploit energy resources focusing on renewable energy (e.g. solar power) and clean energy (e.g. bio-ethanol)

Strategy-A primarily aims at initiating export of processed foods products, made from domestic resources, to regional markets. The target products are milk (long life), meat (beef and poultry), cheeses, beer, ketchup and potato crisps. Dairy products supported by the established supply chain linkage between farmers and processors are particularly recommendable since export of dairy products would contribute to increase of added value. The Democratic Republic of Congo (DRC) market accounting for over half of Zambia's processed foods export will be promising.

Strategy-B primarily aims at strengthening the middle-sized locally-owned manufacturers by diversifying consumer products for the middle income consumer group to restrict their dependence on imported products. The target products are frozen vegetables, jams, biscuits, margarine (processed foods), detergents and sanitary products such as soap and shampoo (non-foods products). Some manufacturers already started product diversification of non-foods products particularly, however most

processed foods manufacturers do not challenge import substitutable food products.

Strategy-C is part of import substitution primarily intended for fostering domestic manufacturers producing electrical and engineering equipments and parts. Basic fabricated metal technologies such as foundry, welding, punching and assembly are well established, however, molding design and technology need to be upgraded for steel-made parts and equipments for furniture and agricultural tools/machineries. Metal processing industry having forward linkages with final products is the important area for industrial development.

Strategy-D aims at utilizing Zambia's abundant natural resources (comparative advantage) focusing on renewable energy such as solar power and wind, and ethanol which could help reduce greenhouse gas emissions. Ethanol made from maize could be a high value-added fuel supported by a growing world demand, realizing that maize, exported as primary commodity, remains a low value product.

Industrial promotion between 2015 and 2020

The period between 2015 and 2020 will be integration of regional markets owing to common market inside SADC and COMESA. Zambia will be no longer a single market but part of a regional market. Thus the country's strategy to survive the unified market will be a key challenge for industrial development. The advantage of Zambia is its central location bordering eight neighboring countries.

Industrial promotion strategy towards 2020 would be:
Strategy-I Competitive transportation services
Strategy-II Establishment of manufacturing and transshipment bases

Strategy-I will be the precondition of making Zambia a core of regional trade center. The relatively high transportation cost is mainly attributed to fuel to which a 15 % levy is charged. According to "The impact of Regional Liberalization and Harmonization in Road Transport Services: A Focus on Zambia ", transportation cost per kilometer is 1.51 USD in South Africa, 1.59 USD in Zambia (domestic) and 1.35 USD in cross-border. Large Zambian trucking industry operating in cross-border enjoys the relatively lower fuel cost supplied from South Africa. If a 15% levy is lowered associated with improvement of cross-border operation, Zambian trucking industry operating in domestic market would be more competitive. This would further accelerate foreign transportation companies to enter into Zambian trucking services. Moreover road user charges on foreign registered trucks need to be harmonized in the region.

Strategy-II implicates the ambitious status of Zambia which would capture a core of supply chain (manufacturing base and transshipment function). To achieve such goal, comparative advantage of Zambia would be its strategic location, instead of its natural resources. Its centrally-located position may attract foreign enterprises to export the following target products to neighboring countries.

Agricultural and construction machineries and equipment:

- Car and trucks
- Transshipment services

Foreign-owned trading service companies have already advanced in Lusaka in order to capture the rising domestic demand for agricultural and construction machineries and equipment. A centrally-located position and integration of regional market supported by competitive transportation industry would bring about investment motivation of foreign enterprises that would establish manufacturing bases for strategic products. An influx of the current foreign trading companies dealing with agricultural and

construction machineries would be a good indication of promoting Lusaka as a manufacturing base of these products for the unified market. Foreign assemblers of cars and trucks would not build their manufacturing bases in member countries of SADC and COMESA but could still opt for a centrally-located country (like Zambia) since investment efficiency is focused on one strategic location. These products will be demanded by neighboring countries as their incomes are growing, hence, these would be primarily exported to DRC, Namibia, Malawi and Tanzania. Zambian fabricated metal processing industry meanwhile would supply parts or components to foreign assemblers.

Transshipment services are typical cross-border investment exploiting a centrally-located position. The current freight flow by road only includes transit freight to DRC shown in the table below, however, it lacks information on goods and origin, or destination of shipment transiting to DRC.

Table 4.2.2 Road Freight Volume Estimated

unit: million tons

Origin/Destination	Import	Export
South Africa	1.065	0.455
Zimbabwe	0.060	0.245
Tanzania	0.090	0.010
DRC	0.120	0.200
Namibia	Na	Na
Transit DRC	0.275	0.075

Source: Impact of Regional Liberalization and Harmonization, in Road Transport Services, COMESA

A Congolese wholesale and retail chain has its distribution center in Ndola where it offloads goods for DRC or loads them sealed rail wagons to final destination in DRC. The DRC market supported by a large number of population would facilitate trade between DRC and neighboring countries including Zambia. Lusaka is strategically located as a transshipment location connecting DRC and Malawi, Zimbabwe, South Africa, Botswana, Mozambique and Namibia. Transit cargoes would include miscellaneous varieties of consumer products and bulky raw materials. Transshipment services would consist of internal cargo depots and international delivery services.

Industrial promotion towards 2030

The period towards 2030 will be an important step plunging into the middle income economy, which requires a substantial share of formal sector employment and high order of economic structure. Industrial promotion strategy towards 2030 would be:

a) Business sector development in financial services, real estate and retail services

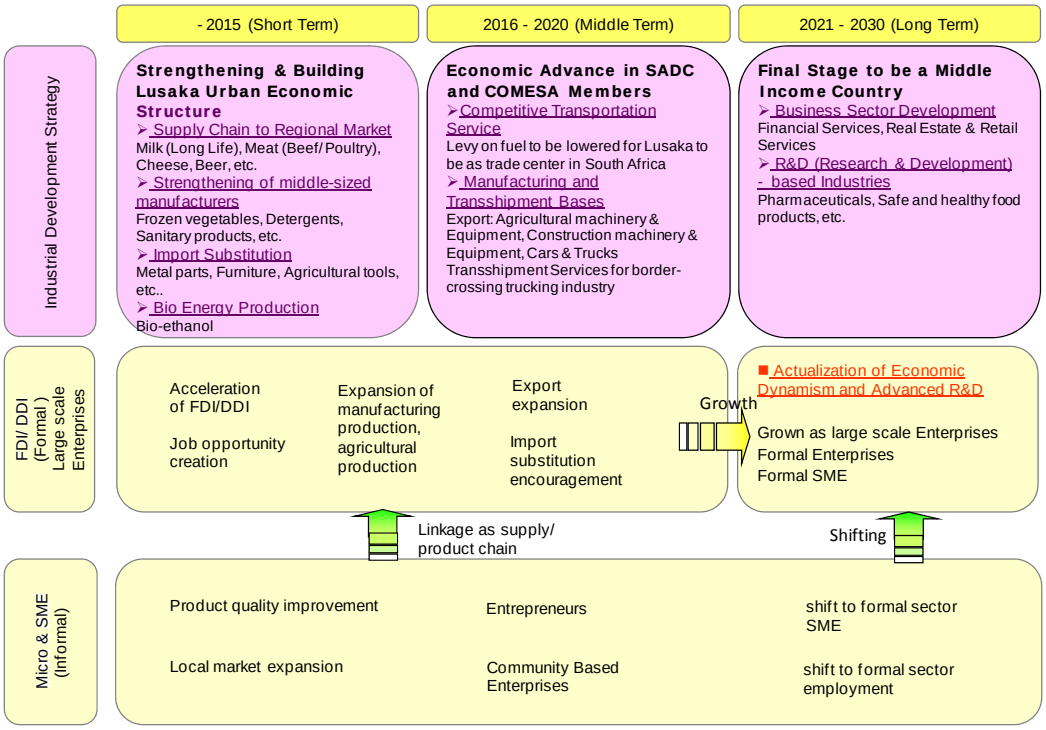
b) R&D-based industries such as pharmaceutical and safe and healthy foods

Increase in urban population supported by the rising income would change local demands for services in the tertiary sector. Financial and capital markets would absorb increasing savings from private sector, thus, there will be a need for diversification of commercial banking sector's services and development of the Stock Exchange and Bond Markets. Real estate businesses will flourish during this period when urban land use is restructured towards business sector development. As observed in the progressing "supermarket revolution" (establishment of Shoprite), the choice and variety of products will be further demanded, hence, local retail services will be reshuffled into the medium-sized supermarket.

The middle income status would require R&D-based industries such as pharmaceutical,

and safe and healthy food products. Perhaps the people would increasingly pay attention to human well-being as income grows.

Figure 4.2.4 schematically summarizes the industrial development scenario for Greater Lusaka.



Source: JICA Study Team

Figure 4.2.4 Industrial Development Scenario for Greater Lusaka

For the realization of the industrial development scenario, challenges shown in Table 4.2.3 will be necessary in the industrialization and commercial development for high-order services.

Table 4.2.3 Industrial Development Challenge

Industrialization		
Approaches	Merits	Conditions
MFEZ	MFEZ with favorable investment incentive encourages various types of FDI to enter into industrial estates.	Large scale of MFEZ is subject to land acquisition and environmental assessment
Logistics/Distribution area	Lusaka enjoying a centrally-located position would attract foreign investors to establish logistics and distribution centers in surrounding area.	Logistics and distribution area should be carefully considered in relation with the plan of Inner and Outer Ring Roads.
High-order Services		
The middle-income status will require Lusaka to construct high-order commercial services step by step		
Trade	Trade/logistics services for dry cargo and various types of container cargos because of Lusaka as land/transit port.	
R&D	R&D relating to new fuel (ethanol), pharmaceutical, and safe and health food products	
Financial	The middle-income economy needs the diversified financial services represented by stock exchange, banking and insurance.	

Source: JICA Study Team

a) Multi-Facility Economic Zone (MFEZ)

MFEZ is basically a general purpose park, accommodating priority industries. The

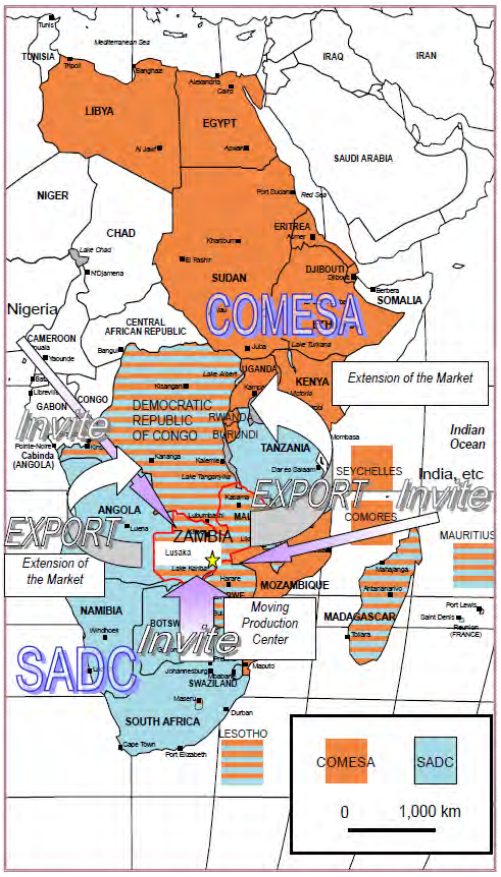
mission of MFEZ is to promote FDI and DDI and establish a strong manufacturing base in Lusaka. The MFEZ currently studied by JICA and Malaysia would suit for R&D-based industries, business sectors dealing with financial and IT services, vocational training centers and universities, which basically aims at strengthening of technology and humanitarian development.

b) Logistics and distribution area

A big project like inland clearance depot or dry port requiring a huge amount of investment would not be implemented by private sector only. The ideal role sharing for the implementation of such projects would be to delegate construction to public sector while operation to private sector. Private sector might also involve a foreign operator to conduct training to local counterparts.

Zero tariff and reduction of most favored nation embodied by the SADC trade regime implicates the more fierce competition among member countries of SADC in the future. Value chain will be a key concept to strengthen manufacturing industries whenever industrialization approaches are to be made. Capacity building of the employed in production technology and managerial skills are prerequisites for creation of a value chain between FDI and local industries. The long term manufacturing sector employment is estimated to be 28,000 in 2005, 41,260 in 2015, and 57,690 in 2020 as discussed in Section of 4.1. Lusaka will face the challenge for humanitarian development, training a massive number of skilled workers. PPP would be one approach where public sector establishes vocational training facilities while private sector supplies resource persons to train the employed.

Figure 4.2.5 shows the basic strategy for trading development at inter-regional level. The DRC and some other countries are rather heavily populated and have a great potential from the viewpoint of marketing strategy for Zambia, which is located in the northern end of English-speaking world in South Africa. The GRZ shall introduce different incentives to attract South African enterprises and move their production bases from Johannesburg into Lusaka. Lusaka's location is of great advantage for exporting products to the north, which would be a new important market as peace returns to the Great Lakes Region.



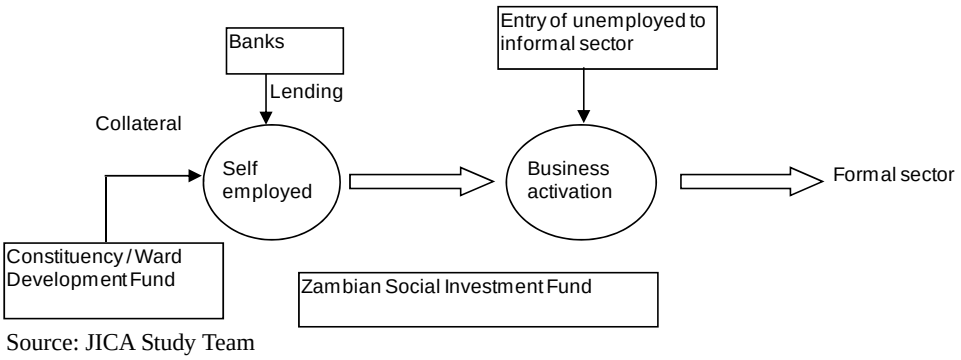
Source: JICA Study Team

Figure 4.2.5 Invitation of Production Bases to Zambia and Potential Markets at Inter-regional Level

4.2.3 Informal Sector Development

Dominance of informal sector employment requires a small contribution from formal sector employment. A diminishing share of formal sector was brought about by structural adjustment in the last decade. A sharp increase of formal sector employment

would not be expected in a short term. Thus, the presence of informal sector must be considered not a challenge but part of the economic sector. Actual problem of informal sector employment is the unstable job condition without social security, resulting in low income offers, which is sometimes below the poverty threshold. This section discusses how to create stable jobs that could shift to formal sector employment. The following figure illustrates uplifting of self-employed, shifting to formal sector.



Source: JICA Study Team

Figure 4.2.6 Strategy for Informal Sector

An example is the self-employed forming the majority of informal sector employment. Financial assistance is indispensable for motivating the self-employed. Zambian Social Development Fund used to be available for i) infrastructural development services for the poor and ii) empowerment of community participation in prioritizing needs. Social fund on empowerment of community participation used to be disbursed on social service facilities such as education and health, and communities' projects to improve their well being. Particularly, a livelihood project is significant for improvement their living conditions. The figure illustrates use of social fund as collateral to allow the community to loan funds from financial intermediation. This kind of financial mechanism was not available in the previous social fund. Taking into account that access to financial institutions is really difficult for community people, use of social fund as collateral would be worthwhile. Sources of such fund used to be provided by donors and the World Bank. It is unlikely that donors would provide social funds to local communities again under the progress of economic development. New source of social fund would be big private companies. To realize a new social fund, the government should establish a tax refund system (a sort of incentive) to private contributors.

The self-employed in informal sector need to undergo vocational training to uplift their skills. Completion of basic school (grade 1-9) is the minimum qualification required to enroll into the existing vocational training school. Fortunately, the enrolment ratio of basic school in Lusaka is high with around 84 %. The problem would be the tuition fees which are not affordable to most residents. Moreover, there is a lack of opportunity in the country for apprenticeship posts after graduating from vocational schools. PPP would be introduced to tackle issues related to employed population's access to vocational schools. In terms of role sharing, the public sector will establish new vocational schools and dispatch trainers while the private sector will promote apprenticeship opportunities.

4.2.4 Urban Spatial Development Strategy

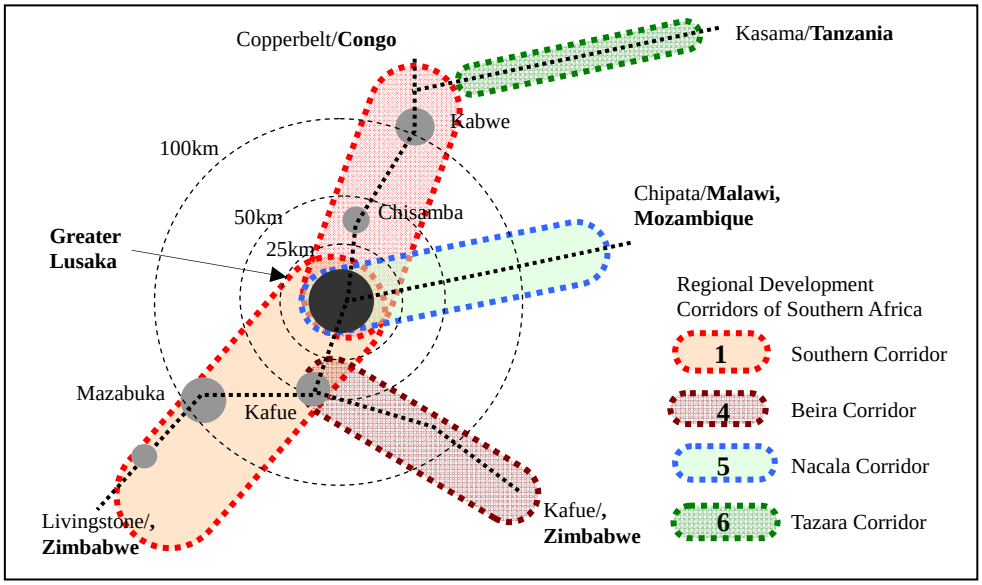
(1) Greater Lusaka and its Regional Development Context

1) Regional Economic Corridors and Greater Lusaka

Lusaka as the Capital of Zambia is located in the middle of southern Africa countries. Being a landlock country has been emphasized recently as one of its potential advantages in terms regional economic development in the SADC economic region.

Especially, Greater Lusaka takes the pivotal place connecting with national trunk roads such as the regional economic corridors leading to all to the north (Congo via Copperbelt), east-north (Tanzania via Kasama) east (Mozambique and Malawi via Chipata), south-east and south-west (Zimbabwe via Kafue and Livingstone). Hence it is realized as a regional transport network in Zambia.

According to the SADC Protocol on transport and telecommunication sector, seven regional corridors have been given priority for economic development, where four economic corridors out of seven pass through Lusaka area. This would give a considerable direction of spatial development of Greater Lusaka where Lusaka's role is to function as "Corridor Hub" towards the future development.



Source: JICA Study Team

Figure 4.2.7 Regional Economic Corridors in the Metropolitan Region

2) Character of Metropolitan Region and Greater Lusaka

Three Adjacent Areas in the Districts of Kafue, Chongwe and Chibombo

Lusaka City having the largest urban population (1.08 million/2000) in the country has formulated an affected region covered as a metropolitan region, where direct socio-economic linkage between Lusaka City and the other three districts was observed. Adjacent areas, as part of Greater Lusaka in the neighboring districts of Kafue and Chongwe, (in the same province), and Chibombo District (in the Central Province), have been affected by the urban sprawl from Lusaka City, as commuting settlement areas to the city center of Lusaka.

Kafue District

Key economic sectors in this Kafue district are agriculture by commercial faming area, extending along the edge of the Kafue flats, and aquaculture by traditional fishing and commercial fisheries enterprises.

A larger proportion of manufacturing industries than most other towns outside the Copperbelt has an industrial estate with housing and services called Kafue Estates. The industries located in the provincial capital of Kafue including Nitrogen Chemicals of Zambia (agricultural fertilizers), Bata Tannery (shoe leather), textiles and other industries in the town, and Kafue Quarry, produces construction aggregate for road building and general construction.

Chilanga in Kafue district as the closest town to Lusaka City, located 17 km away from the city center is an important adjacent urban area as its cement factory has been recently renovated and expanded by the french Larfage Company. The headquarter of Zambia Wildlife Authority is also located in said district.

Chilanga town meanwhile will be affected by MFEZ development proposed in the eastern side of the town, which is located next to the southern boundary of Lusaka City and planned Safari Park.

Chongwe District

Agriculture by commercial faming including horticulture (flowers for export) and poultry farms are the key economic sectors in Chongwe district. Charcoal production serving a large market of Lusaka City also plays an important role in generating income for the rural areas of Chongwe.

The Lower Zambezi National Park located on the south eastern part of the district. This national park has various vegetations from highland wood lands to marshes on the Zambezi River flood plains, where six sites of lodges and camps located in the park and its surroundings attract tourists.

The adjacent area in this district has been highlighted by new urban development trend such as large private sector housing estate projects and industrial development plan taking the advantage of the location of Lusaka International Airport.

Chibombo District

Chibombo District in the Central Province lies between the Lukanga Swamp in the west, end of the Luangwa Valley in the east, and includes large commercial farmlands in the north of Lusaka. Agriculture sector dominates the economic activities in this district. Charcoal production is also seen in Chibombo, targeting Lusaka market.

The adjacent area as part of Greater Lusaka in Chibombo is comparatively smaller than the other two areas in Lusaka Province, where urban sprawl has occurred. It also lies along the Greater North road, spreading towards the northern area of the boundary of Lusaka City.

Total population of the region is 1.6 million (CSO statistics in 2000) consisting of four districts including Kafue, Chongwe and Chibombo. It has an average density of 53 population per square kilometer. Meanwhile total population in the adjacent areas covered by Greater Lusaka has 71% share (1.1 million) of the total population of the region. Chibombo district is comparatively poorer than other districts as shown in the table below (based on socio-economic indicators).

Table 4.2.4 Existing Condition of Metropolitan Region and Greater Lusaka

Province	District	Area (km^2)	Population 2000	Density Pop/km^2	Capital Town Distance from Lusaka (km^2)	Adjacent Area in Greater Lusaka		Density Pop/ha
						Population 2000	Area (ha)	
Lusaka	Lusaka	423	1,084,703	2,562.7	0 km	1,084,703	42,327	25.6
	Kafue	5,058	150,217	29.7	56 km	28,574	20,981	1.4
	Chongwe	10,656	137,461	12.9	45 km	18,284	20,218	0.9
	sub-total	16,138	1,372,381	12.9	--	1,131,561	83,526	13.5
Central	Chibombo	13,670	232,897	17.0	93 km	10,364	6,941	1.5
Total		29,808	1,605,278	53.9	--	1,141,925	90,467	12.6

Source: JICA Study team based on CSO Census 2000 data

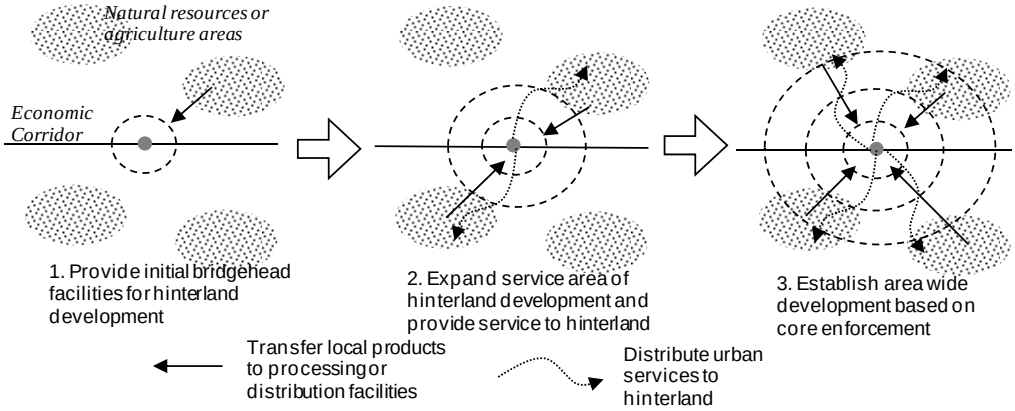
Province	District	In-migrants	Out-migrants	Extreme Poor	Food Insecurity Farmers
Lusaka	Lusaka	429,978	-255,580	27%	57%
	Kafue	87,710	-20,047	62%	62%
	Chongwe	56,925	-10,547	56%	62%
Central	Chibombo	88,177	-9,817	79%	66%

Source: CSO Census 2000 data, Human Development Report 2003

(2) Issues and Approach of Metropolitan Regional Development

1) Promote socio-economic development on the regional Economic Corridors stimulating hinterland development

Area along economic corridors of national roads connected to Greater Lusaka would provide opportunity for socio-economic development, taking advantage of high accessibility to major markets of Lusaka and international markets and leads to resources in the hinterlands.

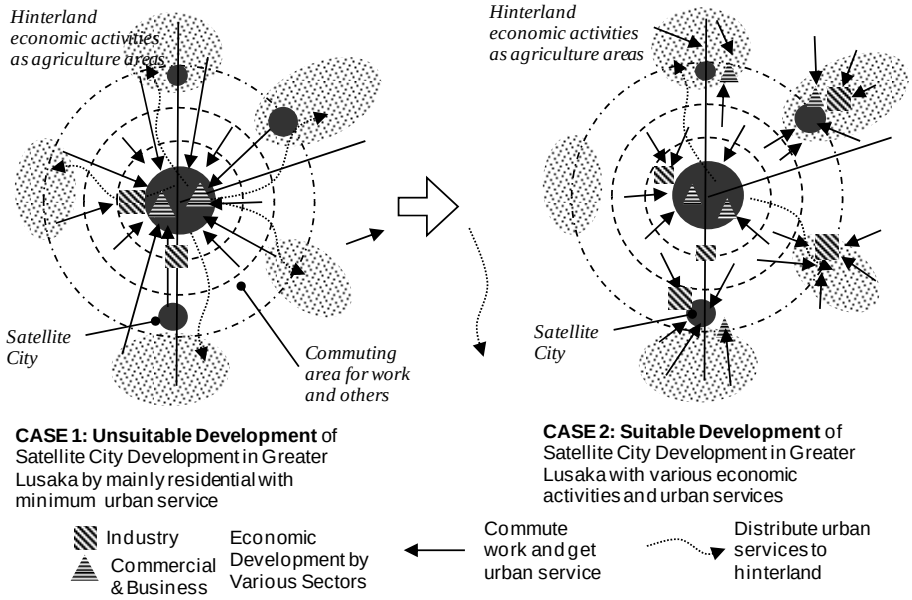


Source: JICA Study Team

Figure 4.2.8 Regional Development Concept Utilize Potentials of Economic Corridor

2) Maximize beneficiary in the region by Greater Lusaka development through balanced development

Development in the three districts of Greater Lusaka area should be one of the keys leading to the regional development, in order to share growth and benefit among the districts in the region. Especially, satellite cities of each district, to be established in Greater Lusaka area, should have work places for generating job opportunities and attractive urban services.



Source: JICA Study Team

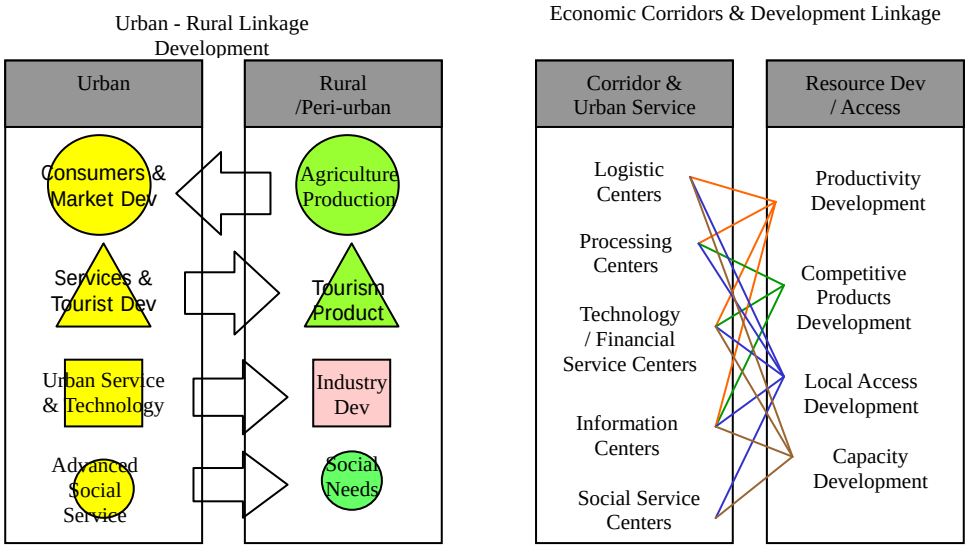
Figure 4.2.9 Conceptual Diagram of Regional Development as one of Economic Corridor's Development

3) Formulate and integrate effective socio-economic development mechanism taking account of urban-rural linkage and access network

4) Stimulate private sector developments by adequate and strategic guide and incentives for the regional development

5) Enhance environmental sustainability in the region though potential development measures in association with urban-rural linkage development

6) Establish effective administrative coordination mechanism beyond conventional coordination system



Source: JICA Study Team

Figure 4.2.10 Socio-economic Linkage for Regional Socio-economic Development

(3) Development Direction in the Metropolitan Region and Greater Lusaka

1) Core Development on the Economic Corridors in the Region

According to the regional development approach, it is important for the region consisting of the three districts to provide and establish core areas for hinterland economic development along suitable locations of each economic corridor. Table 4.2.5 illustrates proposed development by sector initiated by core developments.

Table 4.2.5 Development Direction by Sector for Adjacent Districts

District	Core Development for Socio-economic Development on the Economic Corridor			
	Agriculture Sector	Industrial Sector	Tourism Sector	Social Service
Kafue	-Logistic center development for aquaculture product -Access road development from production area	-Logistic center development for existing industrial product -Supporting industrial development for Greater Lusaka FDI development	-Tourist / Visitor Center Development in Kafue riverfront in close location of National Highway (NH)-T2	-Logistic center development for aquaculture product -Access road development from production area
Chongwe	-Logistic center development for commercial farmers product -Access road development from production area	-Logistic center development for industrial product at Satellite City (airfront) -Access road development for industrial zone	-Roadside Station development for local product promotion at potential area on NH- T4 -Tourist Information Center Development on NH-T4 for Lower Zambeji National Park	-Logistic center development for aquaculture product -Access road development from production area
Chibombo	-Logistic center development for commercial farmers product and livestock products -Access road development from production area	-Supporting industrial development for Large Industrial Development at Kabwe -Access road development from production area	-Roadside Station development for local product promotion at potential area on National Highway T2 -Tourist / Visitor Center Development for Lukanga Wetland tourism	-Logistic center development for aquaculture product -Access road development from production area

Source: JICA Study Team

Source: JICA Study Team

Figure 4.2.11 Example of Core Development on the Regional Economic Corridor: Roadside Station Development in Japan

2) Linkage Development in the Region

Enhancement of development linkages will play an important role in the regional development in association with Greater Lusaka socio-economic development. Urban centers could provide market information to rural production areas for agriculture or aquaculture development. Travel service and guide as well as its improvement should be developed through the cooperation of the local community. In the social services, advanced technology can be introduced into urban center to support rural services such as remote medical care system and remote education by ICT.

Core developments by sector on economic corridors are also expected to initiate and encourage hinter land development as a form of market window, utilizing advantageous location in terms of accessibility. Table 4.2.6 illustrates conceptual socio-economic development linkage by sector, taking into account each potential resource for sector development and effective provision of social services.

Figure 4.2.12 illustrates spatial development direction based on this regional development element introduction.

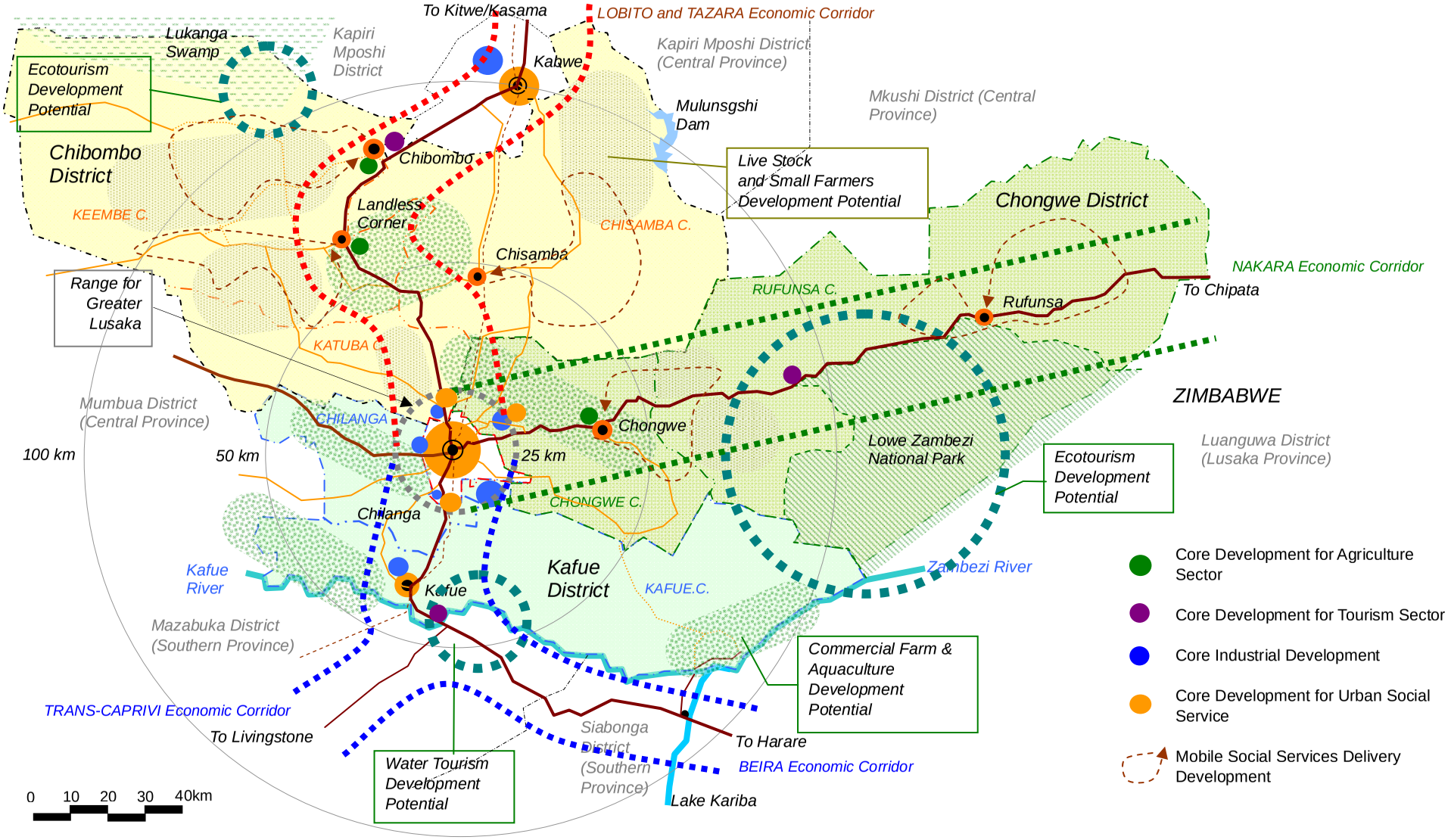
Table 4.2.6 Conceptual Socio-economic Development by Sector

Socio-Economic Sector	Lusaka Urban Area (Market / Service)	Satellite City	Economic Corridor	Three Districts (Product Supply / Destination) Hinterland
Agriculture / Rural Development	City and Local Market Consumers Organization Agricultural Technology And Services	Market Info Service	Logistic service Processing Center Agri-info Service Center	Agro-industrial products - cash crop - export products - livestock products - bio-fuel product - others
Industrial Development	Training & Technology Service Headquarter Management Financial Service Large Target Market	Industrial Zone Development - FDI industry - Domestic industry	Inland Container Depot	Rural Employment Exploitation
Tourism Development	Agent / Organizer Ecotourism Promotion Organizing Familiar Tour Trip		Roadside Station Visitor Guide & Rest Place	Major Ecotourism Product Development
Social Service Development	2nd /3rd Level Referral Hospital Remote ITC Medical Service Higher Education Center Remote ITC Education Service	1st Level Referral Hospital Special Higher Education (agriculture, industry, etc)	Health Center Moving Clinic Center (vehicle) High School Moving Library Center (vehicle)	Rural health post Mobile Medical Vehicle Basic School/ Community School Mobile Library

Source: JICA Study Team

Mobile Library

Mobile Medical Vehicle



Source: JICA Study Team

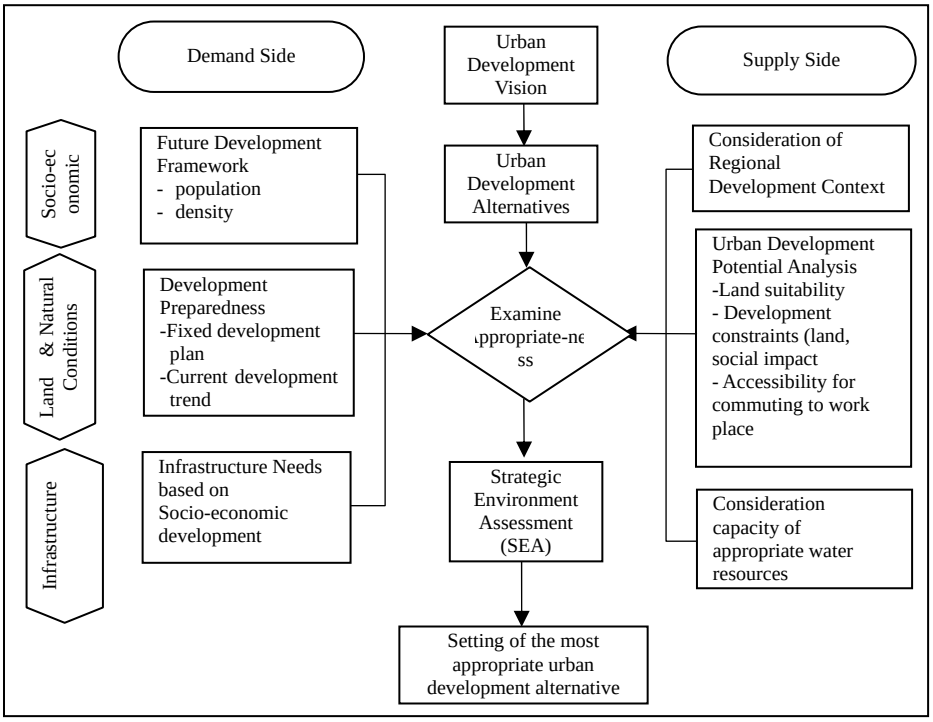
Figure 4.2.12 Spatial Development Direction of the Metropolitan Region

(4) Spatial Urban Development Analysis

Spatial form with major infrastructure development is becoming increasingly important in the current urban development in the world. Issues of urban form and infrastructure areas to be considered are described by, i) congestion imposing high economic costs, ii) urban sprawl associated with energy inefficiency and high transportation cost, iii) attractive environments with quality public spaces, and iv) affordable accessible land essential for migrants to be absorbed productively, etc.

1) Methodology for Spatial Development Analysis for Development Alternatives

Spatial development analysis is examined using two analysis components namely, the "demand side" and "supply side" analysis, when preparing the development scenarios. The analysis is also used as a tool in providing better urban environments leading to sustainable and appropriately sized city.



Source: JICA Study Team

Figure 4.2.13 Spatial Development Analysis for Spatial Development Alternatives

2) Development Preparedness

As previously discussed in Section 3.3 (Development Trend), describing current urban development status of residential and industrial areas, several urban development projects have already been planned, approved or implemented at present. It is necessary for these plans and projects to be reflected to the future urban direction as a form of "development preparedness". Table 4.2.7 shows current development plans and projects.

Table 4.2.7 Current Major Urban Development Projects and their Status

Category	Project	Location of Project					
		Lusaka District	Area (ha)	Status	Other Districts	Area (ha)	Status
Housing Development	Private Sector	• Salama • Lilayi • Legacy South Gate • Woodland South • Lusaka South	104 253 55 n.a n.a	US UC UP UP UP	• Meadow Avondale • Kwamwena Valley • Ndeke Village • Vorana Valley • 削除	873 121 406 182	UC UC US UP
		total	412	--	--	1,582	--
	Public Sector (LCC /MoL)	• S-Woodland • Kamwala • Libala-south • Bauleni-ext • New-kanyama • North Forest	201 208 184 12 70 68	US US US F F US	--	--	--
		total	743	--	--	--	--
Commercial Development	Private Sector	• Legacy South Gate	30	UP	• East Gate Shopping Mall	5.2	UP
Recreation	Private	• Legacy Golf course	105	UP	--	--	--
	GRZ	--	--	--	• Safari Park Development	4,580	UC
Industrial Development	GRZ	--	--	--	• South Lusaka MFEZ	2,100	UP
	China	--	--	--	• No name	500	UP

Legend: UP = under planning, UC=under construction, US = under settled, F = already built-up
GRZ = Government of Republic of Zambia
Source: LCC, Ministry of Commerce Trade and Industry, Private Real Estate Company

3) Development Potential Analysis

Development potential analysis aims at identifying appropriate spatial development form through land potential assessment considering with various criteria. The analysis is examined as follows.

(a) Urban Development Potential and Criteria

Criteria for urban development potential analysis are set to assess lands in the territory of Lusaka City and its three adjacent districts, Kafue, Chongwe and Chibombo. This is carried out through collective evaluation quantified with scores, in conjunction with key factors of urban development such as “Accessibility” and “Land Suitability” and “Development Constraints”. Table 4.2.8 shows criteria with corresponding analysis factors.

Table 4.2.8 Criteria for Urban Development Potential

Category	Criteria for Development Potential	Potential / Constraints
Accessibility	Accessibility to CBD • Accessibility to International Airport • Accessibility to Regional Economic Corridor (N-Highway) • Proximity to Railway	• Convenient to important business commercial activities • Airport-front industrial development • Industrial and logistic development • Transit-oriented urban settlement
Land Availability	• Land suitability by slope • Land availability (cheap land acquisition) • Preparedness (current planned & project areas)	• Avoiding steep slope (over 30^o degree) • Not existing built-up or restricted area • Avoiding planned & project areas
Development Constraints	• Nature Protection areas • Agricultural potential areas • Natural hazard prone areas	• Need to sustain for urban environment • Consider to sub-urban agro-production • Avoiding higher investment cost

Source: JICA Study Team

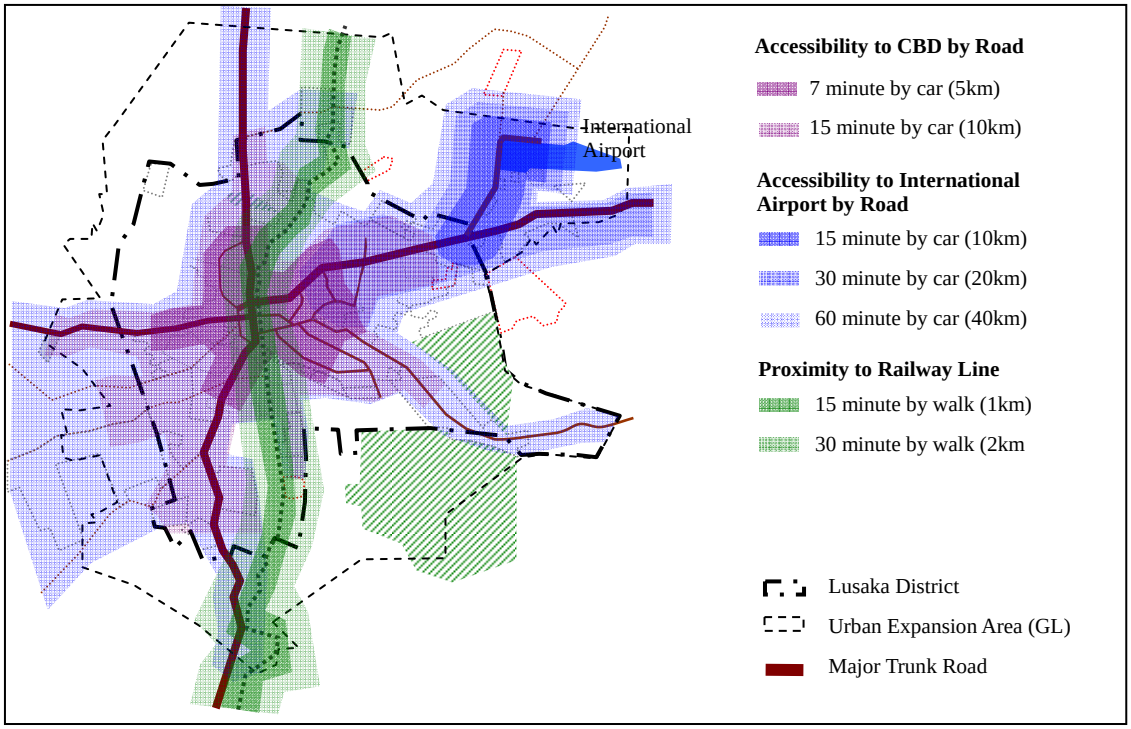
(b) Development Potential Analysis

The study area of Greater Lusaka area covering Lusaka City and some portions of Kafue, Chongwe and Chibombo districts is examined based on the criteria. The study area is divided into six urban clusters for purposes of evaluating urban development potential analysis.

i) Accessibility from Key Areas and Facilities

Areas in Greater Lusaka close to National Highways as economic corridors and Lusaka International Airport will benefit from future urbanization. Moreover, areas near Lusaka CBD are also highly advantageous since these are convenient dwelling and working locations. These potential areas are examined as development potential areas.

As shown in Figure 4.2.13, lands benefiting from urban development in future are located mainly along major corridors and the surrounding areas close to Lusaka International Airport. There are also comparatively larger areas where road network is serves the central west area, south west and central east area of the city center (Lusaka railway station). On the other hand, south-east of Greater Lusaka with mountains and forest reserved lands have smaller area and are distant from major corridors and the international airport.



Source: JICA Study Team

Figure 4.2.14 Accessibility from Key Facilities

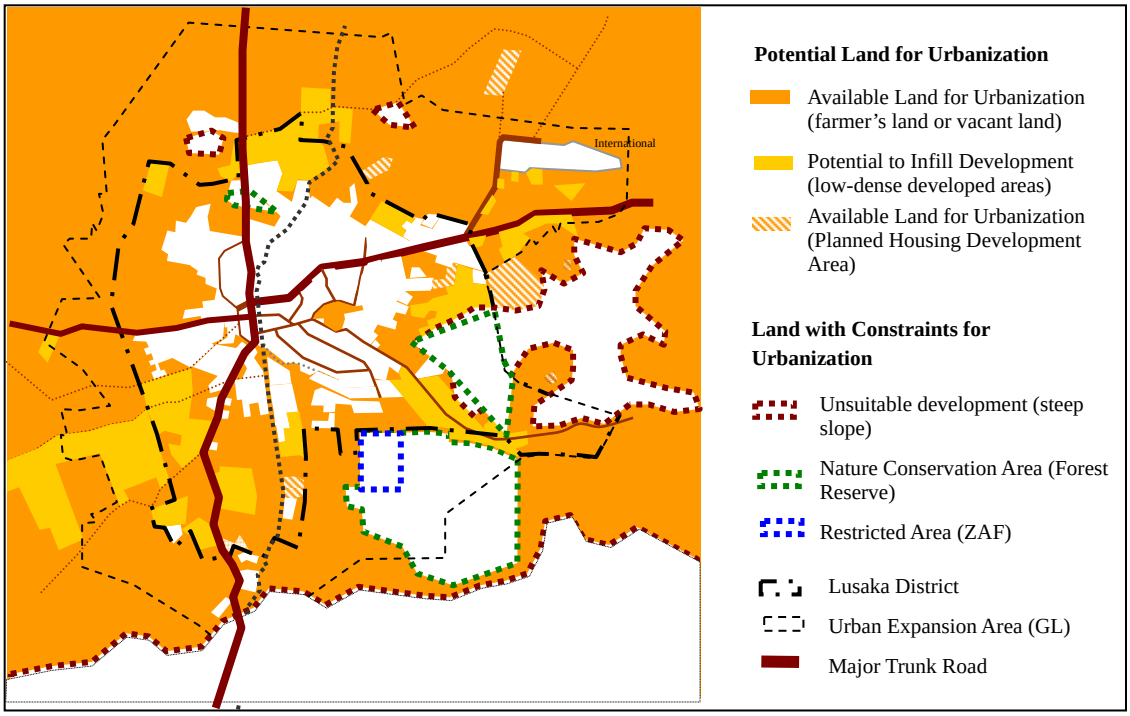
ii) Land availability in association with Development Constraints

Land suitability in Greater Lusaka is examined through the assessment of steep slope, non-built-up and restricted areas designated for military or security purposes. Agricultural lands where flat terrain is spread throughout the suburban or rural areas, surrounding the central area of the City, could also be potential lands for future urbanization, taking into account some prospective agro-business areas such as those places utilized for production of fresh vegetables.

It is worth noting that the airport could be a potential development area due to its proximity to CBD.

As shown in Figure 4.2.14, lands suitable for urban development in the future are located mainly in the north, north-east, north-west and south-west part of Greater Lusaka area. These are less hilly non-settlement areas with large flat agriculture lands,

as compared to the south-east of Greater Lusaka area which are mountainous and occupied by forest reserved lands.



Source: JICA Study Team

Figure 4.2.15 Land Availability for Future Urban Development

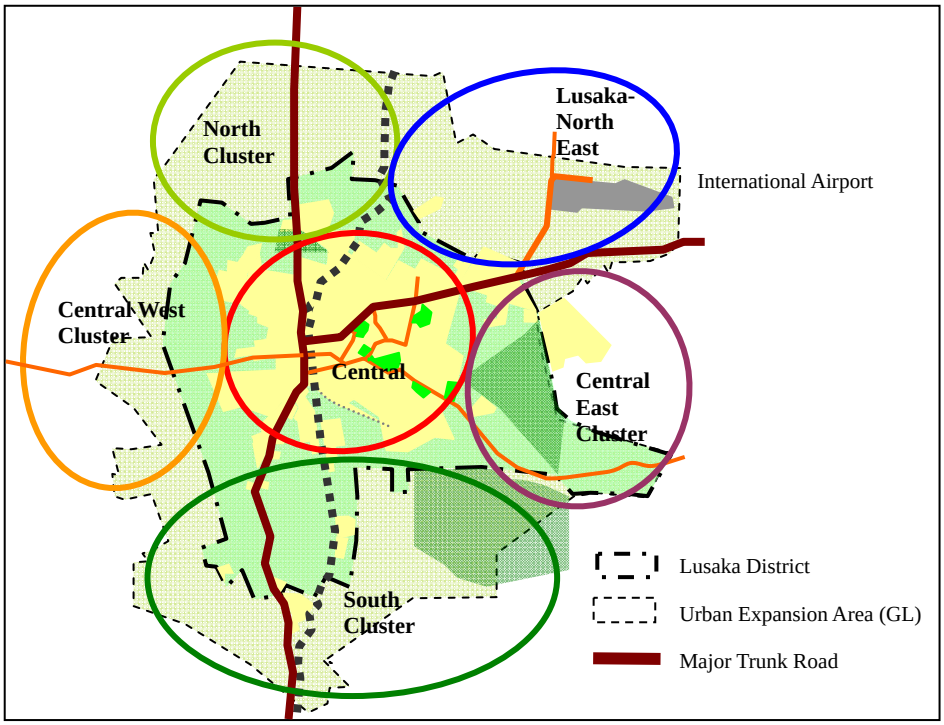
iii) Overall Urban Development Potential Evaluation

Overall urban development potential by six urban clusters is evaluated through a scoring system, considering factors such as "land availability", "development constraints" and "accessibility." This development potential evaluation would give future direction to appropriate spatial development formulation. Table 4.2.9 shows the result of overall evaluation, in which the north-east cluster, north cluster and south cluster have comparatively the advantage of being a potential development area, subject to conditions on coordination with suburban agricultural development.

Table 4.2.9 Overall Evaluation of Urban Development

Weighting	Accessibility/Proximity (3)				Land Availability (5)			Development Constraints (2)			Total Evaluation
Urban Cluster	Central Business District (CBD)	Int'l Economic Corridors	Int'l Airport	National Railway Network	Unsuitable by Steep Slope	Land Availability	Preparedness by plan & Project	Nature Reserve Potential	Agriculture Potential	Hazard Prone Area	
Central	A	A	B	A	B	D	A	D	D	B	A
North	B	A	B	A	C	B	C	C	B	D	B
North-East	B	B	A	C	B	B	B	C	B	D	B
South	B	A	D	A	B	B	C	C	A	D	B
Central-East	C	C	B	D	C	C	A	A	B	C	C
Central-West	C	D	C	D	B	B	C	C	B	B	C

Note: 1) Weights for sector evaluation are applied giving the priority to Land Availability as an essential factor for land development followed by Accessibility. 2) Values are scored by four ranking by order of A, B, C, D. 3) Evaluation for value is examined based on the current urban services and infrastructure conditions (road, railway).



Source: JICA Study Team

Figure 4.2.16 Urban Clusters for Future Urban Development Potential Evaluation

(5) Formulation of Alternative Spatial Development Concept

1) Approach to Spatial Development Concept Alternative

Current modern city planning issues need to be addressed in a sustainable urban development manner, by considering significant elements for urban growth management. The key components to be incorporated into urban planning are i) effective control of urban sprawl, ii) traffic management with environmental consideration and iii) natural environment protection such as Green Belt.

In order to achieve the development vision for Greater Lusaka area and Lusaka City, it should be interpreted as a spatial development framework indicating future urban structure of Greater Lusaka area. Key development factors are examined such as i) appropriate density of urban settlement for effective urban land use, ii) desirable urban form for sustainable and livable urban life and iii) attractive and competitive urban function being the capital city of Zambia.

(a) Formulation of Appropriate Density and Living Standards through Adequate Urban Growth Management

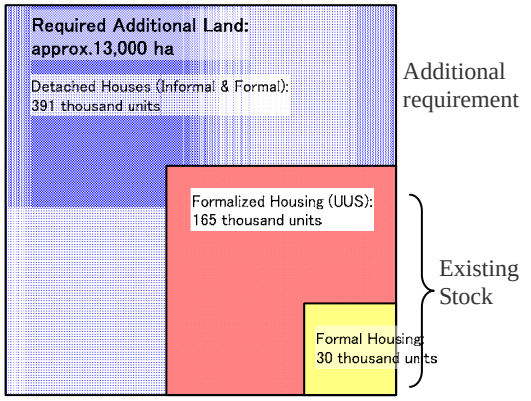
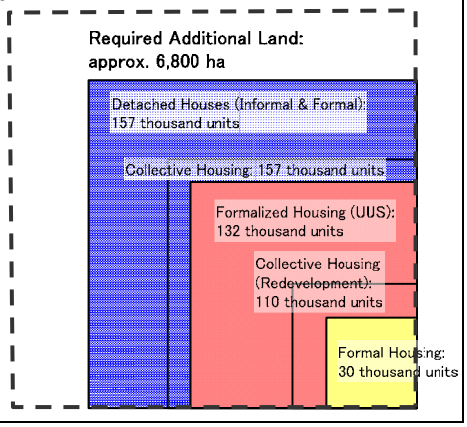
Although gross population density of Lusaka has been recognized comparatively as low and dispersed, except for the UUS where several household groups seem to be living in one house, future urbanization and reforms need to be considered according to the following directions:

- More effective and efficient land utilization (dense use) to meet land value of built-up area for economic activities
- Effective and less costly provision of urban infrastructures
- Better environmental effect with low mobility and pollution emission
- Low density settlement requiring huge land
- Consider Zambian life style and working practices

A case study for land requirement is examined according to housing development types such as conventional detached house and collective housing, in terms of living density formation. Table 4.2.10 indicates the two cases of housing developments. Result of

the case study shows that collective housing development could achieve more compact urban area formulation based on identified area of additional land required.

Table 4.2.10 Indicative Case Study for Residential Area Requirement toward 2030

Case 1: without Collective Housing	Case 2: with Collective Housing
• Case in Population 2030: 2.9 million ba • Assumption of future housing stock: 586,000 units • Detached house: 30 HH/ha • Collective housing: 100 HH/ha	
Additional land requirement: 13,000ha 	Additional land requirement: 6,800ha 

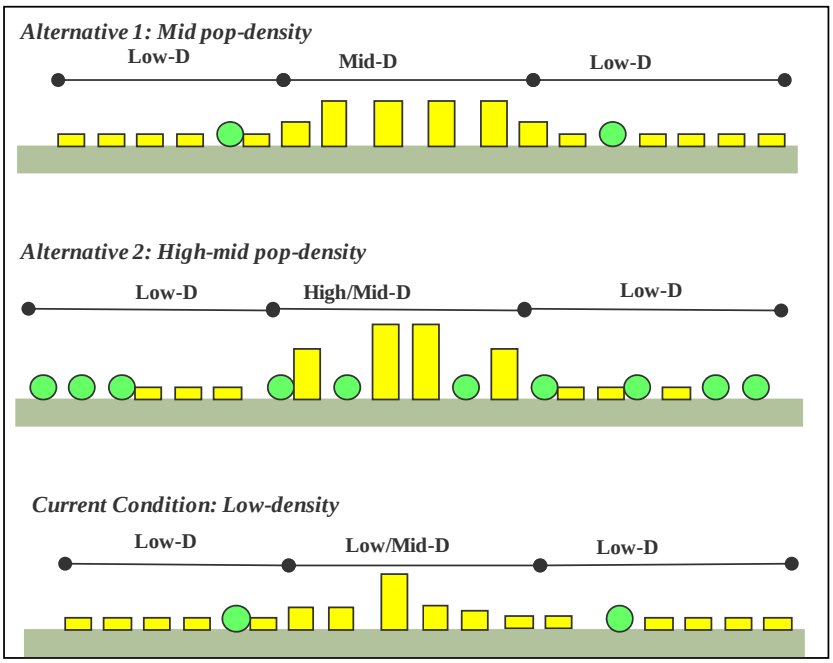
Source: JICA Study Team

(b) Formulation of Sustainable Urban Form in association with Adequate Transportation System

Lusaka has expanded rapidly its built-up area without sufficient growth control of sprawl beyond the district boundaries. This is mainly by private sector land development and UUS occupying vacant areas within Lusaka City. Formulating adequate urban form is a significant issue, when future urban form needs to be considered based on the following:

- Utilizing appropriate geographical condition area without any negative redound from urbanization for environmental sustainability
- Formulating adequate land use form in terms of urban mobility and activities enabling contribution to effective economic development and mitigation of negative environmental effects to meet global issue (CO_2 emission)
- Introducing effective and convenient urban transport system
- Achieving closer linkage of service and facilities as living and working place
- Sustain natural and historical cultural heritage as symbol and landmark of Lusaka
- Attractive urban green and water environment in order to protect natural resources (grand water, green, biodiversity) in sustainable manner

Taking account of current urban form of Lusaka, urban form alternatives in conjunction with density is examined as shown in Figure 4.2.17. The JST recommends alternative two (high-mid density development in urban centers), although this tentative solution for urban form requires further study and discussion with concerned stakeholders.



Source: JICA Study Team

Figure 4.2.17 Indicative Urban Form in conjunction with Density and Skyline Formation

(c) Promoting Attractive and Competitive Urban Function and Services with Rich Green Environment

As a regional and international place being the capital of Zambia, Lusaka has a significant responsibility in providing urban services not only for its citizens but also for outsiders working, gathering and enjoying business and travel in the City. Formulate attractive and competitive urban function is an essential issue to enforce urban services, when urban development and management needs to be considered based on the following:

- Enhancement of urban functions and services in the capital city of Zambia as the place for knowledge-based urban services, research and educational institutions and other administration business activities being a national administrative center
- Encourage business through upgrading communication media and establishment of convention facilities, high-quality hotels and tourism services, trade and markets as financial hub and as an international and regional gateway center
- Consolidation of urban safety and security by providing sufficient infrastructure and adequate disaster management for vulnerable environment areas, supplemented with people's awareness
- Providing adequate institutional scheme and physical environment for business and industry to attract more domestic and international investment

2) Formulation of Spatial Development Concept Alternatives

Premise of Alternatives

Major directions of spatial development for Greater Lusaka are identified in order to efficiently accommodate anticipated population increase and economic development, through a well-organized development manner as per the following three directions:

- **New Urban Expansion:** by satellite town formulation in urban fringe areas in combination with linkage development to existing urban area
- **Upgrading Existing City:** by strong urban growth management for compact city formulation
- **New Capital Development:** by decentralization of the capital such as the Twin

City or New Capital city development in remote areas

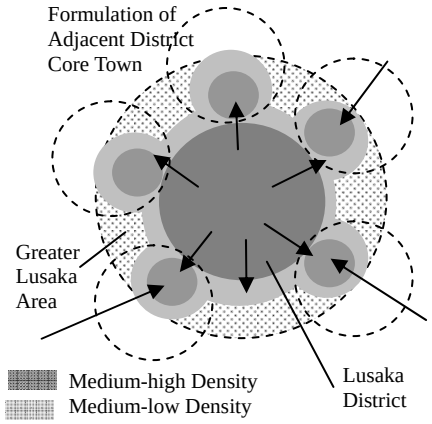
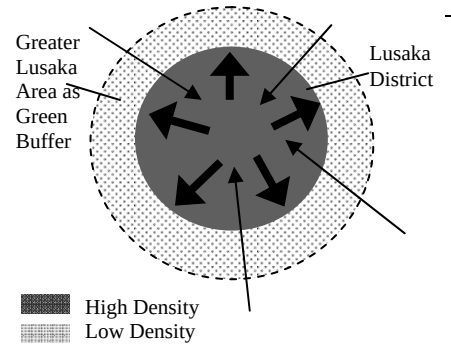
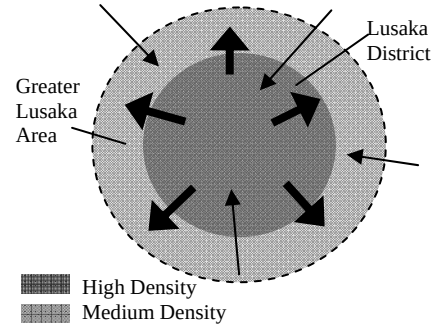
In this section for formulation of alternatives, “new capital development” as an unsuitable and unfeasible development, is excluded for examination in terms of less development cost and environmental conflict and national development strategy.

Spatial Development Alternatives

Two urban structure alternatives as interpretations of the development vision of Greater Lusaka are developed to accommodate the population and economic development framework, taking into account the principles and directions for spatial development mentioned in the previous sections. Additionally, the “do-nothing” case which will not require strong government intervention is also examined in terms of strategic environment assessment.

Table 4.2.11 shows two alternatives of spatial development towards 2030 including the “do-nothing” case. This presents different alternatives for density formulation in conjunction with possible distribution of the target population of 2.9 million in 2030 within the Greater Lusaka area. This is formulated in association with adequate urban form to meet current urban development trend on land availability and accessibility.

Table 4.2.11 Alternatives for Spatial Development Concept

Alternative Concept	Spatial Development Structure and Form	Characteristics
ALT1: Greater City Concept with satellite new town developments		• Formulate medium-high density with adequate urban control in Lusaka District by **well-organized urbanization** • Formulate population absorption cores surroundings of Lusaka District within Greater Lusaka Area by **Strategic New Town Development** • Expansion area will not receive large population
ALT2: Compact City Concept with intensive development of inner area		• **Strict control** of urban fringe sprawl • **High-dense land use** urban formation by renewal and reform • Expansion area will not receive large population, by keeping green area as buffer of agriculture land and natural environment
Without Intervention: Dispersed City without adequate land use control/planned development		• Status-quo trend by uncontrolled urban sprawling into expansion area • Increase and concentration of population by **wide-spread population** in Greater Lusaka area

Source: JICA Study Team

[Alternative 1]: Greater City Concept with satellite new town developments

In order to achieve this spatial development concept, the following eight robust challenges will be required in terms of infrastructure provision, well-organized urban management and coordination between three districts:

(a) Challenges for Density Formulation and Improving Living Environment

- Well balanced distribution with adequate settlement density
- Densely developments for urban centers (CBD, Satellite towns)
- Improvement of living environment in UUS and various residential density developments in combination with detached and collective housing

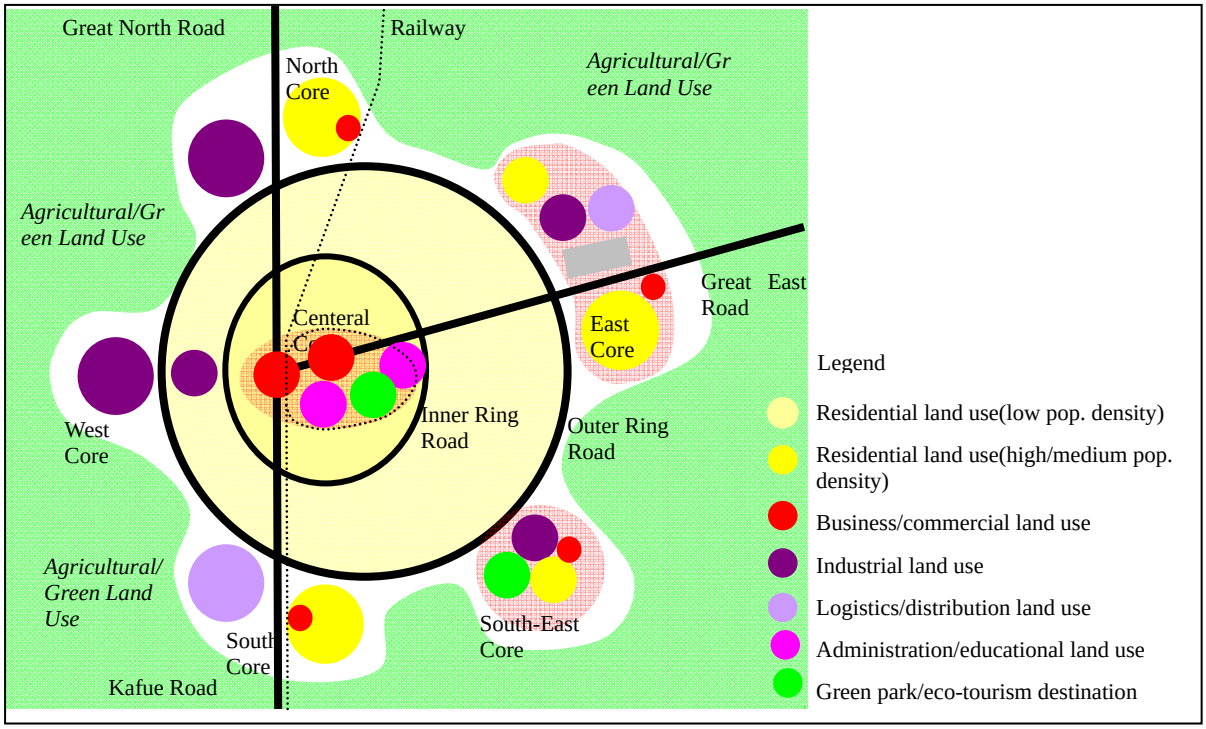
(b) Challenges for Sustainable Urban Form

- Satellite towns' development of the North Core, East Core, South-east Core, South Core and West Core towns are designated with various urban functions based on respective local conditions and economic development directions

- Transit development oriented urban development by eco-friendly transportation system in the central area of Lusaka linking with satellite town
- Outer Ring Roads provision to support urban activities of satellite towns

(c) Challenges for Attractive and Competitive Urban Function

- Redevelopment and urban renewal for commercial businesses as valuable lands of the Lusaka City Airport, Cairo roads area and UUS in the central area of Lusaka
- Developing day-trip recreational destination in satellite town



Source: JICA Study Team

Figure 4.2.18 [Alternative 1]: Greater City Concept

[Alternative 2]: Compact City Concept with Intensive Development

In order to achieve this spatial development concept, the following robust seven challenges will be required in terms of reformation of existing built-up area, infrastructure provision, strong urban growth management and coordination between three districts.

(a) Challenges for Density Formulation and Improving Living Environment

- Concentration of urban settlement with med/high-dense development through urban renewal and improvement
- Dense developments for Urban Centers (CBD)
- Improvement of living environment in UUS and various residential density developments by mid-term

(b) Challenges for Sustainable Urban Form

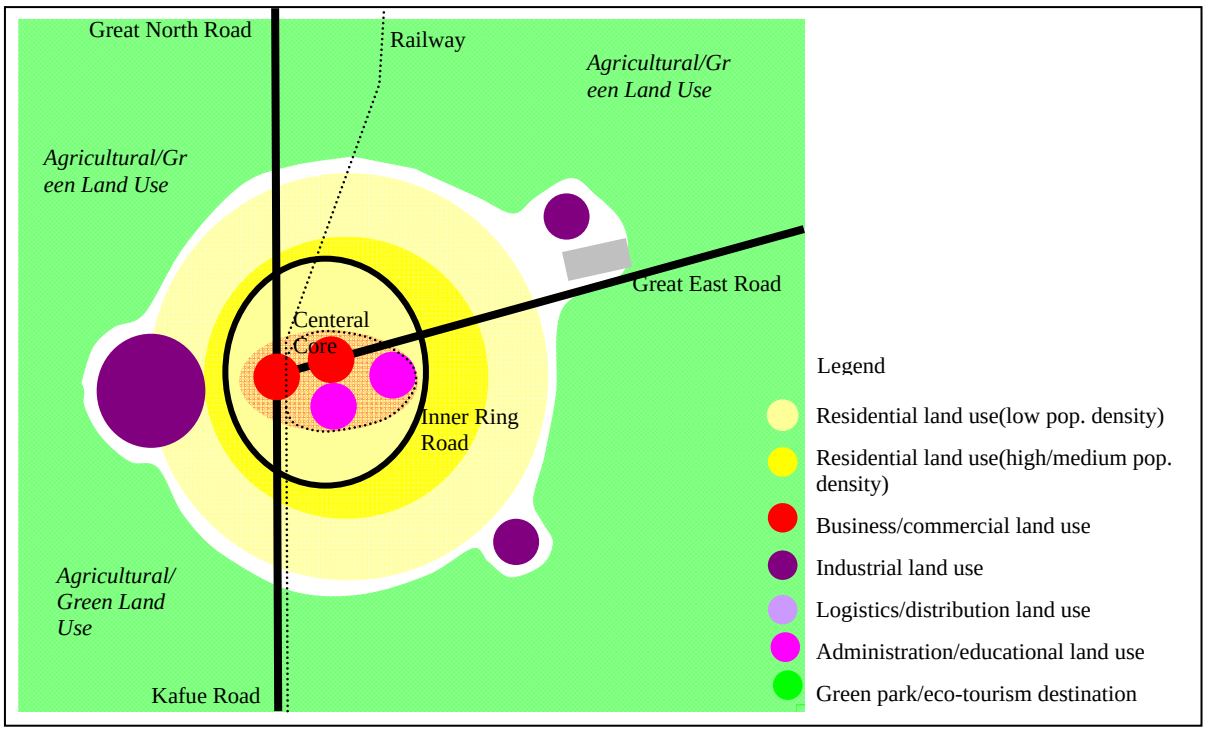
- Transit development oriented urban development by eco-friendly transportation system in the central area of Lusaka
- Inner Ring Road provision to support urban activities of CBD area

(c) Challenges for Attractive and Competitive Urban Function

- Redevelopment and urban renewal for commercial businesses by high-dense

development in the Lusaka City Airport, Cairo roads area and UUS in the central area of Lusaka

- Preservation of Green Belt zone in the suburban area



Source: JICA Study Team

Figure 4.2.19 [Alternative 2]: Compact City Concept

[Alternative 3: Without Intervention]: Dispersed City Concept with Intensive Development

In this spatial development case without active intervention for urban formulation, considerable issues will be raised in terms of adequate management for infrastructure provision, poor living conditions, urban growth management and coordination between three districts. Related issues are presented as follows.

(a) Issues for Density Formulation and Improving Living Environment

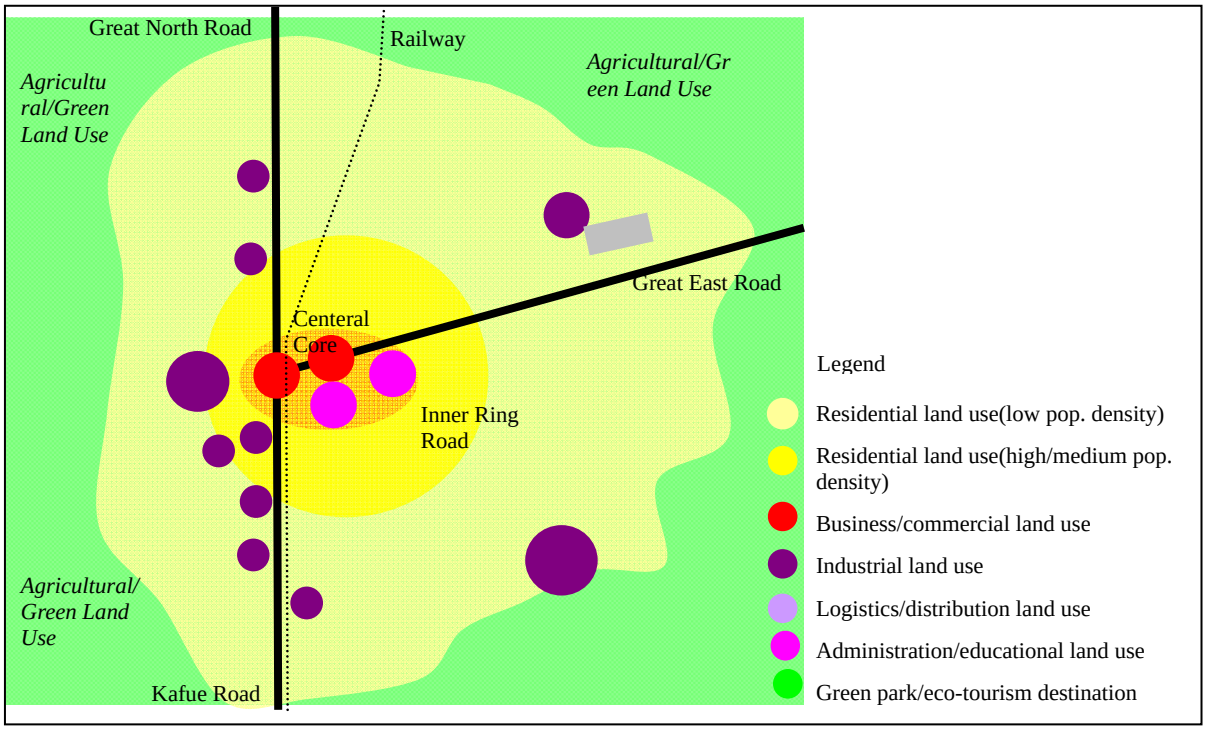
- Accelerating urban sprawl due to pressure in population increase
- High dense living environment (UUS) will face insufficient urban services due to lack of funds as against the large increase of other poor settlement in the future
- Low dense housing development will invade suburban natural environment
- Scattered and low-dense business commercial development by ineffective land use

(b) Issues for Sustainable Urban Form

- Larger commuting demand due to further expansion of settlement from the city, causing traffic congestion and more pollution
- Deterioration of sustainable living environment by exploitation of ground water and destruction of recharge areas

(c) Issues for Attractive and Competitive Urban Function

- Ineffective and insufficient business commercial area formation by concentrating only on current CBD and invasion of industrial areas
- Deterioration of Green Belt zone (natural and agriculture production area) in the suburban area



Source: JICA Study Team

Figure 4.2.20 [Alternative 3: Without Intervention]: Dispersed City Concept

(6) Strategic Environmental Assessment (SEA) of the Spatial Development Concept Alternatives

Three components of SEA are introduced, namely consideration of alternatives, assessment of accumulated impacts and public participation in order to mitigate economic, social and environmental impacts.

1) Methodology to Evaluate Alternatives

The above-mentioned urban structure alternatives were introduced to stakeholders, who performed discussions and evaluations during a workshop consisting of a mass meeting as well as Project Cycle Management (PCM) style group discussions, on 19 February 2008. The participants include relevant government officials of three working groups for three sub-programs, councils of surrounding three districts, donors, NGOs, the academics, the Chambers of Commerce and Industry of Lusaka and Zambia and the other concerned stakeholders. The methodology to assess alternatives is described as follows.

- Identification of Prioritized Issues: to identify likely impact items, relevant studies and documents of higher decision-making levels were reviewed. The reviewed documents include the National Policy on Environment, the Environmental Outlook Report for Lusaka and the Community Profile Survey of the Study (refer to the first three columns from the left of Table 4.2.12).
- Selecting Likely Impact Items: Based on the identified prioritized issues, items of environment, social and economic impacts to be assessed were selected (refer to the right columns of Table 4.2.12). The impact items of JICA environmental and social consideration guideline were also considered, while items relevant to the Study were identified.

Table 4.2.12 Selected Likely Impact Items of Strategic Environmental Assessment (SEA)

SEA Categories	Sub-Categories Derived from Publications and the Survey	Subjects in National Policy on Environment	Subjects in Environmental Outlook Report for Lusaka City	Subjects in Community Profile Survey Summary from Steering Committee Presentation as of 22 Nov.	Selected Likely Impacts in Consideration of Subjects of Existing Studies and JICA Environmental and Social Considerations Guideline
Economic Impacts	Economic Issues	1) Increase in agricultural production 2) Sustainable mining	1) Employment	1) Less employment especially in the formal sector and less training for informal settlements and Chilanga	1) Industrial development: manufacturing, agricultural, logistics, tourism 2) Employment opportunity 3) Income generation of the poor 4) Public cost for urban development/management
Social Impacts	Land Use	1) Land management 2) Infrastructure and urbanization	1) Land allocation and ownership 2) Land degradation/erosion caused by inappropriate land use such as illegal quarrying 3) Rapid population growth 4) Migration 5) Governance		1) Control on urban sprawl and land use 2) Appropriate land use for socio/economic growth 3) Attractiveness of the city
	Transportation System	1) Need for fire safety measures in transport systems	1) Increase in the number of vehicles 2) Congestion and traffic jams caused by not well developed road network (esp. Eastern part of the CBD during peak times 3) Need for ring roads in the future 4) Insufficient provision of parking lots in the City 5) Need for pedestrian walkways or bicycle lanes	1) Poor Access to Clinic due to poor road condition and bus routes 2) Not tarred roads without appropriate drainage	1) Transportation system
	Living Environment	1) Water supply 2) Water quality 3) Protection for water bodies 4) Irrigation 5) Sewerage 6) Watershed management	1) Growth of unauthorized squatter settlement 2) Inadequate water supply 3) Inadequate waste management infrastructure and recycling facilities 4) Health 5) HIV/AIDS 6) Education	1) Insufficient communal tap/individual tap for informal settlements and Chilanga 2) Water cut during dry season 3) Insufficient facility service for informal settlements	1) Dwelling houses supply 2) Improvement of living condition 3) Social services such as health and education
	Vulnerable groups	n.a.	n.a.	n.a.	1) Involuntary resettlement 2) Local conflict 3) Social vulnerable groups such as the urban poor
Environmental Impacts(Natural Env. & Pollution)	Forest degradation	1) Forest degradation 2) CO_2 reduction	1) Green house gas emission 2) Use of charcoals and use of electricity	n.a.	1) Forest degradation
	Flora/Fauna/Biodiversity	1) Degraded ecosystem & eroded landscapes 2) Key ecosystem and fauna &flora 3) Rare/threatened species	n.a.	n.a.	1) Flora, fauna and biodiversity
	Air/Ground water/rivers	1) Healthy ambient air quality 2) Pollution prevention for clean water 3) Noise 4) Protection for land erosion and degradation	n.a.	n.a.	1) Air 2) Ground water 3) Rivers

Source: JICA Study Team

- Scoping the Selected Likely Impacts of Three Alternatives: Positive and adverse impacts of different alternatives were assessed based on the existing information and expert judgment of stakeholders and the JST who participated in the workshop on 19 February 2008. The outcome of the assessment is summarized in Table 4.2.12.
- Evaluation of Positive/Negative Environmental Impacts of the Three Alternatives: Likely impacts were evaluated by the stakeholders and JST who participated in the workshop on 19 February 2008, and categorized environmental, social and economic impacts as shown in Table 4.2.13.

2) Outcomes of the Discussions on Alternatives

In the workshop, alternatives of city development concepts were identified and discussed among participants. In conclusion, through the above-mentioned discussions, it was agreed by participants that Alternative 1 was identified as the best option as suggested by the JST.

Table 4.2.13 Advantages and Disadvantages of Urban Structure Alternatives

Item		[Alt 1]: Greater City Concept with Satellite Development	[Alt 2]: Compact City Concept with Intensive Development of the Inner Area	[Alt 3: Without Intervention] Dispersed City without Land Use Control/Planned Development Concept
Positive Impact	Economic Impacts	• Effective industrial promotion, job opportunity creation and income improvement for the poor are advantageous.	• Effectiveness of industrial promotion, job opportunity creation and income improvement for the poor is expected at the some extent • Public investment cost for the urban development will be less than Alternative 1.	• Public investment cost for the development of the urban infrastructure and facilities will be the lowest.
	Social Impacts	• Effective lad use, traffic control and living environment improvement are advantageous.	• Effective lad use, traffic control and living environment improvement are expected at the some extent.	• Direct adverse impact on the social vulnerable group by the development project will be the least.
	Env. Impacts	• Present adverse impact on the natural environment will be improved due to the development/renovation of the road network, sewerage system, etc.	Same as Alternative 1	No positive impact
Adverse Impact	Economic Impacts	• Public investment cost for the development of the urban infrastructure and facilities will be high.	• Effectiveness of industrial promotion, job opportunity creation and income improvement for the poor will be less than Alternative 1.	• Effectiveness of the economic enhancement will not be expected.
	Social Impacts	• Direct adverse impact on the social vulnerable group by the development project is foreseeable.	Same as Alternative 1	• Ineffective lad use, uncontrolled traffic and unimproved living environment will be continued.
	Env. Impacts	• Adverse impact on forest preservation, fauna/flora and ground water potential are anticipated at some extent.	Same as Alternative 1	• Affects on fauna, flora and biodiversity by illegal encroachment and activities in forest reserve will be continued. • Contamination of river and ground water quality will be worsen due to the population increase and inappropriate sewerage system.
Total Evaluation		Appropriate Lusaka urban development alternative because of effectiveness of the economic expansion and social development, although the negative impacts on social and natural environment are anticipated.	Considering the effectiveness of the economic expansion and social development will be moderate, this alternative will be second suggestion.	Since the effectiveness of the economic expansion and social development will be minima, this alternative shall not be taken.
Necessary Countermeasure		To minimize the adverse impact on the social vulnerable group and natural environment, countermeasures should be done.	Same as Alternative 1	-
Recommendation		1. Alternative 1 of Greater City Concept with Satellite Development shall be taken. 2. The infrastructure and facilities development shall be well planned to reduce the public sector investment. 3. Countermeasures to minimize the adverse impact on social vulnerable group and natural environment should be effectively made.		

Source: JICA Study Team

4.2.5 Urban Transportation Development Strategy

(1) Challenges and Objectives

Challenge for urban transportation master plan is a simple statement that interprets the future situation as a clear target, while an objective is one of the means and target to achieve a challenge as shown in Table 4.2.14.

Table 4.2.14 Challenges and Objectives of the Transport Sub-program

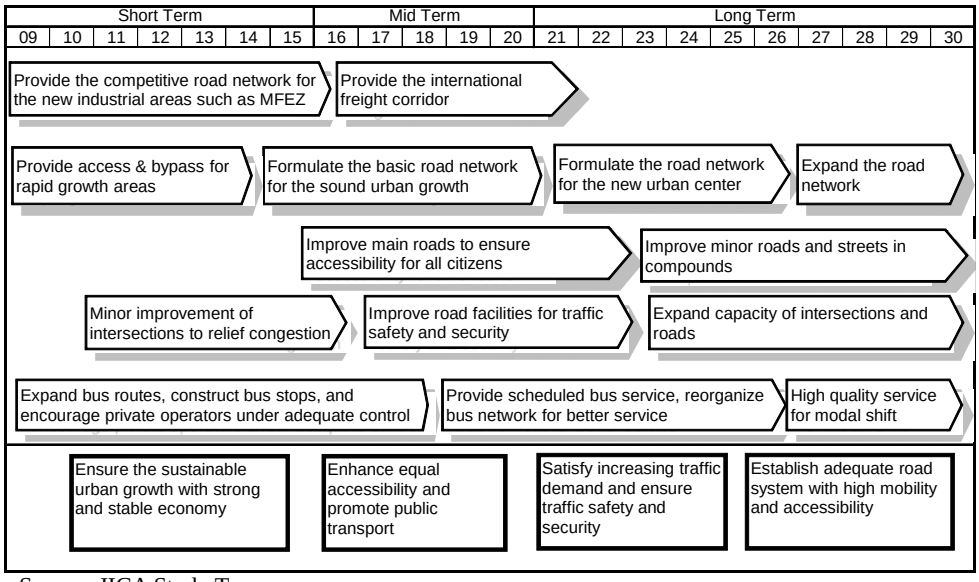
Challenges		Objectives
Equal accessibility for all citizens	11	Provide the entire city with adequate passenger transport services
	12	Improve bus services
	13	Provide access road for vehicles in all communities
	14	Develop road network for quick access within the city
Safe and pleasant transport system	21	Reduce traffic accidents
	22	Improve the security on roads and streets
	23	Manage and control traffic flow under good condition
	24	Provide safe and comfortable pedestrian routes
Sustainable Economic Development	31	Provide access to new industrial zones
	32	Provide the north-south corridor for intercity transport
	33	Provide the competitive freight transport system
	34	Provide the competitive air transport services
Sound and managed urban growth	41	Connect the new urban area with good transport system
	42	Provide sufficient transport system to meet the demand
	43	Formulate good urban structure by hierarchical road network
	44	Provide transport terminal for smooth transfer
Enriched quality of life	51	Improve deteriorated roads and streets
	52	Relief traffic congestion
	53	Promote non-motorized transport
	54	Reduce vehicle emission

Source: JICA Study Team

(2) Approach for the Challenges and Objectives

A number of projects will be necessary to achieve the challenges and objectives. However, the backlog of services in the transport sector in Lusaka is already huge. In addition, the budget is very limited. Therefore, the most important thing is to ensure a sustainable economic growth that is currently supported by the copper industry, so that the city will be able to generate revenues that could be budgeted and utilized for the transport sector. From this point of view, high priority should be given to road development as competitive infrastructure to attract economic investments. In addition, Lusaka needs to prepare urban expansion and prevent urban sprawl. Therefore, new road networks for the future urban structure should be considered.

The next step to achieve challenges and objectives is to establish equal job opportunities and other urban activities especially for low-income communities. This can be done by improving main roads and the public transport system, which will contribute to income generation. After that, it is necessary to provide sufficient road networks for increasing demand. Figure 4.2.21 illustrates the development strategy mentioned above.



Source: JICA Study Team

Figure 4.2.21 Approach of Urban Transportation Master Plan

4.2.6 Environmental Protection and Green Network Development Strategy

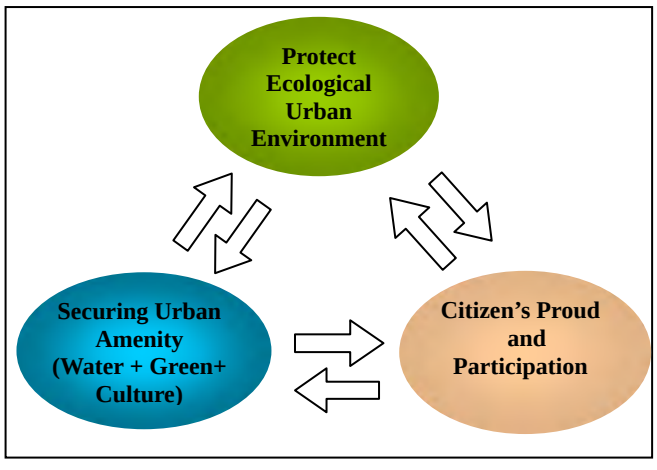
Green and open space are essential elements for Lusaka urban environment not only in terms of retaining natural environment to effectively mitigate global environmental issues (global warming with CO_2 emission) and realize healthy living, but also in terms of maintaining natural resources such as ground water and promote hazard protection.

In this context, the formulation of green and open space as an essential part of Lusaka urban environment protection needs to be considered. Especially, natural environment and green area and open space including recreation space will play a significant role for pollution mitigation, micro-climate control, town landscape formulation, buffer area for urban hazard and water recharging system.

(1) Goal of Urban Environment Protection and Green Network Development

The goals for urban environment protection is set as described in below, taking into account the roles and functions of natural environment and historical and cultural heritage succession toward the future. Its aim is to achieve livable and attractive urban environment of Lusaka in a sustainable manner.

- To achieve sustainable urban development taking into account ecological urban environment formulation and natural area protection
- To secure and encourage quality of life of citizens with attractive amenity such as rich green and attractive water front, recreation places, and protected historical cultural heritages
- To foster citizen's pride and participation for urban environment protection and their historical cultural heritages.



Source: JICA Study Team

Figure 4.2.22 Three Pillars for Urban Environment Protection

(2) Strategy for Urban Environment Protection and Green Network Development

Lusaka's urban development trends have brought significant pressure on natural environment and green areas including agricultural lands and other open spaces. This is observed by the decreasing areas of such land and spaces (agricultural land and utilized/agriculture-mix land decreased by 2% and 21% respectively from 1999 to present). As Lusaka still have remaining potential natural resources and rich green areas, strategic approach is required to achieve effective urban environment protection to maintain its image as "Garden City". In this context, strategies for urban environment protection need to be taken as follows.

(a) To provide urban environment protection and green management program in order to formulate strategic interventions for environmental protection

(b) To establish sustainable urban design in order to protect the destruction of natural reserve forest and damage of natural habitats and biodiversity

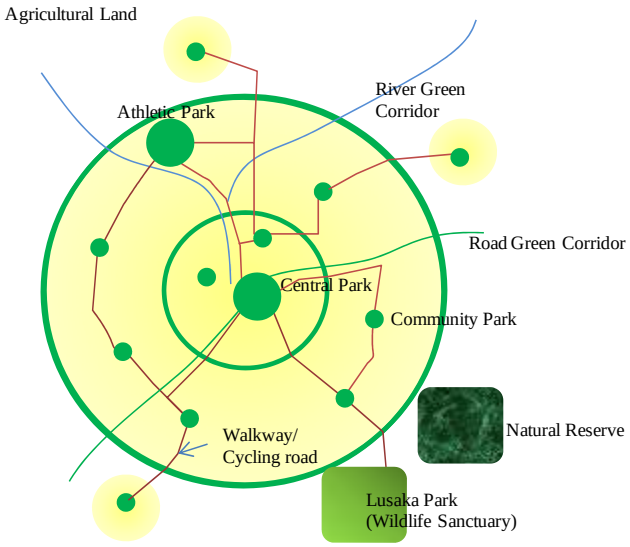
(c) To formulate "Green Belt zone" maintaining mainly agriculture land and other natural green spaces functioning as buffer for urban sprawl and environmental and recreational network

(c) To formulate spatial network for urban green environment (river green, street green, open space, and suburban agriculture belt) and recreational activities (park and walkway or cycling)

(d) To enforce coordination system for environmental protection among all relevant stakeholders (ministries, local government, agencies, communities, NGO, etc)

(e) To empower local communities' activities for environment improvement in participatory manner, especially for waste management and energy (charcoal) issues

Green network development concept is schematically shown below.



Source: JICA Study Team

Figure 4.2.23 Green Network Development Concept

4.2.7 Strategy for Living Environment Improvement

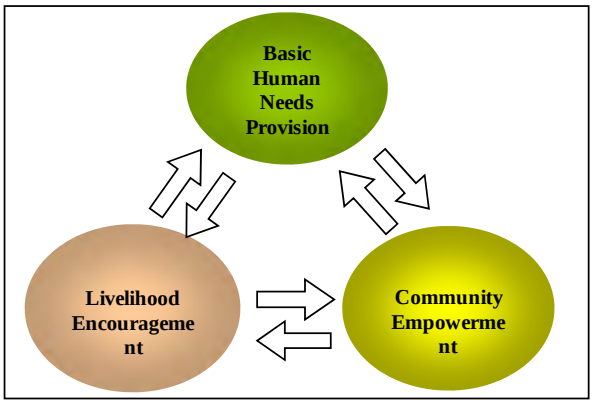
UUS in Lusaka is one of the essential issues for its urban improvement to be addressed

not only by current policy of urban development but also by certain target of urban development according to the national development Vision 2030. This aims at securing desirable living environment formulation as the capital city of Zambia.

(1) Goal of Improvement of Living Environment in UUS

Taking into account fundamental issues of UUS, where majority of living areas faces lack of infrastructure and urban service for securing basic human needs, the goals for improvement of UUS are set as follows.

- To improve essential living conditions to secure basic human needs (infrastructure, health, education) and basic rights (land tenure, job access) to all residents
- To encourage livelihood skills for the enhancement of people's living viability
- To upgrade quality of life of people living in the UUS area



Source: JICA Study Team

Figure 4.2.24 Three Pillars for Living Environment Improvement in UUS

(2) Improvement and Development Strategies for UUS

UUS including official (declared) and illegal UUS in Lusaka is around 70% of its total population, spreading mainly in its peri-urban area. It occupies a huge area of about 10% (45 km^2) of the City's total land area. As it is envisaged that worse living environment conditions in the UUS will not be immediately resolved, strategic approach is vital to alleviate current situation. In this context, strategies for living environment improvement in UUS can be taken as follows:

(a) Provide basic and common infrastructure in order to simultaneously achieve effective improvement of living conditions and income generation

(b) Secure land tenures for eligible residents to protect and encourage their living rights in combination with land consolidation or readjustment in principle

(c) Provide sufficient housing units through effective rent-to-own housing policy

(d) Empower local communities' activities to improve living environment through the participation of the respective beneficiaries

(e) Revive or enforce social housing scheme to for low income group in the UUS

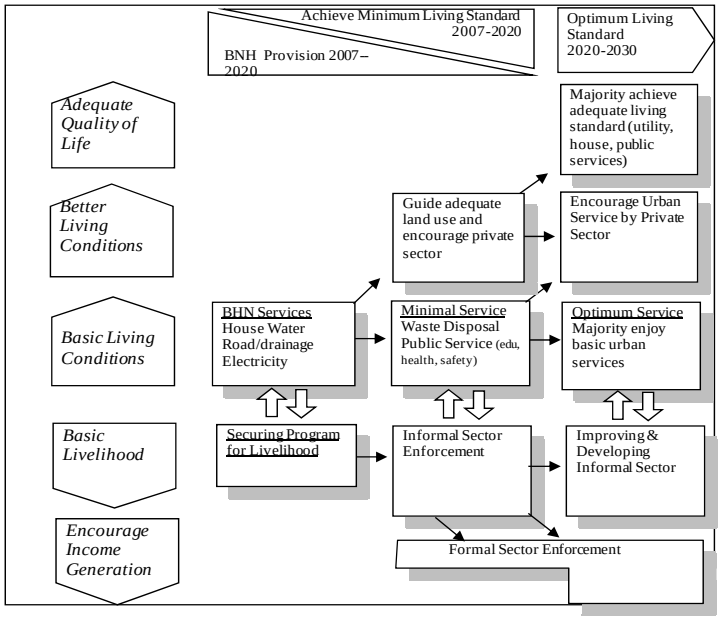
(f) Encourage governmental institutional supports (finance, fund, incentives, etc) for private sector involvement

(g) Establish land development mechanism especially for unplanned settlement areas

(h) Consolidate local plan for improvement of living environment through strategic implementation approach and integration of relevant measures

On the other hand, strategies need to be formulated for each phase, in consideration of the priority program, in order to gradually achieve goals towards year 2030. Figure

4.2.25 describes the improvement strategy for living environment improvement in UUS.



Source: JICA Study Team

Figure 4.2.25 Improvement Strategy for Living Environment in UUS

4.2.8 Social Service and Infrastructure Development Strategy

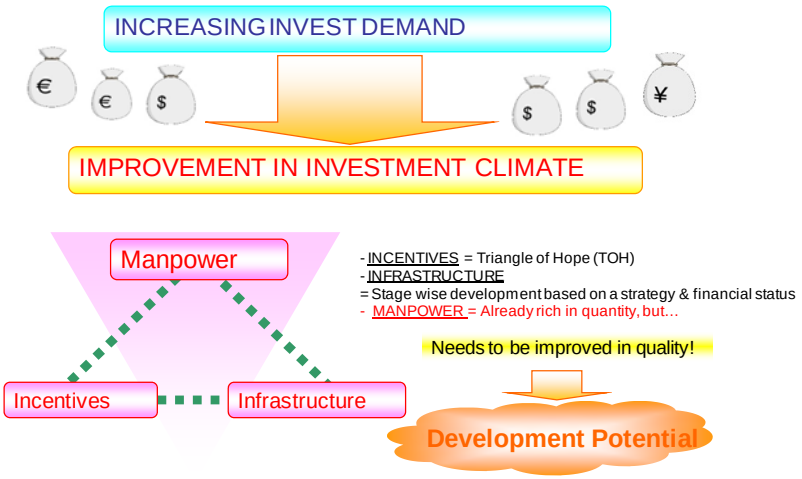
The rationale for improvement of social and utility services is that poverty eradication can only be achieved if and when the people are provided with basic human needs that are indispensable for their daily life.

(1) Social Service

1) Vocational Training institutions

According to the final report of 'Tracer Study of Technical Education, Vocational and Entrepreneurship Training (TEVET) Graduates and Proposal for the Institutionalization of a Tracer Monitoring System in Selected TEVET Institutions' published by Ministry of Science, Technology, and Vocational Training (MSTVT) in 2005, it was confirmed that there was minor difference in employers' evaluation between that determined for TEVET graduates and non-formally trained employees. According to the employers, TEVET graduates and non-formally trained employees rated excellent was 46.3% and 41.2%, respectively.

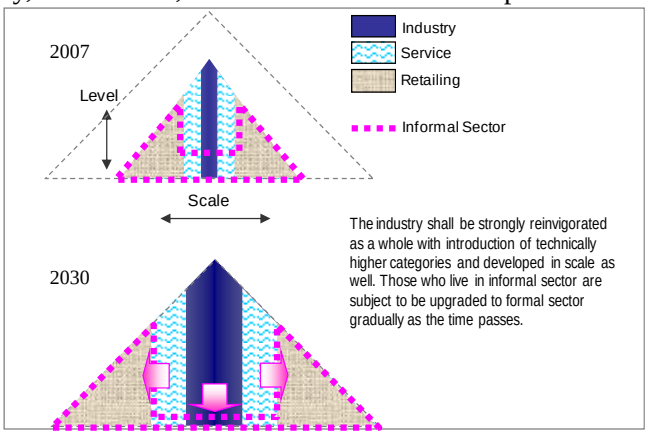
In the workshop held by the MLGH, LCC, and the JST in February, 2008, it was found that there was discrepancy between demand and supply concerning vocational training. It was realized that there are too few training institutions that could people with more quality skills, which is supposed to satisfy investors' requirements of skilled labor force.



Source: JICA Study Team

Figure 4.2.26 Investment Demand and Current Situation of Zambia

The three elements namely, incentives, infrastructure and manpower are indispensable for investors. Among these three, legal incentives are now being enhanced by GRZ through the "Triangle of Hope" Initiative. Infrastructure is to be developed systematically. The last element, manpower, although could easily be achieved, still presently remains deficient to realize positive impacts.



Source: JICA Study Team

Figure 4.2.27 Strategy for Formalizing the Informal Sector toward the Future

Figure 4.2.27 is a conceptual chart that represents the strategy for formalizing the future of those who live in the informal sector. The industry shall be generally strengthened with the introduction of higher technical categories, related to services and retailing will not seem difficult for the supporting sectors. Consequently, those who live in the informal sector will soon be promoted to formal sector.

Considering "Vision 2003", GRZ aims to gain USD 1,639 in the preferred scenario of GDP per capita in 2030 as a middle income nation, which is five times more than the current situation. It is apparent that income from informal sector does not at all contribute to achieve the goal. Thus, the gap between current income level and the target level in 2030 needs to be filled with an increase in formal sector employment opportunity. Accordingly, it is indispensable to improve skills of people in the informal sector to satisfy the high demands in the formal sector. Vocational institutions are supposed to support developing basic skills of ordinary people, which would assure access to more job opportunities.

In this context, it is important that the quality of the training should be improved in both short and long terms.

2) Education

Table 4.2.15 shows the average number of students per classroom in Lusaka Province in basic and secondary (high) schools. Basic school classroom and a secondary school classroom accommodate 76.0 and 54.5 students, respectively.

These numbers of students per classroom are to large to facilitate quality education. This seems to be more serious for secondary schools which are implementing two-shift system just to enable students to complete the prescribed curriculum. In this context, setting-up more classrooms in secondary schools is the top priority in the short term.

Table 4.2.15 Number of Students per Classroom in Lusaka Province (2005)

	Grade 1-9 (Basic School)	Grade 10-12 (Secondary School)
Enrolment	332,007	28,886
Num. of classrooms	4,369	530
Num. of Students per classroom	76.0	54.5

Source: 2005 Educational Statistical Bulletin (MOE)

As of end of 2007, there are eight education zones, and 99 basic schools in Lusaka City. However, not all basic schools provide complete primary levels. According to Lusaka District Education Board (LDEB), all the 99 basic schools shall be upgraded to full basic schools which will provide Grade 1 to Grade 9 classes.

Notwithstanding, it is necessary to construct more secondary schools as well as basic schools in the long term. Improvement in educational quality including availability of qualified teachers, introduction of practical lessons, enhancement of gender equity, etc. are also important to consider for the long-term basis.

3) Health

The current service level and the distribution of medical facilities in Zambia are as shown in Table 4.2.16.

Table 4.2.16 Healthcare Providers and their Service Level

	Healthcare Provider	Service Level
1	3rd Level Referral Hospitals (National Level)	Catchment population: 800,000 people or above Services: internal medicine, surgery, pediatrics, obstetrics, gynecology, intensive care, psychiatry, training and research. Act as referral centre for 2nd level hospitals. Note: Currently there are five facilities in the country, of which three are in the Copper belt Province. There is a need to rationalize the distribution of these facilities.
2	2nd Level Referral Hospitals (Provincial Level)	Catchment population: 200,000 to 800,000 people Services: internal medicine, general surgery, pediatrics, obstetrics and gynecology, dental, psychiatry and intensive care services. Act as referral centers for the 1st level institutions, including the provision of technical back-up and training functions. Note: Currently there are 19 second level hospitals. Two provinces, namely Southern and Copper belt, have five and three second level hospitals, respectively. There is need to rationalize the distribution of these facilities through right-sizing.
3	1st Level Referral Hospitals (District Level)	Catchment population: 80,000 to 200,000 people Services: medical, surgical, obstetric and diagnostic services, including all clinical services to support health centre referrals. Note: These are found in most of the 72 districts. Currently, there are 74 1st Level Referral Hospitals.
4	Health Centers	Catchment population: 30,000 to 50,000 people (Urban Area) Note: The target is 1,385, but currently there are only a total of 1,210 health canters (237 Urban, 973 Rural).
5	Health Posts	Catchment population: 1,000 households (7,000 people) (Urban Area) Note: The target is to have 3,000 health posts, but currently, only 20 have been commissioned.

Source: National Health Strategic Plan 2006-2010, Ministry of Health

Lusaka City has only one general hospital (University Teaching Hospital) as of

2008, which does not meet the catchment population criteria presented in Table 4.2.15. Therefore, it is necessary to upgrade in a phased manner the four health centers Matero, Chelstone, Kanyama, and Chilenje into 1st level referral hospitals, which is part of the vision of Lusaka District Health Management Team (LDHMT). The said management team is particularly looking at expanding Kanyama West Health Post due to the high population density and high service demand.

As described in Chapter 3, there are no health centers in nine out of the 33 wards in Lusaka City. Actually, the result of the social survey shows that there is a great need in providing additional clinics in the wards. The criteria in Table 4.2.15 justify this need in terms of catchment population. Accordingly, one ward shall have at least one health center.

The abovementioned components will be the top priority of the health sector in the short and middle-term basis. An appropriate number of medical facilities shall be constructed and adequately operated in the long run.

4) Sanitation

Solid Waste

As only 15% of the solid waste generated in Lusaka City was collected as of 2003, the current solid waste collection system described in 3.3.4 shall be enhanced. However, in some UUS, CBEs are confronted with difficulties that most of the community residents are reluctant to pay collection fees. This problem could be often attributed to people's indifference. In this context, public awareness campaign and sensitization activities should be strengthened to improve the current situation. In line with this, capacity development for CBEs for operation and maintenance is also required to provide a more efficient system and sustainable management.

Sewerage

Rehabilitation of existing system and some expansion is required to improve the current condition, which does not meet the effluent water quality standards. However, there are some area where installed sewer collection pipeline is insufficient and not be treated by the public treatment plant. In these areas, on-site treatment system is necessary to be introduced, such as Ventilated Improved Pit-latrines (VIP), septic tank and community treatment plant (for 100 to 1,000 capita).

Lack of LWSC fund for construction, operation and maintenance of sewerage system, due to low income from sewerage sector service should be discussed in the comprehensive sewerage and drainage master plan.

5) Power and Water Supplies

Power Supply

Charcoal utilized for cooking and room heating in households should be substituted gradually by other energy resources in consideration of the deforestation problem.

Electricity and bio fuel energy will be the alternative prospect in Lusaka. Hydro origin power generation in Zambia will also be an advantageous energy resource for household use. Moreover, bio fuel based on sugar cane and/or Jatropha will be another alternative resource.

Water Supply

Water resource development should be strategically carried out. For instance, groundwater which costs lower for development and operation shall be prioritized for UUS residential areas and for the agriculture industry in the suburban area.

Kafue river water capacity was confirmed sufficient to cover Lusaka City water demands of 2030. Additional water rights for LWSC are necessary to be acquired soon. However, UFW ratio should be improved in advance before development of new water works.

6) Drainage

Flood problems that occurred and have seriously affected the UUS areas should be addressed immediately through provision of urgent measures such as introduction of mobile pumping stations and rehabilitation of existing drainage facilities.

To fundamentally grasp the inundation problems of the City, formulation of master plan for flood control is required, including sufficient topographic and inventory surveys.

(2) Infrastructure

1) Sanitation

Solid Waste

To improve the major solid waste problems in the UUS, capacity building for the CBEs is necessary to be conducted. The capacity building shall be based on the working group form by; i) listing up current CBEs management methods for garbage collection, garbage storage and billing systems, ii) evaluate and benchmark successful methods, and iii) execute consultation among the CBEs. WMU is required to facilitate this working group to build self-improvement consciousness among CBEs.

Final treatment site (sanitary landfill) will be gradually developed by LCC based on the demand.

Sewerage

Public wastewater treatment plant will be rehabilitated and expanded based on the available land area. Detailed development plan is subsequently described in Chapter 6.

Capacity and location of the treatment plants will realistically limit the service coverage area. For areas outside the target area, on-site treatment facilities will be introduced together with the provision of public sanitary education. For newly developed areas, such as real estates and housing in the flat terrains, on-site treatment system will be the responsibility of the developer.

2) Power and Water Supplies

Power Supply

According to “National Energy Policy, May 2008 (Ministry of Energy and Water Development)”, biomass energy, wood fuel in particular, significantly contributes to Zambia’s total energy consumption. However, other biomass energy sources such as bio-fuels are being promoted to take up a larger part in the nation’s energy mix. The utilization of bio-fuels is now recognized as a viable option to meet some of the country’s energy requirements, considering the disruptions in petroleum supply which are often experienced in the international market. Solar energy is now being tested and introduced at public facilities and ordinary households in the country.

In conformity with the current policy for energy and “Vision 2030” that articulates national sector goals and targets, including for the energy sector, renewable energy resources described in Table 4.2.17 are to be encouraged among ordinary households in Lusaka City.

Table 4.2.17 Availability and Utilization of Renewable Source in Zambia

	Renewable Energy Source	Opportunities/Use	Resource Availability	Potential Energy Output
1	Solar	Thermal (water heating), Electricity (water pumping, lighting, refrigeration)	6-8 sunshine hours per day	5.5 kWh/m^2/day (modest potential especially for limited irrigation)
2	Biomass (for household energy)	Improved charcoal production, Improved biomass stove	Sawmill wastes and indigenous trees from sustainable forest management	Reasonably extensive
3	Biomass (extraction, processing for transport)	Ethanol for blending with gasoline to replace lead as octane enhancer Biodiesel as a blend or in stationary engines	Sugarcane, Sweet sorghum, Jatropha	Requires elaboration and quantification

Source: National Energy Policy, May 2008 (Ministry of Energy and Water Development)

In the short term, which is toward 2015, energy conservation and substitution at the household level shall be promoted through the following:

- Provision of incentives to encourage energy conservation and substitution;

- Encouraging efficient end-use technologies and household energy practices; and

- Encouraging the use of renewable energy to meet some household energy needs

Water Supply

Water supply will be mainly supplied by LWSC. However, considering their current capability and conditions, the household area that can be directly supplied by the pipeline is limited. Isolated area will be supplied with a satellite system which has own borehole for water resource. The detailed development plan is described in Chapter 2 of Volume II.

In line with the system development by LWSC, it is also necessary to promote water saving methods to maximize the utilization of the limited natural resource.

3) Drainage

Due to lack of sufficient current drainage facility and accurate inundation information, no fundamental measure can be initiated. While conducting necessary survey and preparing the plan, rehabilitation works of existing drainage facilities shall be executed simultaneously.

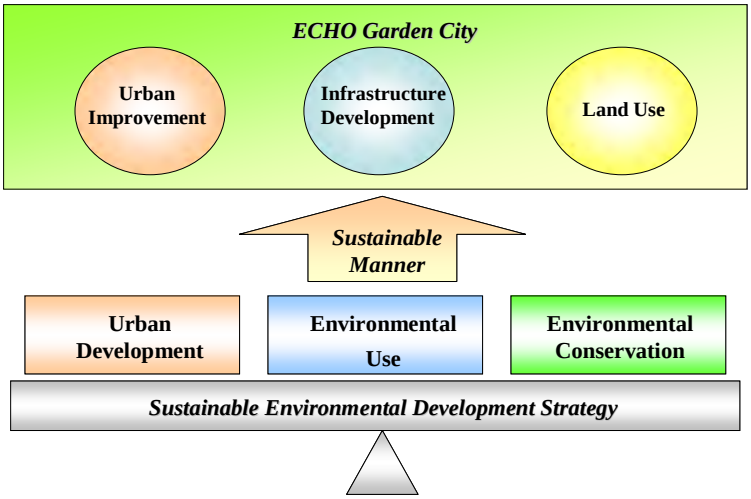
The major public drainage facilities shall be rehabilitated by LCC, and residential facilities shall be rehabilitated through community's own efforts. Moreover, as a part of sanitary education, illegal dumping which is blocking the drain flow shall also be improved.

4.3 Sustainable Environmental Development Strategy

4.3.1 Sustainable Environmental Development Strategy

The sustainable environmental development strategy is proposed in order to strike the balance amongst environmental conservation, environmental use and urban development to realize the ECHO Garden City, which concept is shown in Figure 4.3.1.

The ultimate target of the Sustainable Environmental Development Strategy is to achieve the ECHO Garden City, which is a society with abundant greenery and biodiversity, ultralow pollution and low carbon. In this section, the Sustainable Environment Strategy focusing on land use, urban improvement and infrastructure development is proposed.



Source: JICA Study Team

Figure 4.3.1 Concept of the Sustainable Environmental Development Strategy

4.3.2 Current Challenges for Sustainable Environmental Development of the City of Lusaka

Based on environmental, social and economic impacts identified in the SEA process described in Section 4.2.4, environmental challenges of the City were identified by reviewing the Environmental Outlook Report for Lusaka City, the JST's Community Profile Survey and comments from the C/P and relevant stakeholders during regular meetings and stakeholder meetings. Identified environmental challenges are as shown in Table 4.3.1.

Table 4.3.1 Current Challenges for Sustainable Environmental Development

Natural Resources Conservation	Natural Disasters	Urban Environmental Improvement
1. Inadequate water supply & water cut during the dry season 2. Forest degradation by charcoal production and use 3. Land degradation/ erosion caused by inappropriate land use such as illegal quarrying	1. Inundation during the rain season	1. Increase in the number of vehicles and air pollution 2. Inadequate waste management infrastructure and recycling facilities

Source: JICA Study Team

To tackle identified environmental challenges in the City, countermeasures in the short, medium and long-term are formed as shown in Table 4.3.2.

Table 4.3.2 Countermeasures for Identified Environmental Challenges

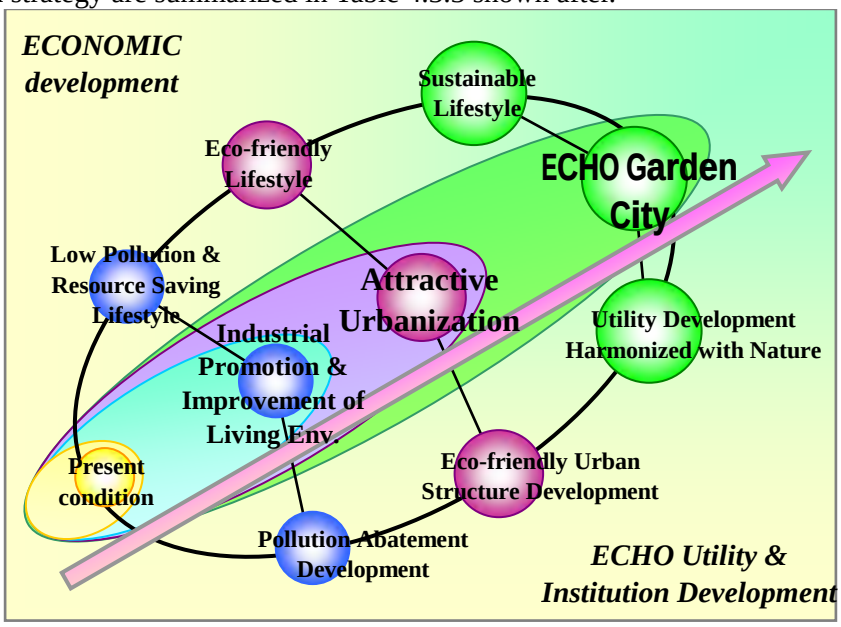
Identified Challenges	Countermeasures	Expected Target Phase
Inadequate water supply and water cut during the dry season	- As described in Section 4.2.8, water supply needs to be developed and shifted from groundwater use to surface water use in order to conserve groundwater in the City	- Long-term
	Water saving practices shall be introduced and suggested to: - Residents: through environmental educational programmes - Private entities: by economic incentives such as Cleaner Production promotion	 - Short-term - Medium/long-term
Air pollution caused by increased vehicles	- As described in Section 4.2.4, creation of buffer zones of the Green Belt as part of greenery of the City - Further implementation of the air pollution regulation	- Long-term - Short-term

Identified Challenges	Countermeasures	Expected Target Phase
	enforcement for vehicles currently planned by the ECZ	
Forest degradation by charcoal production and use	- As described in Section 4.2.2 & 4.2.8, forest conservation by adopting alternative energy sources at the appropriate technology level, such as solar energy and biogas - Further promotion of economic incentives for community forest conservation to prevent encroachment by local residents (e.g. community-based beekeeping currently assisted by MoTENR - Continuous environmental educational programmes to raise awareness of citizens on environmentally important role of the forests to local residents	- Medium/long-term - Short-term - Short term
Land degradation/ erosion caused by inappropriate land use such as illegal quarrying	- As described in Section 4.2.4, effective land use control with greater enforcement is necessary to prevent from illegal quarrying and land degradation	- Short-term
Recent inundation during the rain season which is considered due to global warming	- Shift to a low carbon society to mitigate the impacts of global warming in the long run - Shift to energy saving technologies and appliances - Shift to appropriate renewable energy	- Long-term - Short-term - Medium-term
Inadequate waste management infrastructure and recycling facilities	- Shift to a sound material-cycle society to reduce waste mainly by environmental educational programmes to promote 3Rs, namely reduce, reuse and recycle materials - As described in Section 4.2.8, improvement of existing community-based waste collection system to prevent illegal and indiscriminately dumping. - Development of recycling system including establishment of provisions on waste segregation at source to fostering/promotion of recycling business	- Long-term - Short/medium-term - Short/medium/long term

Source: JICA Study Team

4.3.3 Concept of Sustainable Environmental Strategy

The strategy initially focuses on industrial development considering pollution abatement in the short-term and gradually shifts to sustainable development of the ECHO Garden City as the Comprehensive Urban Development Plan targets. The direction of strategy is shown in Figure 4.3.2, and potential actions to achieve the phased strategy are summarized in Table 4.3.3 shown after.



Source: JICA Study Team

Figure 4.3.2 Proposed Conceptual Sustainable Environmental Strategy

4.3.4 Sustainable Environmental Strategy by Year 2015

The short-term target of the strategy is to achieve industrial promotion and improvement of living environment since at this stage the City needs to focus on industrial development to expand the income of citizens as well as the tax revenues for further development. To achieve industrial development in an environmental friendly and efficient manner, a low pollution and resource saving lifestyle as well as pollution abatement development needs to be introduced.

Potential actions for citizens to achieve the strategy include i) further use of energy saving technologies and appliances, ii) an introduction of domestic water saving measures, and iii) an adoption of waste reduction measures at home as shown in Table 4.3.3. Additionally, the potential actions by the government include i) resource conservation measures such as surface water development and community-based resource management, ii) a vehicle emission regulation as an air quality regulation, iii) land use control enforcement to prevent illegal use of natural resources, iv) implementation of environmental education programmes, and v) an enforcement of overall pollution control regulations for industries. Examples of the actions are shown in Table 4.3.3.

Energy Saving Light Bulb

Community-based Beekeeping

4.3.5 Sustainable Environmental Strategy by Year 2020

As the mid-term target strategy, attractive urbanization is proposed. At this stage, the City needs to go beyond industrialization and provide more environmental friendly and attractive urban utilities for citizens to better their living. For its achievement, an introduction of eco-friendly lifestyle and eco-friendly urban structure development are required such as use of alternative energy (e.g. small scale solar energy and biogas), an introduction of sewer system/septic tanks to abate ground water pollution instead of pit latrines, promotion of Cleaner Production to provide environmental and economic incentives to industries, and development of self sustainable satellite cities to save energy consumption for residents for commuting and shopping as shown in Table 4.3.3.

Bio fuel Plant

Small Scale Solar Panel Use

4.3.6 Sustainable Environmental Strategy by Year 2030

The target for the long-term strategy is to achieve the ECHO garden city. Hence, introduction of sustainable lifestyle and comfortable utility development which is harmonized with nature is proposed. Since this is the ultimate vision of the Comprehensive Urban Development Master Plan Study, an environmentally and

socially prosperous city needs to be realized at this stage. Therefore, the City shall not only mitigate pollutions and provide necessary urban amenities but also develop the lifestyle and comfortable city, making the citizens proud of the green capital city. Potential actions to achieve the target are shown in Table 4.3.3. They include daily practice of 3Rs namely "reduce, reuse and recycle", environmental awareness raising activities, consumption of healthy/eco-friendly products, reduction in water-borne diseases, provision of sufficient green/water front, parks and recreation facilities, and flood/inundation free facilities.

By integrating the abovementioned conceptual environmental strategy with the development strategy of the study, sustainable development of the ECHO garden city will be achieved in the long run.

Green Network (1) Green/Water Front

Green Network (2) Road Planting

3Rs: Eco-shopping Bag

Park and Recreation Facilities (1)

Park and Recreation Facilities (2)

Table 4.3.3 Potential Actions for the Sustainable Environmental Strategy by Phase

Dev. Phase / Category	Year 2015: Industrial Promotion & Improvement of Living Environment	Year 2020: Attractive Urbanization	Year 2030: ECHO Garden City
Lifestyle: Actions by Citizens	**Low Pollution and Resource Saving Lifestyle** **1. Use of Energy Saving Technologies and Appliances** - Further use of compact fluorescent bulbs instead of energy-intensive incandescent bulbs - Set a geyser, heater and air conditioner at an appropriate and lower temperature and turn off it when unused - Use insulting materials and seal up cracks to prevent heat escape **2. Water Saving Measure** -Rainwater collection and simple treatment system for domestic use **3. Waste Reduction Measure** - Recycle garbage by small-scale composting for home garden	**Eco-friendly Lifestyle** **1. Alternative Energy Use** - Introduction of biogas of cow's excrement and bagasse, and expansion of small scale solar energy use to reduce electricity/charcoal use and to conserve forests **2. Pollution Free Lifestyle** - Introduction of septic tanks	**Sustainable Lifestyle** **1. Low Carbon Society** - Further use of mass transportation (e.g. railways) - Further use of energy saving high-tech products and appliances (e.g. hybrid vehicles and natural gas vehicles) **2. Sound Material Cycle Society** - Daily practice of 3Rs - Reduce, Reuse & Recycle materials (e.g. avoidance of consumption-intensive lifestyle, waste segregation for material recycling & avoidance of single use products) **3. Society in Harmonized with Nature** - Outdoor leisure/ecotourism to enjoy nature - Active participation in env. education activities - Purchase of eco-friendly products (e.g. local produced products, chemical fertilizer/pesticide reduced products and organic farm products)
Utility/ Institution: Actions by the Gov.	**Pollution Abatement Development** **1. Resource Conservation** – Development of surface water instead of groundwater to secure both water quantity and water quality - Further promotion of community base forest conservation to give economical incentive to local resident to conserve forests (e.g. community based honey production in local forests) **2. Air Quality Regulation** - Enforcement of planned air pollution control for vehicle emission gases **3. Enforcement of Land Use Control** - Regulating illegal land use (e.g. illegal quarrying and illegal waste dumping) **4. Environmental Education Programmes** - Provision of environmental campaigns on water use, electricity use, recycling household garbage for composting **5. Strengthened Enforcement of Pollution Control Regulations for Industries** – Environmental monitoring for industries shall be strengthened	**Eco-friendly Urban Development** **1. Environmentally & Economically Beneficial Production** –Promotion of Cleaner Production for industries to achieve environmental and economical efficiency **2. Less Energy Intensive Cities** - Development of self sustainable satellite cities which require less energy consumption	**Utility Development Harmonized with Nature** **1. Further Resource Conservation** - Shift to surface water use from ground water use by regulations on industrial use to secure groundwater quantity and quality - Recycling system shall be introduced to reduce industrial and household waste of the City and save the capacity of the dumping site **2. Green Network Development** - Urban heat free by development of sufficient green/water shade and roof top greenery - Development of neighbourhood parks and recreation facilities - Landscape formulation **3. Drainage Network for Inundation Free City** - Drainage network construction **4. Introduction of Mass Transportation for Low Carbon Society** - Development of a modern railway system

Source: JICA Study Team

CHAPTER-5

URBAN DEVELOPMENT PLAN FOR

GREATER LUSAKA

CHAPTER-5 URBAN DEVELOPMENT PLAN FOR GREATER LUSAKA

5.1 Population and Economic Base in Greater Lusaka

(1) Spatial Development Principles and Setting Target Population

Population framework for Greater Lusaka is set through examination and adjustments based on spatial development principles of selected population increase scenarios. In the course of the study, two scenarios of population framework were set in the previous section as ideal range of future population. Said range was between Scenario I (3.2 million) and Scenario II (2.6 million). Satellite City concept in combination with Lusaka City for Greater Lusaka area was also directed during the stakeholders' workshop as an appropriate spatial development strategy.

In this context, Greater Lusaka needs to optimize population and employment growth in order to satisfy the economic activities, land resources, infrastructure and community facilities. The following are key considerations for setting appropriate size of future population in Greater Lusaka area.

Economic Development

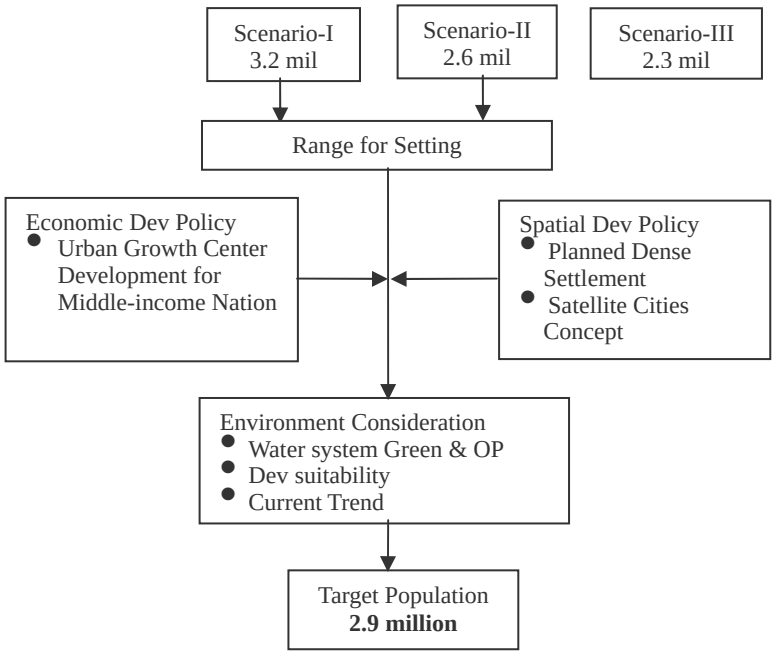
- Lusaka as the capital of Zambia and a key city of urban growth centers has a great role in coping with alternative economic development apart from mining industry. This aims to achieve Nation's vision of "middle income country toward 2030" with certain level of economic population.

Spatial Development

- Greater Lusaka needs to integrate and organize current urban sprawl spreading to adjacent districts (Kafue, Chongwe and Chibombo), with effective infrastructure provision through satellite city development.
- Lusaka where slow pace development in suburban areas is observed including inadequate infrastructure needs to reform urbanization. It needs to undertake a more aggressive development in order to achieve effective infrastructure services, environmentally friendly urban environment minimizing energy cost and transportation emissions.

Sustainable Environment Formulation

- Land availability in suburban areas where agriculture land spreads in flat lands as suitable for future urbanization would allow certain level of urban development through preferred aggressive progress coping with population increase.
- Appropriate water resource development is necessary as Lusaka City is already facing problems on insufficient ground water system. Hence, it is required inevitably to maximize surface water utilization from Kafue River, considering it as a potential water resource for future population and economic activities of Greater Lusaka area.



Source: JICA Study Team

Figure 5.1.1 Flowchart for Target Population Setting Process for Greater Lusaka Area

(2) Population Target for Greater Lusaka Area

A population of 2.9 million is targeted for the year 2030 in Greater Lusaka area. On the same target year, Lusaka City and its adjacent districts would have a population of 2.5 million and 0.4 million, respectively.

Table 5.1.1 Population Target for Greater Lusaka Area

District		2007*	2015	2020	2030	AAGR *
Lusaka		1,385,165	1,740,000	1,920,000	2,480,000	2.6%
Lusaka Adjacent Area	Kafue	34,031	60,000	100,000	190,000	7.8%
	Chongwe	21,353	40,000	100,000	160,000	9.2%
	Chibombo	13,690	30,000	30,000	70,000	7.6%
	sub-total	69,075	130,000	230,000	420,000	8.2%
Total (Greater Lusaka)		1,454,240	1,870,000	2,150,000	2,900,000	3.1%

Note: JICA Study Team estimates population in 2007, AAGR: Annual Average Growth Ratio (2007-2030).
Source: JICA Study Team

(3) Employment Target for Greater Lusaka

Target employment based on the economic development framework in the previous section is set and distributed to four districts. This distribution is estimated based on the result of traffic demand analysis obtained from Household Interview Survey (Person Trip Survey: JICA Study team), which is performed to calibrate proportion of employees in accordance with the working place and origin.

Target employment in Greater Lusaka could reach up to 1.1 million in 2030, including both the formal and informal sectors. Lusaka City and its three adjacent districts meanwhile could generate 890 thousand (80% of total) and 236 thousand employment opportunities respectively, during the same target year.

Table 5.1.2 Employment Target for Greater Lusaka Area

District		2007*	2015	2020	2030	AAGR* '07-'30
Lusaka		377,634	541,000	674,000	891,000	3.8%
Lusaka Adjacent Area	Kafue	7,306	15,900	27,600	81,600	11.1%
	Chongwe	6,892	20,400	38,700	113,000	12.9%
	Chibombo	2,416	7,700	14,700	40,400	13.0%
	sub-total	16,615	44,000	81,000	235,000	12.2%
Total (Greater Lusaka)		394,248	585,000	755,000	1,126,000	4.7%

Note: JICA Study Team estimates population in 2007, AAGR: Annual Average Growth Ratio.
Source: JICA Study Team

5.2 Spatial Distribution of Target Framework in Greater Lusaka

5.2.1 Principles for Target Population Distribution

Population distribution following the urban structure concept formulation for "Lusaka and Satellite Cities Development" is set carefully according to the following principles taking into account essential issues of dense quarters (UUS). These were caused by illegal settlement in urban fringes, penetrating adjacent districts and current large scale urban development in both of Lusaka City, Chongwe and Kafue districts.

- Gradual densification of urban settlement

  Population distribution in Greater Lusaka is applied by gradual densification according to types of land use corresponding to degree of concentration of socio-economic activities. This includes high dense development of commercial and business use in urban centers and low dense development in rural area.

- Certain level of densification for effective services of public facilities

  Dense settlement development will contribute to global environment issues to mitigate unnecessary emission caused by urban activities in terms of mobility to access destinations based on certain level of density (e.g. EU shows guideline of target urban density of 150 population per hectare to satisfy feasible mass transit system).

- Improvement of UUS as a high-density area

  UUS which cover highest population density areas in Lusaka have lack of necessary infrastructures, urban services and uncertain land tenure. Majority of its population (55%) requires adequate improvement on settlement based on density suitable to accommodate existing moderate growth of population.

- Adequate planned and organized settlement against urban sprawl of current urban expansion areas

  Greater Lusaka, where several large land developments have been implemented even beyond Lusaka City with the establishment of residential subdivisions intended for commuters, needs to manage and control parts of its area. This shall be executed through planned and organized urbanization with adequate growth control as basis for population distribution against current large urban sprawl.

- Corridor development

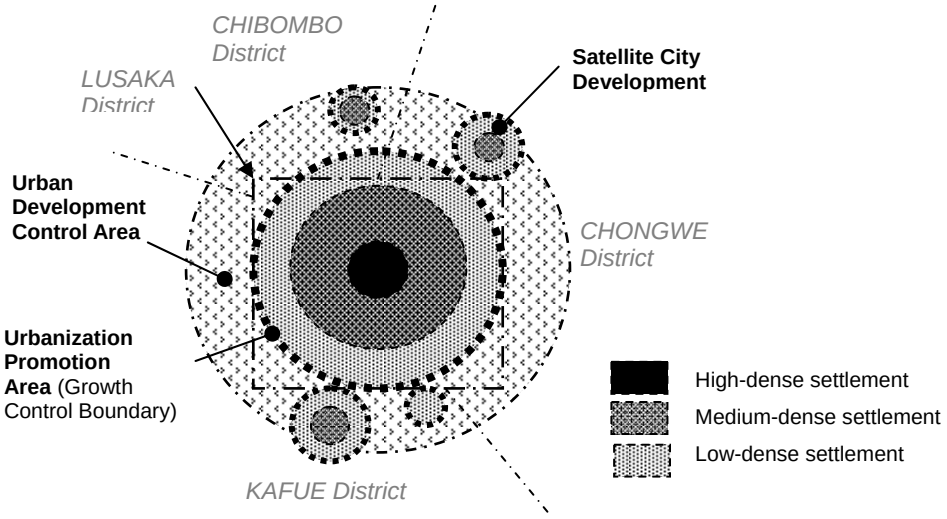
  Greater Lusaka which consists of the regional corridors Greater North, Greater East and Kafue roads needs to develop the areas along said corridors to promote urban economic activities according to a well-organized plan.

- Retaining natural and rural environmental areas to be protected

Greater Lusaka area is known to be subjected to a vulnerable environment related to ground water system and natural hazard issues. Hence, it requires maintaining and maximizing natural environmental areas such as its forest, Miombo, which is at riverside, and one of the underdeveloped green areas.

- Compact and sustainable cities formulation for Satellite Cities

  New development for satellite cities of Kafue, Chongwe and Chibombo are faced with big challenges in achieving planned and organized urban development. Coping with these challenges are necessary to ensure efficient development with adequate density settlement.



Source: JICA Study Team

Figure 5.2.1 Flowchart for Target Population Setting Process for Greater Lusaka Area

5.2.2 Population Distribution of Target Framework

(1) Population Distribution in Greater Lusaka by Urban Cluster

1) Urban Cluster Formulation

Target population of 2.9 million is distributed by urban cluster into Lusaka City and its adjacent districts Kafue, Chongwe and Chibombo. Urban clusters are formulated according to their types of development taking into account land use, current settlement density and urban development trend.

Table 5.2.1 and Figure 5.2.2 show urban clusters defined by the JST and taking into account existing conditions of population, land use and urban development trend.

Cluster of urban sub-core covering major industrial area and old residential development areas of Mulobera, Matero, Chaisa, Chaisa, Garden and other areas have the highest population (296,000). This is followed by Central East urban cluster (278,000 population) which include new urbanized areas such as Avondale, Woodland, Mtendere and large scale institutions such as Zambia University and Chainama Hills Mental Hospital. Residential density in this cluster is the highest among clusters, with a rate of 75 population/ha (gross) which also includes several high dense Wards such as Justin Kabue and Nguwerere.

Urban core cluster has the smallest populated area which mostly includes major commercial and business establishments in Greater Lusaka. Although it used to be part of the residential areas, its conversion has been influenced by members of business and commercial sectors. Currently, this area is currently combined with remaining residences with high dense settlement of 34 population/ha over the total average of 33 population /ha. Apart from Lusaka City, south urban cluster in Chilanga, Kafue

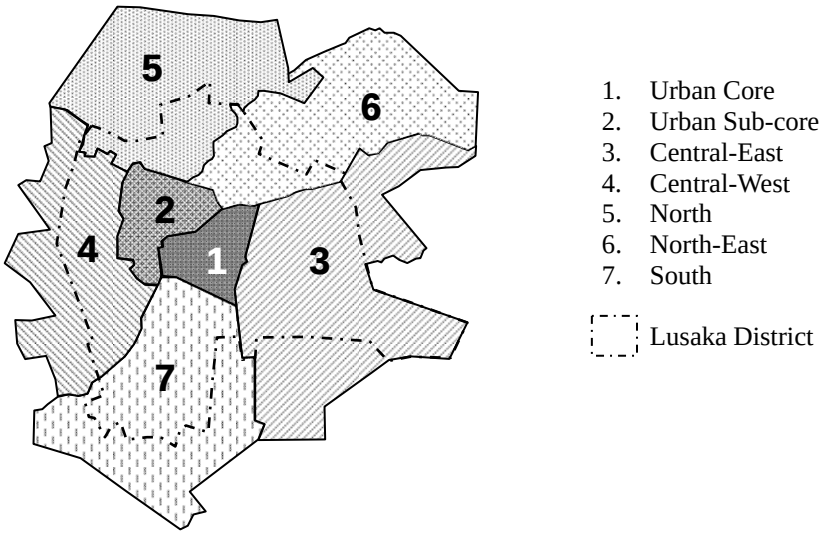
district is the most populated area, among those in the other districts Chongwe and Chibombo.

Table 5.2.1 Existing Population 2007 by Urban Cluster in Greater Lusaka

Urban Cluster	Area (ha)			Population 2007*			Density (pop/ha)	
	Lusaka	Others*	Total	Lusaka	Others*	Total	Lusaka	Others
1.Urban Core	3,312	--	--	111,620	--	--	34	--
2.Urban Sub-core	3,953	--	--	296,444	--	--	75	--
3.Central-East	12,570	9,682	22,253	237,737	7,640	245,377	19	0.8
4.Central-West	6,862	6,523	13,385	278,334	13,956	292,290	41	2.1
5.North	3,753	11,780	15,533	114,804	18,683	133,487	31	1.6
6.North-East	3,602	10,637	14,239	114,787	9,128	123,915	32	0.9
7.South	8,277	9,094	17,370	231,439	19,669	251,108	28	2.2
Total	42,328	47,717	90,045	1,385,165	69,075	1,454,240	33	1.4

Note: JICA Study Team estimates population in 2007 and areas are calculated by GIS. Others are area belongs to three Districts of Kafue, Chongwe and Chibombo covered by Greater Lusaka.

Source: JICA Study Team



Source: JICA Study Team

Figure 5.2.2 Urban Clusters for Target Framework Distribution in Greater Lusaka Area

Directions for future development are illustrated in Table 5.2.2 taking into account land availability and development potential in the future, according to existing conditions of each urban cluster.

Table 5.2.2 Development Direction by Urban Cluster in Lusaka District

Urban Cluster	Character and Trend	Development Direction
1.Urban Core	• CBD of Lusaka Capital • Many conversion from residential to commercial business	• More effective and dense development • Strengthening urban function
2.Urban Sub-core	• Economic areas by industry & trade • High dense residential area	• Redevelopment of industry area • Efficient use of land by high dense
3.Central-East	• Development along Leopard Hill road and Greater East Road • There are large small holding farmer's areas apt to urbanize soon	• Planned MFEZ development close to this Cluster in Kafue District needs urban service and population for employment • Agriculture area with small holdings needs to be developed to accommodate future population increase • Protection of natural environment in hills or mountains forest as water recharge area
4.Central-West	• Major industrial area in Greater Lusaka	• Unsuitable land for living area need to develop

Urban Cluster	Character and Trend	Development Direction
	• Churlish lands spread largely where some industrial developments have started in further western side of Lusaka	other type of use development • Industrial areas proximity to CBD need to be relocated to suburban areas apart from city center
5.North	• Illegal settlement has spread toward north without adequate infrastructure • There area nuisance facilities of a sewerage treatment plant and a waste disposal site close to the boundary of Lusaka City	• Guiding adequate urbanization with desirable infrastructure and urban services • Natural environment protection in hills or mountains in this cluster
6.North-East	• There are many residential subdivisions along Greater East road including some UUS close to boundary of Lusaka District	• Infill type of residential development • Densifying urban settlement along Greater East road
7.South	• Major urban sprawls have happened toward southern part of Lusaka • Large commercial farms are spreading along Kafue road and railway	• Major development potential area for appropriate urbanization in future • Minimize urban development while green areas will be protected and conserved

Source: JICA Study Team

Table 5.2.3 Development Direction in Adjacent Areas of Three Districts of Chongwe, Kafue and Chibombo

Urban Cluster	Character and Trend	Development Direction
3.Central-East (Chongwe and Kafue)	• Large private sector land development (Meanwood Avondare Estate) in Chongwe • Agriculture development along Greater East Road • MFEZ economic development has planned in the south of this cluster in Kafue District	• Planned MFEZ development in this Cluster in Kafue District needs urban service and population for employment • Protection of natural environment in hills or mountains forest as water recharge area
4.Central-West (Kafue)	• Churlish lands spread largely where some industrial developments have started in further western side of Lusaka	• Unsuitable land for living area need to develop other type of use development • Industrial development
5.North (Chongwe and Chibombo)	• Some illegal settlement has spread along Greater North road close to Lusaka city • Low intense agriculture area	• Satellite town development for Chibombo area • Natural environment protection at hills or mountains in this cluster
6.North-East (Chongwe)	• Lusaka International Airport • Large scale private housing. Estate is under construction • Chinese industrial development is planned	• Satellite town development embracing industrial area and large housing estate • Protection of natural environment and agricultural area
7.South (Kafue)	• Largest town of Chilanga beyond Lusaka District in Greater Lusaka • Cement Factory (LAFARGE) is expanded. • ZAWA's headquater	• Satellite town development as Chillanga town expansion • More effective and dense development • Protection of green areas

Source: JICA Study Team

2) Population Distribution by Urban Cluster

Population distribution in Greater Lusaka is set and shown as Table 5.2.4 and Table 5.2.5 according to the direction of development of each urban cluster. Based on these, South urban cluster which has favorable flat lands spreading for future urban development would play an important role in sharing a considerable portion of the future population growth. This shall be followed by the Central East urban cluster with similar land condition for future settlement.

It is also noted that two urban clusters Urban Sub-core and Central West, where major UUSs are spread, are set taking account of gradual mitigation due to rapid increase of UUS. On the other hand, rapid population growth is attributed to three adjacent districts where satellite towns would be formulated to accommodate social increase of population. This aims to ensure travel convenience in satellite towns considering proximity between working and living places, in conjunction with industrial development.

Table 5.2.4 Target Population by Urban Cluster in Greater Lusaka

Urban Cluster	Greater Lusaka Area				AAGR	Share
	2007*	2015	2020	2030		
1.Urban Core	111,620	139,000	155,000	193,000	2.4%	6.6%
2.Urban Sub-core	296,444	352,000	377,000	421,000	1.5%	14.5%
3.Central-East	245,377	336,000	402,000	589,000	3.9%	20.3%
4.Central-West	292,290	366,000	387,000	423,000	1.6%	14.6%
5.North	133,487	182,000	217,000	312,000	3.8%	10.8%
6.North-East	123,915	158,000	191,000	293,000	3.8%	10.1%
7.South	251,108	338,000	420,000	669,000	4.3%	23.1%
Total	1,454,240	1,870,000	2,150,000	2,900,000	3.0%	100.0%

Note: *JICA Study Team estimates population in 2007 and areas are calculated by GIS. AAGR: Annual Average Growth Rate during 2007-2030.
Source: JICA Study Team

Table 5.2.5 Target Population by Urban Cluster in Lusaka District and Other Areas

Urban Cluster	Lusaka District					Adjacent Areas**				
	2007*	2015	2020	2030	AAGR	2007*	2015	2020	2030	AAGR
1.Urban Core	111,620	137,000	151,000	193,000	2.4%	--	--	--	--	--
2.Urban Sub-core	296,444	334,000	348,000	421,000	1.5%	--	--	--	--	--
3.Central-East	237,737	329,000	381,000	523,000	3.5%	7,640	21,000	38,000	65,000	9.7%
4.Central-West	278,334	327,000	338,000	405,000	1.6%	13,956	19,000	21,000	18,000	1.0%
5.North	114,804	146,000	159,000	199,000	2.4%	18,683	40,000	66,000	114,000	8.1%
6.North-East	114,787	142,000	159,000	209,000	2.6%	9,128	17,000	39,000	85,000	10.1%
7.South	231,439	326,000	385,000	531,000	3.7%	19,669	33,000	65,000	138,000	8.8%
Total	1,385,165	1,740,000	1,920,000	2,480,000	2.6%	69,075	130,000	230,000	420,000	8.1%

Note: *JICA Study Team estimates population in 2007 and GIS calculate areas. **Adjacent areas belong to three Districts of Kafue, Chongwe and Chibombo covered by Greater Lusaka. AAGR: Annual Average Growth Rate during 2007-2030.
Source: JICA Study Team

(2) Employment Distribution in Greater Lusaka by Cluster

According to the economic development framework and development direction of urban clusters, target employment of 1.12 million is distributed among urban clusters of Lusaka City and the adjacent districts Kafue, Chongwe and Chibombo. Table 5.2.6 and 5.2.7 show the result of distribution of employment.

Table 5.2.6 Target Employment by Urban Cluster in Greater Lusaka

Urban Cluster	Greater Lusaka Area				AAGR '07-'30	Share (2030)
	2007*	2015	2020	2030		
1.Urban Core	110,905	177,000	233,000	326,000	4.8%	28.9%
2.Urban Sub-core	85,985	125,000	152,000	182,000	3.3%	16.2%
3.Central-East	54,504	82,000	105,000	153,000	4.6%	13.6%
4.Central-West	52,325	72,000	88,000	130,000	4.1%	11.6%
5.North	22,275	34,000	49,000	91,000	6.3%	8.1%
6.North-East	29,199	43,000	59,000	113,000	6.1%	10.0%
7.South	39,056	51,000	69,000	131,000	5.4%	11.6%
Total	394,248	585,000	755,000	1,126,000	4.7%	100.0%

Note: *JICA Study Team estimates population in 2007 and areas are calculated by GIS. AAGR: Annual Average Growth Rate during 2007-2030.
Source: JICA Study Team

Table 5.2.7 Target Employment by Urban Cluster in Lusaka District and Adjacent Areas

Urban Cluster	Lusaka District				AAGR '07-'30	Adjacent Areas**				AAGR 07-'30
	2007*	2015	2020	2030		2007*	2015	2020	2030	
1.Urban Core	110,905	177,000	233,000	325,000	4.8%	--	--	--	--	--
2.Urban Sub-core	85,985	125,000	153,000	182,000	3.3%	--	--	--	--	--
3.Central-East	51,132	73,000	91,000	122,000	3.9%	3,371	9,000	15,000	31,000	10.1%
4.Central-West	50,053	69,000	84,000	127,000	4.1%	2,271	3,000	4,000	4,000	2.5%
5.North	18,173	22,000	26,000	28,000	1.9%	4,102	12,000	23,000	63,000	12.6%
6.North-East	25,495	31,000	35,000	40,000	2.0%	3,704	12,000	23,000	73,000	13.8%
7.South	35,889	44,000	52,000	67,000	2.8%	3,166	8,000	16,000	64,000	14.0%
Total	377,634	541,000	674,000	891,000	3.8%	16,615	44,000	81,000	235,000	12.2%

Note: *JICA Study Team estimates population in 2007 and GIS calculate areas. **Adjacent areas belong to three Districts of Kafue, Chongwe and Chibombo covered by Greater Lusaka. AAGR: Annual Average Growth Rate during 2007-2030.
Source: JICA Study Team

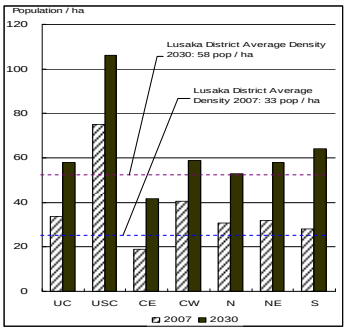
5.2.3 Population Distribution by Specific Aspects

(1) Density Allocation of Settlement in Greater Lusaka by Cluster

Density allocation is set also in association with population distribution in Greater Lusaka by urban clusters. This allocation is an important element of urban settlement distribution where low dense areas spread dominantly in urbanized areas of Lusaka City except at UUS. Figure 5.2.8 shows a comparison between existing density (2007) and planned density in 2030. Average population density aimed for Lusaka City is 58 population/ha against the existing density of 33 population/ha.

Table 5.2.8 Target Population Density by Urban Cluster in Lusaka District and Other Areas

Urban Cluster	2007	Proposed Density (pop/ha) in 2030			
		Lusaka	Kafue	Chongwe	Chibombo
Urban Core (UC)	34	58	-	-	-
Urban Sub-core (UCS)	75	106	-	-	-
Central-east (CE)	19	42	0	4	-
Central-west (CW)	41	59	2	-	-
North (N)	31	53	-	2	3
North-east (NE)	32	58	-	1	-
South	28	64	3	-	-
Average	33	58	2	2	3



Note: Kafue, Chongwe and Chibombo show only area covered by Greater Lusaka area.
Source: JICA Study Team

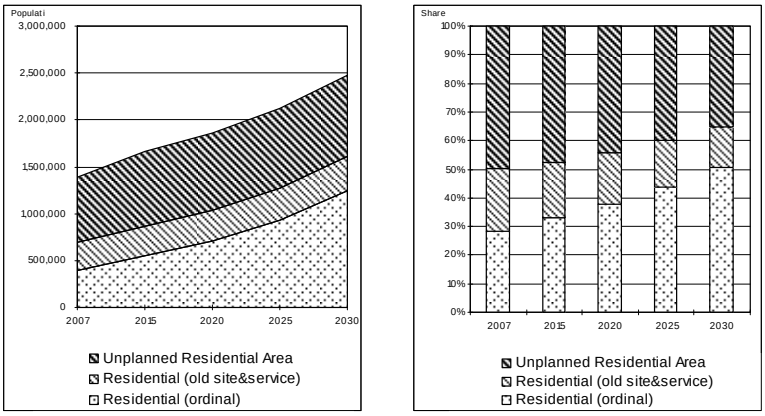
BOX1: Comparison with Other Capital Cities in the Middle Income Countries and Others

Country	Urban Pop Ratio 2007 (%)	Capital City Pop (1,000) 2005/06	CP area (km^2)	CP Pop Density /km^2	CP-GDP (USD bil.)	GDP nominal 2006 (USD bil.)	GDP share (%)
Thailand	33	5,658	1,568	3,608	89	206.2	43.2%
Malaysia	69	1,405	243	5,782	--	148.9	--
Turkey	68	3,657	2,500	1,463	42	402.7	10.4%
Egypt	43	15,907	214	74,332	98	107.4	91.2%
Morocco	60	2,930	324	9,043	24	57.3	41.9%
Algeria	65	1,790	273	6,557	35	114.7	30.5%
Botswana	59	208	169	1,231	--	10.3	--
Namibia	36	252	--	--	--	6.3	25.0%
Mozambique		1,259	300	4,197	--		
Tanzania		2,809	1,393	2,017	--		
Kenya		2,845	684	4,159	--		
South Africa	60	2,499	686	3,643	--	254.9	--
Zambia	**35**	**1,308**	**424**	**3,085**	**--**	**10.9**	**--**

Source: World City Population/web-site, with other various sources

(2) Population Distribution by Settlement Type in Lusaka District

Population in UUS is one of the essential elements to set the future population of Lusaka, as it commonly consist of a continuously increasing high dense residences, with several household groups living in just one house. Increase of population in UUS, which is supposed to be improved in the future, could be mitigated and stabilized gradually toward 2030, taking into account the anticipated trend during the short-term period (by 2015).



Source: JICA Study Team

Figure 5.2.3 Population Distribution by Settlement Type in Lusaka District

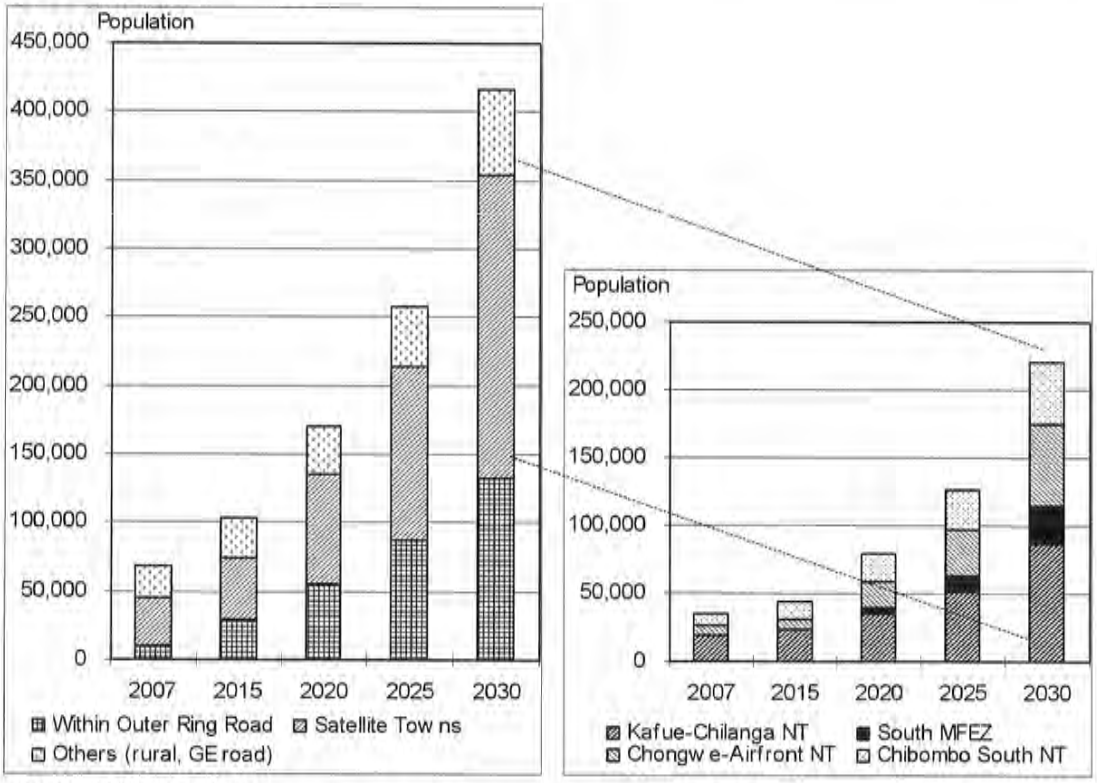
(3) Population in Satellite Cities in Adjacent Areas

Satellite cities in adjacent areas forming part of the three districts Chongwe, Kafue, and Chibombo expect to be formulated in a planned development with future provision for adequate infrastructure and urban services. These adjacent areas are distributed according to settlement type, namely, urban, rural and satellite city settlements as shown in Table 5.2.9.

Table 5.2.9 Population Distribution for Adjacent Areas by Settlement Type

	Type of Settlement	2007	2015	2020	2030	AAGR
Within Outer Ring Road (urban)	In Kafue (urban)	305	3,000	15,000	36,000	23.0%
	In Chongwe (urban)	5,264	21,000	39,000	59,000	11.0%
	In Chibombo (urban)	4,674	12,000	21,000	40,000	9.8%
	sub-total	10,244	37,000	75,000	134,000	11.8%
Satellite Cities	Kafue-Chilanga NT	18,854	29,000	47,000	88,000	6.9%
	Lusaka South MFEZ	407	1,000	6,000	28,000	20.3%
	Chongwe-Airfront NT	6,533	10,000	27,000	60,000	10.2%
	Chibombo South NT	9,187	17,000	28,000	46,000	7.3%
	sub-total	34,980	57,000	108,000	223,000	8.4%
Other Areas	In Kafue (rural)	14,466	20,000	25,000	33,000	3.6%
	In Chongwe (rural)	2,260	6,000	9,000	17,000	9.2%
	In Chongwe (along GErd)	7,126	11,000	14,000	13,000	2.8%
	sub-total	23,852	37,000	47,000	63,000	4.3%
Adjacent Areas Total		69,075	130,000	230,000	420,000	8.2%

Note: JICA study team estimates population in 2007 and GIS calculate areas. AAGR: Annual Average Growth Rate 2007-2030
Source: JICA Study Team



Source: JICA Study Team

Figure 5.2.4 Population Distribution of Adjacent Areas by Settlement Type

5.3 Land Use Plan for Greater Lusaka

5.3.1 Definition of Land Use Plan for Greater Lusaka Area

The Town and Country Planning Act defines the land use classification through very detailed codes and colors indicated in the Development Plan, which represent designated zones in the basic map. However, it is proposed to define that the general land use plan of Greater Lusaka covering multi-district areas or a regional area. This should show key land use categories in order to formulate an urban structure for long-term spatial development.

5.3.2 Future Land Requirement by Land Use Category for Greater Lusaka Area

(1) Residential Area

The residential areas are estimated and set as shown in Table 5.3.1, based on the desirable future density target range according to three degrees, i.e., high-density, medium-density and low-density. This takes into account achievement targets for densification in the short, medium and long-term phases. Total cumulative land requirement for residential areas will be 40,240 ha including additional requirement of 5,980 ha in 2030, while rural settlement (smallholdings and rural villages) will be intensified and consolidated to a dense settlement. Lands for rural settlement are expected to reduce from 21,660 ha to 11,930 ha in 2030.

Table 5.3.1 Land Requirement for Residential Area (ha)

Location	Density	2007*	2015	Additional	2020	Additional	2030	Additional
Lusaka	High	1,840	2,450	610	2,650	200	3,080	430
	Medium	4,350	6,050	1,700	7,250	1,200	12,430	5,180
	Low	6,130	7,520	1,390	8,520	1,000	8,530	10
	Rural	11,810	9,670	-2,140	8,170	-1,500	4,360	-3,810
	Total	24,130	25,690	1,560	26,590	900	28,400	1,810
In Kafue	High	0	0	0	0	0	0	0
	Medium	0	130	130	430	300	1,680	1,250
	Low	200	210	10	430	220	430	0
	Rural	2,930	2,580	-350	2,330	-250	2,250	-80
	sub-total	3,130	2,920	-210	3,190	270	4,360	1,170
In Chongwe	High	0	0	0	0	0	0	0
	Medium	0	270	270	630	360	1,500	870
	Low	160	160	0	0	0	0	0
	Rural	4,180	3,300	-880	2,410	-890	3,770	1,360
	sub-total	4,340	3,730	-610	3,040	-530	5,270	2,230
In Chibombo	High	0	0	0	0	0	0	0
	Medium	0	0	0	130	130	660	530
	Low	0	0	0	0	0	0	0
	Rural	2,740	2,370	-370	1,310	-1,060	1,550	240
	sub-total	2,740	2,370	-370	1,440	-930	2,210	770
Total Adjacent Areas	High	0	0	0	0	0	0	0
	Medium	0	400	400	1,190	790	3,840	2,650
	Low	360	370	10	430	220	430	0
	Rural	9,850	8,250	-1,600	6,050	-2,200	7,570	1,520
	Total	10,210	9,020	-1,190	7,670	-1,190	11,840	4,170
Total	High	1,840	2,450	610	2,650	200	3,080	430
	Medium	4,350	6,450	2,100	8,440	1,990	16,270	7,830
	Low	6,490	7,890	1,400	8,950	1,220	8,960	10
	Rural	21,660	17,920	-3,740	14,220	-3,700	11,930	-2,290
	G-total	34,340	34,710	370	34,260	-290	40,240	5,980

Note: *JICA Study Team estimates population density in 2007 and distributed by density of high (over 100 pop/ha), medium density. (100>a>=30 pop/ha), low (30>a>=10), and rural (under 10).

Reference: Density Target

	2015	2020	2030
H	100	150	200
M	50	70	90
L	20	25	30
Rural	6	7	8

Source: JICA Study Team

(2) Commercial and Business Area

The commercial and business areas are estimated and set as shown in Table 5.3.2. This is based on the desirable future density target range by commercial and business land use type of commercial & business (CB), corridor commercial (CDC) and mixed use with residential use (MX). The land requirement for commercial and business land use is examined and set by indicators of required floor space per employment, desirable Floor Area Ratio (FAR) and Building Coverage Ratio (BCR). It is also taken account of current condition of Lusaka city and other cities examples shown in Reference table.

Total cumulative land requirement for residential areas will be 1,330 ha including additional requirement of 660 ha in 2030, with Lusaka City having a dominant requirement of 85% (1,130 ha including additional requirement of 530 ha in 2030).

Table 5.3.2 Land Requirement for Commercial and Business Area (ha)

	Location		2007	2015	2020	2030
Cumulative Land Demand	Lusaka		409	510	600	1,130
	Adjacent Area within GL	In Kafue	0	3	5	23
		In Chongwe	26	42	54	142
		In Chibombo	0	4	7	32
		sub-total	26	49	66	197
	Total (Greater Lusaka)		435	559	666	1,327
Additional Land Requirement	Lusaka		0	101	90	530
	Adjacent Area within GL	In Kafue	0	3	2	18
		In Chongwe	0	16	12	88
		In Chibombo	0	4	3	25
		sub-total	0	23	17	131
	Total (Greater Lusaka)		0	124	107	661

Reference: Target Indicator

Land Use Type	Area (m^2) /Employment	FAR	BCR
CB: Commercial & Business	10	3	0.7
CDC: Corridor Commercial	10	2	0.5
MX: Mixed Use with residential	20	2	0.3

Note: FAR is floor area ratio = Cumulative floor area of building / site area (property plot area).
: BCR is building coverage ratio = building coverage area (ground floor) / site area (property plot area).
Calculation formula is as follows for calibrating necessary land requirement:
1) A = No. of employment by TZ (traffic zone) x unit area requirement
2) B = A / FAR ratio based on each land use area (CB, CDC, MX) by TZ
3) C = B / BCR ratio by TZ
4) Summing all C by TZ by administrative areas
Source: JICA Study Team

(3) Industrial Area

The industrial areas are estimated and set according to spatial development principles and current development trend and plan such as the MFEZ development plan and Chinese industrial development. Target land requirements are shown in Table 5.3.3 based on the desirable future density target range by industrial land use type as follows (see Reference table in the next page).

- IP: Industrial Park; MFEZ, EPZ, other industrial area for mainly Foreign Direct Investment
- IA: Ordinal industrial area including existing industrial area
- LIA: Low dense industrial area including research and development for industry and logistic/terminal for industry

- FSME: Formal small medium enterprise industry
- INF-SME: Informal small medium enterprise industry

According to the industrial type above mentioned, each preferred density of employment is set considering the existing industrial area density in Lusaka City and in other districts as shown in the following table.

Total cumulative land requirement for industrial areas will be 3,560 ha including additional requirement of 1,140 ha in 2030. Lusaka City's requirement is 52% of the total requirement in Greater Lusaka. The remaining requirement (1,680 ha) is distributed into adjacent three districts along the proposed Outer Ring road such as South MFEZ and a logistic terminal and industrial area in Kafue District, an air front industrial zone (Chinese Industrial Investment) in Chongwe District and a logistic terminal and industrial area in Chibombo.

Table 5.3.3 Land Requirement for Industrial Area (ha)

Location	Type of Industry		2007	2015	2020	2030
Lusaka District	Formal Sector	Industrial Park	0	0	450	820
		(additional)	0	0	450	370
		Industrial area /Logistic*	1,330	1,340	1,030	840
		(additional)	0	10	-310	-190
			1,330	1,340	1,480	1,660
		(additional)	0	10	140	180
	Informal	SME industries	n.a	90	90	110
		(additional)	0	0	0	20
		Sub-total	1,330	1,430	1,570	1,770
		(additional)	0	100	140	200
Other Districts	Formal Sector	Industrial Park	0	210	530	900
		(additional)	0	210	320	370
		Industrial area	20	20	30	50
		(additional)	0	0	10	20
		Low Dense / Logistic	0	60	290	840
		(additional)	0	60	230	550
		sub-total	20	290	850	1,790
		(additional)	0	270	560	940
	Informal	SME industries	0	0	0	0
		(additional)	0	0	0	0
		Sub-total	20	290	850	1,790
		(additional)	0	270	560	940
		Total	1,350	1,720	2,420	3,560
		(additional)	0	370	700	1,140

Reference: Target Indicator

Land Use Type	Area (m^2) /Emp
IP: Industrial Park; MFEZ, EPZ, etc	40
IA: Ordinal industrial area including existing	50
LIA: Low dense industrial area including R&D for industry, logistic/terminal	10
FSME: Formal small medium enterprise industry	70
INF-SME: Informal small medium enterprise industry	100

Source: JICA Study Team

(4) Public Facilities Area

The areas for public facilities are defined as the key facilities for public use with large occupied lands in an urban structure plan. This includes facilities for the government and administration, education and institutions, health facilities, utilities (water plants, sewerage plant), transportation (terminal and railway marshaling yard), solid waste disposal site and cemetery.

This land use requirement is estimated according to type of facilities such as those for education, health and others that are identified necessary to address the demand based on population increase. In case of solid waste disposal site, the existing site at Chunga in northern area of Lusaka City would have a capacity to meet demand of further 20 years.

1) Education Facilities

The land requirement for basic school (BS: grade1-9) and high school (HS: grade 10-12) education facilities are estimated as shown in Table 5.3.4. This is based on the estimated number of schools considering average standard area requirements.

Universities and colleges offering higher education envisaged that future demands could be accommodated when expansion of their existing facilities in their large campuses, is implemented.

Table 5.3.4 Land Requirement for Education Facilities (Basic and High School) (ha)

Location		2007*			2030		
		BS	HS	total	BS	HS	total
Lusaka		594	166	760	941	528	1,469
	additional	--	--	0	347	362	710
Adjacent Area	In Kafue	2	2	4	70	39	109
	additional	--	--	0	68	37	104
	In Chongwe	0	0	0	61	34	95
	additional	--	--	0	61	34	95
	In Chibombo	0	0	0	28	16	44
	additional	--	--	0	28	16	44
	subtotal	2	2	4	159	89	247
	additional	--	--	0	157	87	243
Total		596	168	764	1,100	617	1,717
additional		--	--	0	504	449	953

Note: Area assumption in 2007 is made by existing number of school adopted by average area requirement shown in reference Table below.

Reference: Target Indicator for School Development

School Type	Description	Area (ha) /school
BS:	Basic School from Grade 1 to Grade 9 in 2 streams with classroom (gradual improvement capacity from 60 pupils in 2015 to 40 pupils in 2030 per classroom)	1.8
HS:	High School from Grade 10 to Grade 12 in 2 streams with classroom (gradual improvement capacity from 38 pupils in 2015 to 35 pupils in 2030 per classroom)	2.4

Source: JICA Study Team

2) Health Facilities

The land requirement for health facilities of health post (HP), health center (HC) and other referral hospital (grade 1-3) are estimated as shown in Table 5.3.5. This is based on the estimated number of health facilities considering average standard area requirement for each basic and high schools.

Data of referral hospital 3 (identified in the Table 5.3.5), which is a national level hospital, is based on assumption that some other advanced healthcare hospitals such as Cancer Hospital Center would construct additional large facilities in the City by year 2030.

Table 5.3.5 Land Requirement for Health Facilities (ha)

Location		2007*						2030					
		HP	HC	REF1	REF2	REF3	total	HP	HC	REF1	REF2	REF3	total
Lusaka		0.2	10.1	0.0	0.0	4.0	14.3	5.1	25.1	8.1	5.0	8.0	51.4
	additional	--	--	--	--	--	0.0	4.9	15.0	8.1	5.0	4.0	37.0
Adjacent Area	In Kafue	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.9	0.0	0.0	0.0	2.3
	additional	--	--	--	--	--	--	0.4	1.9	0.0	0.0	0.0	2.3
	In Chongwe	0.0	0.0	0.0	0.0	0.0	0.0	0.3	1.5	0.0	0.0	0.0	1.8
	additional	--	--	--	--	--	0.0	0.3	1.5	0.0	0.0	0.0	1.8
	In Chibombo	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.8	0.0	0.0	0.0	0.9
	additional	--	--	--	--	--	0.0	0.2	0.8	0.0	0.0	0.0	0.9
	Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.1	0.0	0.0	0.0	5.0
	additional	0.0	0.0	0.0	0.0	0.0	0.0	0.9	4.1	0.0	0.0	0.0	5.0
Total		0.2	10.1	0.0	0.0	4.0	14.3	6.0	29.3	8.1	5.0	8.0	56.3
additional		0.0	0.0	0.0	0.0	0.0	0.0	5.8	19.1	8.1	5.0	4.0	42.0

Note: Area assumption in 2007 is made by existing number of school adopted by average area requirement shown in reference table below.

Reference: Target Indicator for Health Faculties Development

Code	Description	ha/site	Floor area/facility (ha)
HP	Health Post	0.02	0.008
HC	Health Center	0.38	0.150
REF1	Referral Hospital 1	0.63	0.250
REF2	Referral Hospital 2	1.25	0.500
REF3	Referral Hospital 3	2.00	0.800

Source: JICA Study Team

3) Other Public Facilities

Land requirement for other public facilities including those for government and administration, utilities, as well as religious facilities is estimated by assuming a unit area requirement per population, through GIS method carried out in 2007, as shown in Table 5.3.6. This excludes education and health facilities mentioned above.

Table 5.3.6 Land Requirement for Other Public Facilities (ha)

Location		2007*	2030
		Other PF	Other PF
Lusaka		783	1,403
	additional	--	620
Adjacent Area	In Kafue	--	--
	additional	--	80
	In Chongwe	--	--
	additional	--	80
	In Chibombo	--	--
	additional	--	30
	subtotal	13	203
	additional	--	190
Total		796	1,606
additional		--	810

Note: PF is Public Facilities of Government and administrations, religious, utilities and transportation excluding road, railway, and airports.

Reference: Target Indicator for Other Public Faculties

Land use category (2007)	Area (ha)
Government and Administration	405
Utilities/transportation (excluding. road, railway, airport)	369
Religious	9
total	783
Exiting Population in Lusaka District	1,385,167
ratio: area per population	0.000565

Source: JICA Study Team

4) Solid Waste Disposal Site

Danish International Development Agency (DANIDA) provided support to expand the Chunga Sanitary Landfill with a capacity of 2,715,000 m^3 (equivalent to 3,528,000 ton), which commenced operation in 2007. New site was planned to be used until 2013.

Based on the WMU 2005 statistics, disposed waste volume is 5,015 ton/month in average or 60,180 tons/year. Considering the collected ratio of 15%, 33,000 tons/month (396,000 tons/year) are not collected and spread in the City.

Based on Lusaka Waste Management Master Plan and Lusaka Solid Waste and Sanitation Management Project (LSWSMP) domestic waste unit generation is approximately 0.3 tons/year/capita. Moreover, waste collection ratio is estimated to increase to 65% in 2007, 75% in 2008, and 85% from 2009. As a result of the estimated volume of waste collection, Chunga Sanitary Landfill will be completely filled before 2015.

Based on the estimated waste volume, sanitary landfill site with similar capacity (55ha per 3,528,000 ton) will be necessary before 2015, another one (55 ha per 3,528,000 ton) before 2020, and two more sites (220 ha per 7,056,000 ton) before 2030. Estimated results are summarized in the following table.

Table 5.3.7 Land Requirement for Waste Disposal Site (ha)

Year	Projected Population of Lusaka District	Accumulated waste to be delivered (ton)	Timing of new sanitary landfill operation		Area Requirement (ha)	
					additional	Cumulative
2007	1,385,165	415,550	By 2015, Chunga Sanitary Landfill will be nearly full	One in 2015	-	55.0
2015	1,667,000	3,376,000				
2020	1,862,000	5,651,238	By 2020, twice of capacity of Chunga Sanitary Landfill will be nearly full	One in 2020	55 ha	110.0
2030	2,476,000	11,260,000	By 2030, four times of capacity of Chunga Sanitary Landfill will be nearly full	Two in 2030	110 ha	220.0

Source: JICA Study Team

(5) Green and Open Space Area

1) Park and Recreational Area

The park and recreational area is defined as public park for citizens and tourists except the private green facilities such as golf course and sports club to be developed by public services. It is proposed that hierarchical park system by administrative jurisdiction area be introduced to each level of district, Ward and Zone (community). Land use requirement for park and recreation in 2030 is estimated as target areas by unit requirement for standard open spaces, referred from the planning guideline of MLGH and other countries system. According to this long-term target, intermediate target is set for each phase taking into account existing stock and possible achievement as shown in Table 5.3.8.

Table 5.3.8 Land Requirement for Park and Recreation (ha)

Location	Development Target Ratio	2007	2015	2020	2030
		-	40%	60%	100%
Lusaka	District Park	-	175	348	580
	Ward Park	-	100	150	250
	Neighborhood Park	-	200	300	500
	Playground	-	100	150	250
	Total	410*	575	948	1580
In Kafue	District Park	-	0	0	0
	Ward Park	-	8	12	20
	Neighborhood Park	-	16	24	40
	Playground	-	8	12	20
	sub-total	-	32	48	80
In Chongwe	District Park	-	0	0	0
	Ward Park	-	8	12	20
	Neighborhood Park	-	16	24	40
	Playground	-	8	12	20
	sub-total	-	32	48	80
In Chibombo	District Park	-	0	0	0
	Ward Park	-	4	6	10
	Neighborhood Park	-	8	12	20
	Playground	-	4	6	10
	sub-total	-	16	24	40
Adjacent Areas	District Park	-	0	0	0
	Ward Park	-	20	30	50
	Neighborhood Park	-	40	60	100
	Playground	-	20	30	50
	Total	66*	80	120	200
Total	District Park	-	175	348	580
	Ward Park	-	120	180	300
	Neighborhood Park	-	240	360	600
	Playground	-	120	180	300
	G-Total	476*	655	1,068	1,780

Reference: Target Indicator for Other Public Facilities.

Type of Park	ha/site	Unit: m^2 / per capita	Description
District Park	100	2.0	A thematic park per 500,000 pop
Ward Park	8	1.0	A ward park per Ward as minimum
Neighborhood Park	2	2.0	A neighborhood park per zone
Playground	--	1.0	A playground per community

Note: District Park in adjacent areas in three Districts of Kafue, Chongwe and Chibombo is excluded in estimation of park requirement.

* Existing park and recreation area (476ha) includes private golf courses.

Source: JICA Study Team

This target requirement implies that current park area of 1.7 m^2 per capita will be improved to 6.4 m^2 per capita in Lusaka City while those in the adjacent areas will achieve its target of 4.8 m^2 per capita.

2) Cemetery Park

Cemetery parks area requirement as part of thematic parks of the districts is estimated considering the planning standard (MLGH) for spatial requirement of cemetery (50 ha/50,000 pop). This is in accordance with target population for Lusaka City and adjacent three districts Kafue, Chongwe and Chibombo.

Table 5.3.9 Land Requirement for Cemetery Park (ha)

Location		2007	2015	2020	2030
Lusaka District		316	650	1,020	2,500
	additional	--	334	370	1,480
Adjacent areas	In Kafue	0	60	190	200
	additional	--	60	130	10
	In Chongwe	0	30	90	200
	additional	--	30	60	110
	In Chibombo	0	10	30	100
	additional	--	10	20	70
	sub-total	0	100	310	500
	additional	--	100	210	190
Total		316	750	1,330	3,000
additional		0	434	580	1,670

Source: JICA Study team estimation based on the Planning Handbook (Guideline & Standard) MLGH 1984

3) Green and Open Spaces

Green and open Spaces is defined as vulnerable natural environment areas and necessary buffer green areas to secure appropriate urban environment for ECHO city including forest reserved areas, wetland such as riverine areas and other forest areas retained at present. These areas should be maintained and conserved as much as possible to support sustainable urban development of Greater Lusaka area.

In order to secure or acquire lands for the park and recreation or green and open spaces, following policies and measures need to be applied.

- Buffer green or open spaces to be secured by natural hazard protection which hazard management fund can be utilized in case of private property subject to compulsory land acquisition, or voluntary free-charge land lending to public
- Development control may include obligation of developer to retain open space in the property development with incentive mechanism such as tax exemption
- Strengthening subdivision development guideline with some obligation to create park or open spaces in a decent open space ratio of the developed area
- Agriculture area can be preserved as a part of the protected green area by farmer's incentive like tax exemption

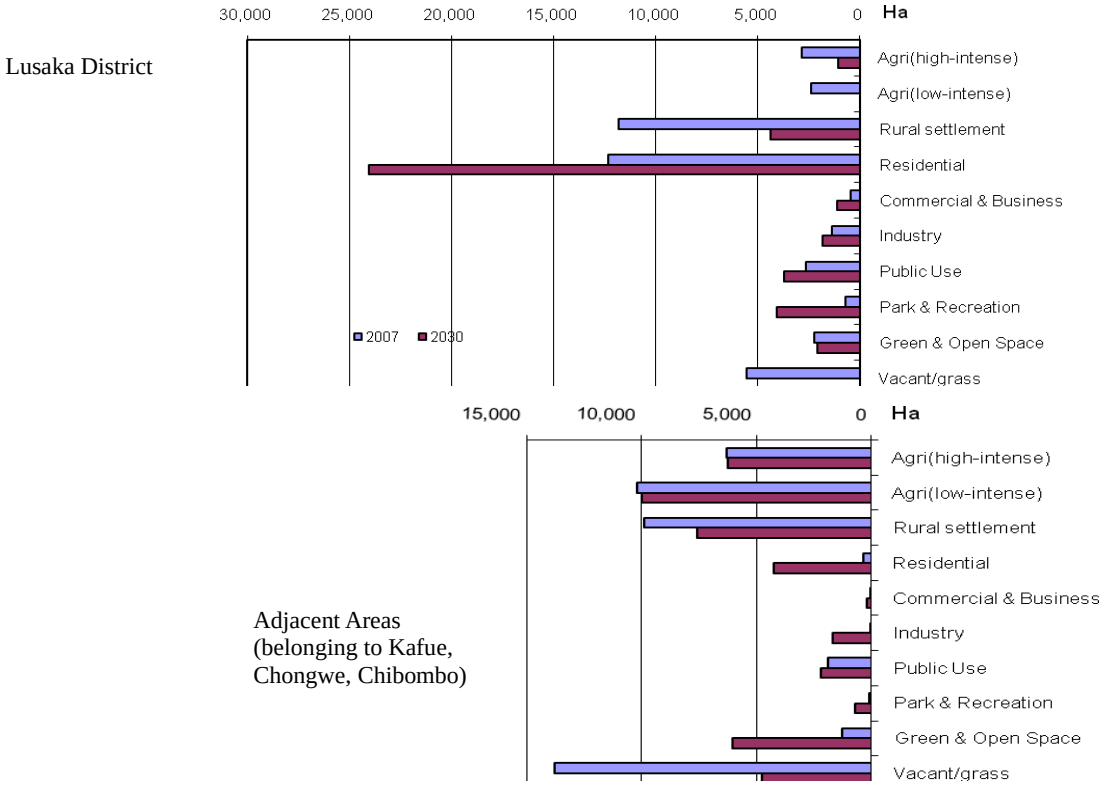
5.3.3 Land Use Allocation in Greater Lusaka

Future residential, commercial and business, industry, public facility and green and open spaces land use allocations are set in Table 5.3.10. The total area is equivalent to the study area of Greater Lusaka.

Table 5.3.10 Land Use Allocation and its Change 2007 – 2030 in Greater Lusaka (ha)

Category	2007			2030			2007-2030 Change		
	Lusaka	Adjacent Area*	total	Lusaka	Adjacent Area	Total	Lusaka	Adjacent Area	Total
Agri (high-intense)	2,857	6,268	9,125	1,077	6,260	7,337	-1,780	-8	-1,788
Agri (low-intense)	2,375	10,187	12,562	0	10,000	10,000	-2,375	-187	-2,562
Rural settlement	11,809	9,851	21,660	4,360	7,570	11,930	-7,449	-2,281	-9,730
Residential	12,321	357	12,678	24,040	4,270	28,310	11,719	3,913	15,632
High-dense	1,841	0	1,841	3,080	0	3,080	1,239	0	1,239
Medium	4,350	0	4,350	12,430	3,840	16,270	8,080	3,840	11,920
Low	6,130	357	6,487	8,530	430	8,960	2,400	73	2,473
Commercial & Business	447	26	473	1,130	200	1,330	683	174	857
Industry	1,350	36	1,387	1,850	1,680	3,530	500	1,644	2,143
Public Use	2,642	1,878	4,520	3,700	2,210	5,910	1,058	332	1,390
Park & Recreation	735	67	802	4,080	700	4,780	3,345	633	3,978
Green & Open Space	2,256	1,235	3,491	2,100	6,028	8,128	-156	4,794	4,638
Vacant/ grass & bush	5,545	13,774	19,318	0	4,760	4,760	-5,545	-9,014	-14,558
Total	42,337	43,678	86,015	42,337	43,678	86,015			

Note: * Adjacent area covers some portion of three adjacent Districts of Kafue, Chongwe in Lusaka Province and Chibombo District in Central Province, of which the area also covers the study area as Greater Lusaka.
Source: JICA Study Team



Source: JICA Study Team

Figure 5.3.1 Future Land Use and Change of Lusaka and Adjacent Area of Greater Lusaka

5.3.4 Land Use Plan 2030

(1) Principles for Spatial Development of Greater Lusaka Area

According to the spatial distribution principles for population and employment mentioned in the previous section, comprehensive development approach is

considerable to formulate physical development planning in order to achieve ideal urban structure for "Greater Lusaka with Satellite Cities" based on the vision of "ECHO Garden City". The following are principles for the structure plan on land use for Greater Lusaka toward 2030:

- Urban development in Lusaka City and its adjacent satellite cities need to achieve balanced socio-economic development as an integrated metropolitan area for mutual beneficial growth of four districts, i.e., Lusaka, Kafue, Chongwe and Chibombo
- Maximization of advantageous locations as international, regional and national node and gateway function with efficient network provision of transportation and information-telecommunication for future urban economic development
- Control and management of adequate urban growth taking into account environmental vulnerability (hazard prone areas) and potential land for future urban development
- Eradicate urban poor in Lusaka in order to achieve livable and attractive quality of life of its citizen with appropriate living environment improvement and development
- Provide effectively and efficiently basic urban infrastructure to support and accommodate various urban activities in the future, in association with motivation for economic development
- Promote and encourage competitive urban centers development for attractive capital formulation addressing future urban growth
- Achieve environmental friendly city

(2) Proposed Land Use and its Classification for Greater Lusaka Plan

As mentioned previously, aggregate land use classification for mapping which is also intended for zoning category for urban control mentioned in succeeding section, is proposed as follows (and Table 5.3.11) instead of the existing land use class by TCPA.

1) CLASS I: Rural

Greater Lusaka area covers wide range of land uses not only for urban area to be developed in the future but also for rural areas including natural environment and agriculture land area, with rural settlement. Rural land use consists of *"Agriculture (AG)"* to be retained and improved as agricultural area and *"Rural Settlement (RS)"* is composed of rural village and small holdings (farmers) with agriculture land.

2) CLASS II: Residential

Residential land use consists of "Low-density Residential (LR)" to be developed and improved as residential area for low dense population settlement, which will be intended to the suburban area in the fringe of Greater Lusaka. "Medium-density Residential (MR)" meanwhile will be for areas within the Second Ring Road in the case of Lusaka City.

"High-density Residential (LR)" is for the area in the city center consisting of collective housing or high-rise residential buildings. *"Mixed-use (MX)"*category is also categorized as CLASS II which is residential area in combination with commercial and business land use, simultaneously developed horizontally or vertically with medium-high dense settlement.

3) CLASS III: Commercial and Business

Commercial and Business land use consists of *"Commercial & Business (CB)"* to be developed and improved as dominant area for high-medium dense development of CBD.

"Corridor Commercial (CC)" for areas along major Arterial Roads which allows medium-high dense development within certain range from road center (e.g. 300m and 100m width from road right of way), and *"Neighborhood Commercial (NC)"* for area in town center of township (e.g. Ward Center) by medium development for commercial and business activities.

4) CLASS IV: Public Use

Public land use is for key public facilities showing existing and future development with indication of facility coding to identify government, institutions, higher education, key transpiration terminal, airport, key utilities and cemetery.

5) CLASS V: Industrial

Industrial land use consists of "Industrial Zone (IZ)" to be developed and improved for industrial purposes only (heavy or light industry), with adequate infrastructure and suitable location where minimum or no impact to living environment is caused. Specific industrial zones such as MFEZ and EPZ also belong to this land use classification.

"Quasi-Industrial (QI)" is for areas allowing mixed use with other land use such as commercial and business or other types of industry, i.e., logistics or transportation use and research and development facilities for industry.

6) CLASS VI: Green and Open Spaces

Land use for green and open spaces consists of *"Park & Recreation (PR)"* to be developed and improved as citizen's park or for sports recreation use including private facilities such as golf course and sports club.

"Green & Open Space (OP)" for natural environment areas and natural importance areas to be protected or conserved as forest reserve, hazard prone areas and Miombo wetlands. This also serve as buffer areas for demarcation between living environment (residential or commercial & business use) and for other uses taking into account landscape and environmental control. (e.g. river-side green, buffer green for factories).

Table 5.3.11 Proposed Land Use Classification for Greater Lusaka

Land Use Class		Color / Code	Description
Class I	**Rural**	**AG**	Agricultural Area
		RS	Rural settlement (rural village, small holdings)
Class II	**Residential**	**LR**	Low-density Residential
		MR	Medium density Residential
		HR	High density Residential
		MX	Mixed Use (with Commercial and Business)
Class III	**Commercial and Business**	**CB**	Commercial and Business (retail and wholesale, office)
		CC	Corridor Commercial (Mixed Use along Major Road)
		NC	Neighborhood Commercial
Class IV	**Public Use**	**(P)**	Key Public Zone (Gov, Institution, Edu, Health, etc)
Class V	**Industrial**	**IZ**	Industrial Zone (Heavy and Light Industry by EPZ, etc)
		QI	Quasi-Industrial (Mixed Use with Others)
Class VI	**Green and Open Spaces**	**PR**	Major Park and Recreation
		OP	Green and Open Space
		W	Water Surface

Reference: Class IV Public Use/ Key Public Facilities Code

Land Use Class		Color / Code	Facilities Code	Description
Class IV	**Public Use**	**(P)**	**GO**	Key Government / Institutions / Administration / Security by large site
			EC	Key Higher Educational Institution (Univ., College, Research) and Cultural Facilities by large property
			LT	Key Land Public Transportation (bus or truck terminal station, workshop, marshalling yard, etc)
			AF	Airport (international Airport, other key Aviation Facilities)
			PU	Key Utilities (large site for Plant Facilities for Water, Sewerage)
			HC	Key Health Care Facilities with large site (hospital, other health care and social welfare facilities)
			CE	Key Cemetery (large cemetery sites)

Source: JICA Study Team

(3) Framework for Land Use Zoning Guideline

1) Land Use Zoning for Urban Development Control

Urban development control by LCC is managed by City Planning Department based on old-dated statutory land use zoning (1985-Doxiades Plan). To date, urban development activities are still in accordance with the plan. Although zoning regulation system exists and governs, there are still a lot of illegal development activities due to poor operation and management of the administration and some other political issues in spite of vigorous administrative efforts. Key principles of urban development control are as follows:

- Effective urban growth management against rapid urban sprawl without inadequate infrastructure and urban services
- Encouraging and promoting more dense development in existing urban settlement area improving regulation or guidelines of existing zoning system
- Encouraging and promoting mixed use development distinctively by designation of mixed use to stipulate economic activities
- Strengthening urban hazard control and natural environmental protection by introducing new zoning system
- Empowerment of administrative capacity for development control (planning permission) in conjunction with building code consolidation (construction permission) by height and volume control of buildings
- Formulating development guidelines for private sector development, especially large scale real estate (housing, industry and commercial facilities development) developments

2) Integrated Approach for Urban Growth Management

Urban growth management addressing key issues on i) sustainable land use, ii) effective urban growth control, iii) adequate spatial structure and landscape in urban planning and development, requires two key measures in order to serve as guide for appropriate future urban structure as well as urban and rural activities shown below and in Table 5.3.12.

- Planning and control measures for future urban activities and spatial structure to protect distinctive urban characteristics and values
- Promotion measures for enhancement and encouragement of urban activities and necessary urban services

Table 5.3.12 Effective Management for Spatial Planning and Urban Development

Key Issues for Effective Urban Planning and Development Management		Planning / Control Measure			Promotion Measure		Responsible Organization
		Urban Growth Control	Land use Activities Control	Spatial /Building Control	Priority Area and Public Support	Key Urban Services Provision	
Sustainable Land Use and Effective Management	Management of hazard prone area and unsafe usage of land	●	●	--	○	--	DCs/MTENR
	Natural environmental (Water & Green) protection and adequate open space creation	●	●	--	○	●	WSCs / MTENR
	Attractive living environment with adequate density	--	●	●	○	--	DCs
	Maximizing land value and its potential activities	○	●	●	●	○	DCs / ML
	Effective transportation system in combination with adequate land use formulation	○	●	●	●	●	DCs / RDA
	Balanced development between rural (agriculture) and urban areas	●	●	○	○	●	DCs / MAC
	Safe and sufficient public services (health, education, social welfare)	--	●	○	●	●	DCs with relevant Ministries
Effective Urban Growth Management	Controlling Urban Sprawl	●	○	●	--	●	DCs /ML
	Strategic Provision of Public Facilities for time framework (2030)	○	●	●	--	●	DCs / MWS, etc
	Encouraging competitive urban economic development	○	●	○	●	●	DCs / ZDA
	Existing urban areas revitalization and improvement	○	○	●	●	●	DCs / ML
Adequate Spatial Structure and Landscape Management	Conservation of Cultural Historical Environment	--	○	●	●	●	NCHC
	Harmonized Urban Landscape Formulation with adequate spatial structure and building design	●	●	●	○	--	DCs
Effective Urban Planning	Strategic long-term socio-economic target framework	●	●	●	--	○	DCs
	Effective publicity and involvement for urban planning process	●	●	●	●	○	DCs
	Local community participation and cooperation for urban management	○	●	●	●	●	DCs

Note: ●= Key role and inevitable action, ◎= Supporting role and necessary action, -- = Less role/
DCs = District Councils (Lusaka, Kafue, Chongwe, Chibombo), WSCs = Water & Sewerage Companies, RDA = Road Development Agency, MWS = Ministry of Works & Supply, MTENR = Ministry of Tourism, Environment and Natural Resources, ECZ = Environmental Council of Zambia, ML = Ministry of Land, MAC = Ministry of Agriculture and Cooperatives, MCDSS = Ministry of Community Development and Social Service, ZDA = Zambia Development Agency, NCHC = National Council for Heritage Conservation.
Source: JICA Study Team

3) Introduction of the Urban Growth Boundaries

Urban management addressing key issues on i) sustainable land use, ii) effective urban growth control, iii) adequate spatial structure and landscape in urban planning requires two key measures in order to guide towards appropriate future urban structure as well as urban and rural activities.

- Planning Boundary

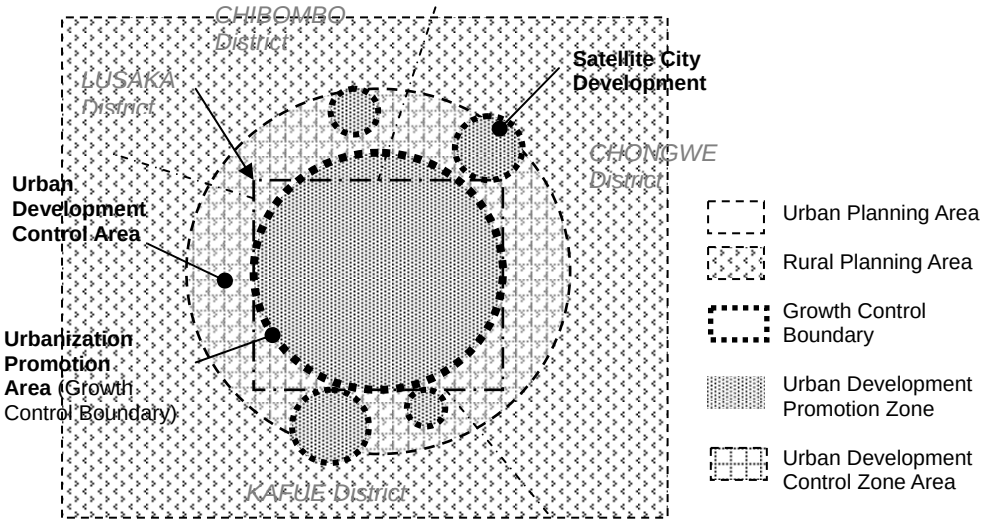
  This delineates the boundary within which urban planning must be made, including rural areas. In the case of Greater Lusaka, it is necessary to define the administrative boundary by adding some extent of the covered urban development area (satellite cities) in the scope of the study for Greater Lusaka.

- Urban Growth Boundary (UGB)

  This boundary delineates the areas that will be urbanized within 10-15 years. The boundary must be reviewed every ten years to match the development needs. The area within the UGBs is defined as urbanization development promotion area where infrastructure provision is prioritized.

- Urban Development Control Area

Areas outside the UGB are defined as urban development control areas. This does not mean any development activities are restricted. Instead, this implies more controlled and guided activities to ensure strict compliance with the urban development master plan.



Source: JICA Study Team

Figure 5.3.2 Conceptual Diagram of Urban Growth Management Areas and Boundary for Greater Lusaka Area

Table 5.3.13 Proposed Land Use Management System for Greater Lusaka

Planning Area	Zone	Measures	Expected Responsible Bodies	
			District	Others
Urban Planning Area	Urban Development Promotion Zone	Dense Development Promotion	DCs (CPD/HSSD)	--
		Infrastructure Provision	DCs (CPD/ESD/HSSD)	WSCs, RDA, MWS
		Development Control and Guide by development scale/height	DCs (CPD/PHSD)	MTENR, ML
		Urban Environmental Protection (hazard, natural resources)	DCs (CPD/HSSD)	MTENR (ENTD/FD)
	Urban Development Control Zone	Reserved Area for Future Urbanization	DCs (CPD)	MTENR, ML
		Natural Resource Protection (water charge forest, etc)	DCs (CPD/WSCs)	MTENR
		Natural Hazard Control Area	DCs (CPD)	MTENR, ECZ
	Rural Development Zone	Agriculture Promotion Area (for high intense farm development)	--	MAC
Rural Planning Area		Rural settlement improvement or development promotion area	DCs (CPD/HSSD)	MCDSS, MAC
		Other Natural Resources Development Area (mining, water, forest, aquaculture, etc)	--	MTENR, MAC
	Environment Protection Zone	Natural Environment Protection Area (Forest Reserve Area, Natural Game Reserve Area, National Park, other relevant protection areas)	--	MTENR (ENTD/FD), ECZ

Note: DCs = District Councils (Lusaka, Kafue, Chongwe, Chibombo), CPD = City Planning Dept, ESD = Engineering Services Dept, HSSD = Housing and Social Service Dept, PHSD = Public Health Service Dept, WSCs = Water & Sewerage Companies, RDA = Road Development Agency, MWS = Ministry of Works & Supply, MTENR = Ministry of Tourism, Environment and Natural Resources, ENTD = Environment and Natural Recourses Management Dept, FD = Forest Dept, ECZ = Environmental Council of Zambia, ML = Ministry of Land, MAC = Ministry of Agriculture and Cooperatives, MCDSS = Ministry of Community Development and Social Service.
Source: JICA Study Team

4) Reformation of Land Use Zoning Control

Although Doxiades Development Plan is the statutory development plan of Lusaka City which stipulated land use zoning, it is still necessary to reformulate the zoning system in order to meet current urbanization character and spatial development principles related to densification. Table 5.3.14 and 5.3.15 illustrate proposals, subject to further study, for building use control and spatial control by land use zone class.

Table 5.3.14 Reformation of Land Use Zoning for Development Control –I

Classification for Land Use Zoning		Activities (Building Use) Permissive Guideline																								
			Retail, etc				Business/office				Tourism			Public Facilities					Factories						
		Residential (Detach, Semi-detach, Apartment, Row House, etc)	Retail shops, Small Storage (e.g. floor area under 50 m^2)	Retail shops, Small Storage (e.g. floor area over 50 under 200 m^2)	Retail shops, Small Storage (e.g. floor area under 200 under 2000 m^2)	Retail shops, Small Storage (e.g. floor area over 2000 m^2)	Office, Government, etc (e.g. floor area under 50 m^2)	Office, Government, etc (e.g. floor area over 50 under 200 m^2)	Office, Government, etc (e.g. floor area over 200 under 2000 m^2)	Office, Government, etc (e.g. floor area over 2000 m^2)	Hotel, Other Accommodation Facilities	Entertainment, Leisure Facilities (e.g. Cinema, Theater, Dance Hall, etc)	Night Entertainment Facilities (Night Club, Karaoke, Massage ,etc)	Public Facilities (Administration, Police, Fire Station, Post Office, etc)	Religious Facilities (Temple, Church, Other religious Facilities)	Education (pre-school, I, II, III class), Library, Cultural Center, Museum	Higher Education, Research & Development Institution	Health, Social Welfare (Hospital, Daycare, Old age Home,, etc)	Wholesale, Large Storage, Distribution Facilities	Non-pollution light Industry (e.g. Bakery, Traditional Handicraft, Joiner, etc)	Heavy and light and Industry (metal, chemical, garment, electronics, etc)	Transportation and Services (Parking Building, Terminal, Repair Shop)	Special Utilities Facilities (Water-Sewer, Waste Disposal, Cemetery, Disposal)
I. Rural	Agricultural Use	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Rural Settlement	●	●	—	—	—	●	—	—	—	—	—	—	●	●	●	—	●	—	—	—	—	—	—	—	—
II. Residential	Low-density	●	●	—	—	—	—	—	—	—	—	—	—	●	●	●	—	●	—	—	—	—	—	—	—	—
	Medium density	●	●	●	—	—	●	—	—	—	—	—	—	●	●	●	●	●	—	—	—	—	—	—	—	—
	High density	●	●	●	●	—	●	●	—	—	—	—	—	●	●	●	●	●	—	—	—	—	—	—	—	—
	Mix Use	●	●	●	●	●	●	●	●	—	●	—	—	●	●	●	●	●	—	●	—	○	—	—	—	—
III. Commercial /Business	Commercial Business	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	○	—	○	—	—	—	—
	Corridor Commercial	●	●	●	●	●	●	●	●	○	●	○	○	●	●	●	●	●	○	●	—	○	—	—	—	—
	Neighborhood Commercial	●	●	●	●	●	●	●	●	—	●	—	—	●	●	●	●	●	—	○	—	○	—	—	—	—
IV. Public Use	Key Public Facilities Area	—	—	—	—	—	—	—	○	○	—	—	—	●	—	—	●	—	●	—	—	●	●	—	●	●
IV. Industrial	Industrial Zone	—	○	—	—	—	●	●	●	○	—	—	—	○	○	—	●	○	●	●	●	○	●	—	○	●
	Quasi-industry	—	●	○	○	—	●	●	●	○	●	●	○	●	●	○	●	○	●	●	●	○	●	—	○	●
V. Green and Open Space	Park & Recreation	—	○	○	—	—	○	○	—	—	—	—	—	○	—	—	—	○	—	—	—	—	—	—	○	○
	Green and Open Space	—	○	○	—	—	○	○	—	—	—	—	—	○	—	—	—	○	—	—	—	—	—	—	○	○
	Nature Environment Area	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	○	○

Note: ●= allowable ○= in conditions, — = not allowable.
Source: JICA Study Team

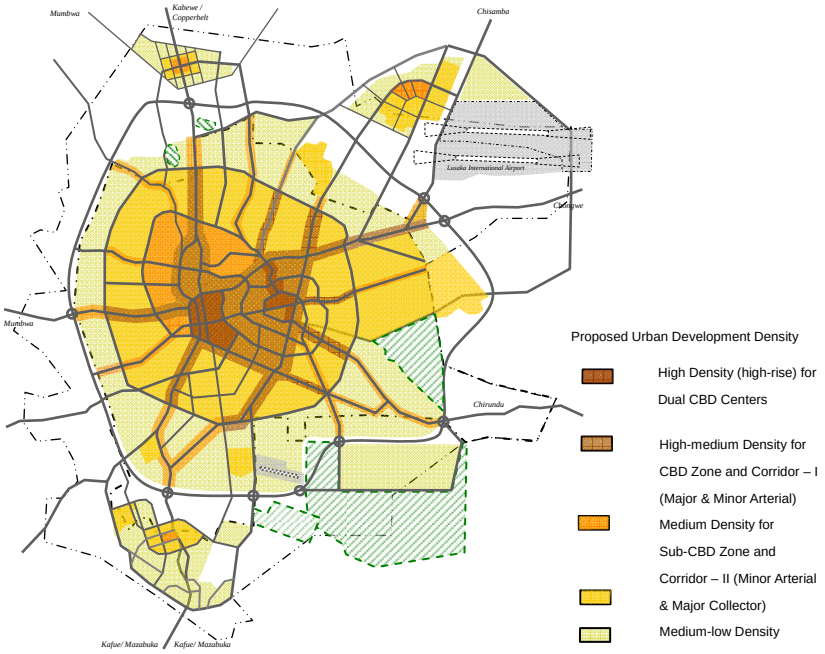
5) Development Density Control

The tools for Building Coverage Ratio (BCR) and Floor Area Ratio (FAR) as building spatial framework are effective measures to control development density. Each land use class stipulates desirable ratio for both BCR and FAR. Table 5.3.15 indicates tentative scheme for BCR and FAR by land use class. Figure 5.3.3 also illustrates proposed urban structure according to five development density categories, taking into account function and role of urban area by land use class.

Table 5.3.15 Reformation of Land Use Zoning for Development Control –II

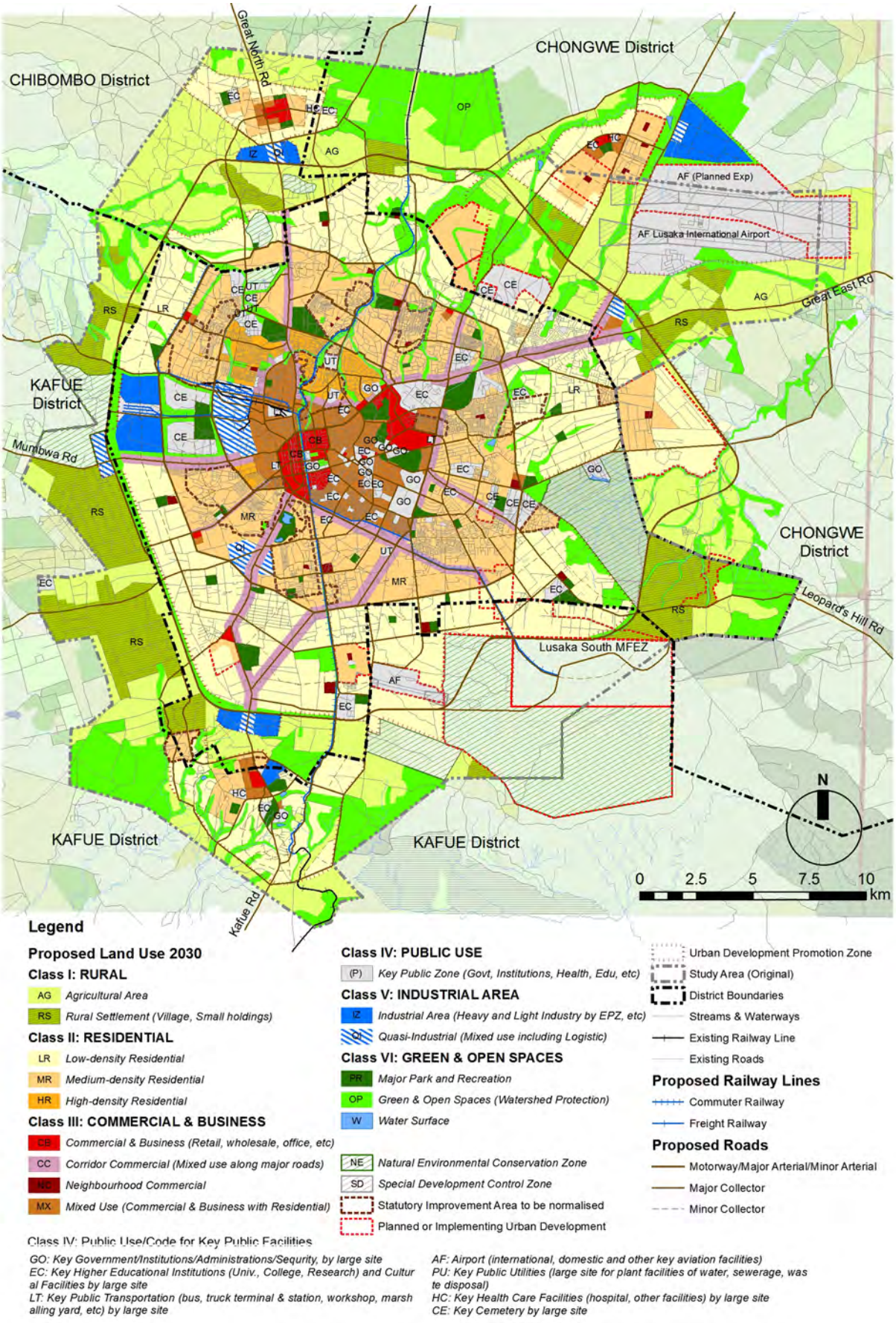
Land Use Zoning	Sub-category	Code	Building Control		
			FAR (%)	BCR (%)	Height (max)
Class	Zoning Sub-Classification				
I. Rural	Agriculture Use	AG	--	--	--
	Rural Settlement	RS	--	--	16 m
II. Residential	Low-density Residential	LR	50, 60, 80	30,40,50,60	4 storey / 16 m
	Medium density Residential	MR	60, 80, 100,		8 storey / 32 m
	High-density Residential	HR	100, 150, 200, 300	30,40,50,60	15 storey
	Mix Use	MX			8 storey / 32 m
III. Commercial / Business	Town Center	TC	300 - 500	60, 80	--
	Corridor Commercial	CC	200 - 300		--
	Neighborhood Commercial	NC	100- 200		--
IV. Public Use	Public Use Zone	PU	--	--	--
V. Industrial	Industrial Zone	IA	80- 200	50, 60, 80	--
	Quasi-Industrial	QI	60- 200	20,40, 60, 80	--
VI. Green and Open Spaces	Park and recreation	PR	--	--	--
	Open Space & Green	OP	--	--	--
	Water surface area	W	--	--	--
Special Development Control Zoning					
1. Watershed/Water Resource Protection (Green&Open)		OP	--	--	--
2. Natural Environment Conservation Zone		NE	--	--	16 m
3. Housing Improvement Zone (UUS)		IA	60, 80, 100,	60, 80	4 storey / 16 m

Note: FAR = Floor Area Ratio, BCR = Building Coverage Ratio.
Source: JICA Study Team



Source: JICA Study Team

Figure 5.3.3 Development Density Guideline for Greater Lusaka Area

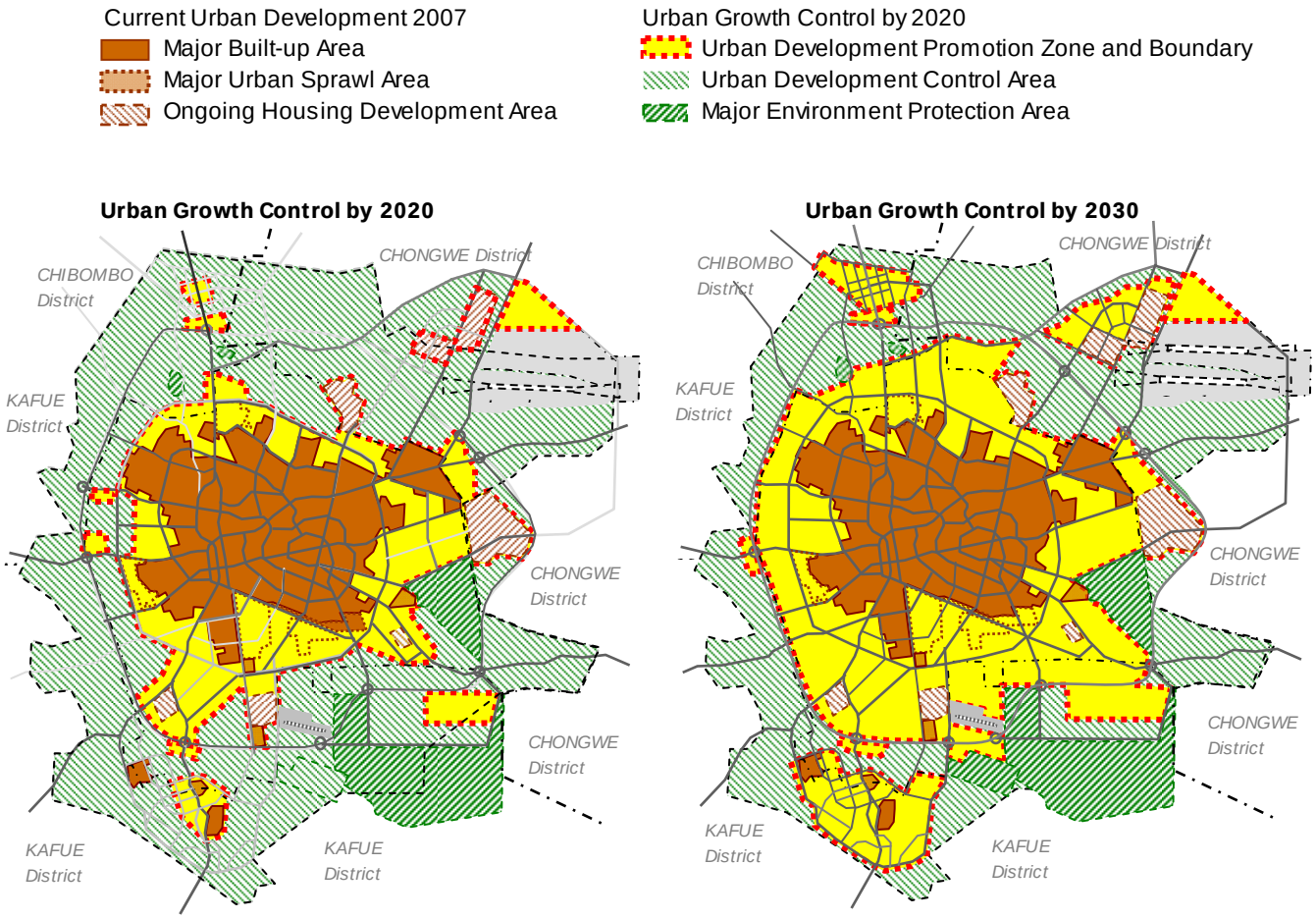


Source: JICA Study Team

Figure 5.3.4 Proposed Land Use Plan 2030

5.3.5 Urban Development Phase and its Growth Control

Urban development phase is formulated for short-term (2008-2015), medium-term (2016-2020) and long-term (2021-2030) basis. Urban growth management is expected to play a key role in control urban development through growth control measures with designated boundaries. Figure 5.3.5 illustrates urban development phase with urban growth boundary to be designated for efficient infrastructure provision and restriction of urban sprawl.



Source: JICA Study Team

Figure 5.3.5 Conceptual Diagram of Urban Growth Management Areas and Boundary for Greater Lusaka Area

5.4 Urban Economic Development Plan

5.4.1 Urban Centers Development

(1) Role and Function of Urban Centers for the Capital in Greater Lusaka Area

1) Competitive Urban Center

CBDs all over the world are shifting from a largely commercial and business center to mixed-use centers with attractive tourism destinations for entertainment, cultural and educational purposes and accommodations providing comfortable residential amenities to meet various demands. This trend seems increasingly essential to support the country's economy.

Lusaka urban center has partially achieved similar type of mixed-use development horizontally with the co-existence of commercial business offices and shops in its residential area. However the new trend of economic globalization requires more competitive, modern and attractive urban services development.

2) Key Economic Core for Employment Growth

One of the key sectors of economic development in Lusaka will be the commercial and business sector including trade, transport, finance, and other services which currently contributes 53% to the total GDP. This is still expected to further increase in 2030.

Lusaka urban center should provide sufficient job opportunities to accommodate future employment requirement in a sustainable manner through formal sector enhancement and vigorous efforts for shifting informal sector to formal sector in business commercial development.

3) Regional and National Political and Knowledge Core

Central government and related institutions have apparently played fundamental roles for the City where establishments of major institutions for research and development, international organizations, higher education institutions are concentrated.

With this opportunity as advantage, more modern and advanced functions of knowledge-based services needs to be developed and enhanced to support political and administrative business for decision making.

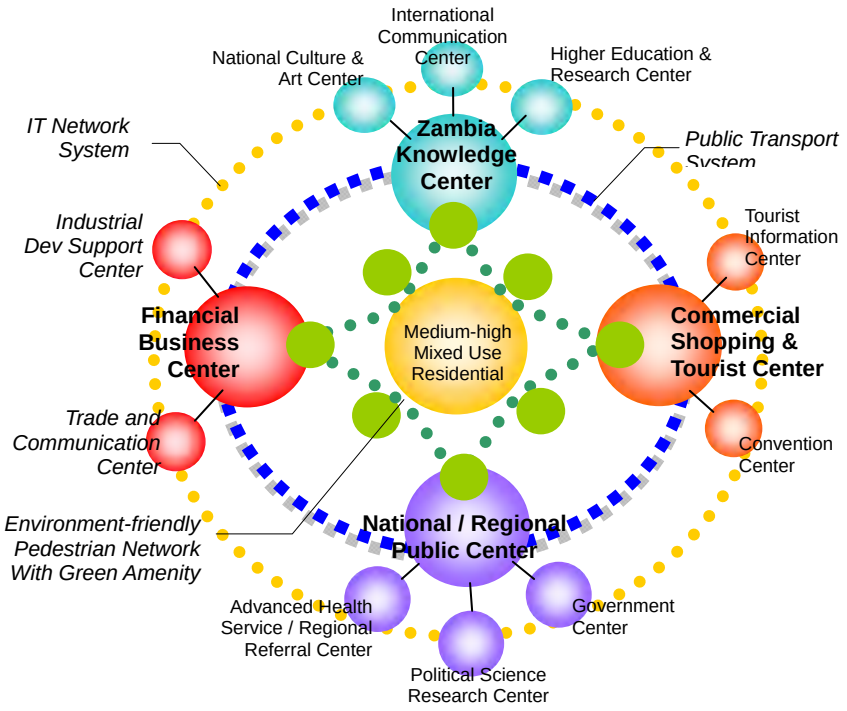
4) Urban Amenity Core as Symbolic Heart of the Country

Lusaka City as the nation's capital is distinguished as the symbolic heart of the country. The existence of national facilities and amenities such as museums, convention halls and other prominent sites with green landscape has drawn visitors, making it the country's key attractive destination.

However, it is necessary to further strengthen its functions and continuously develop amenities with attractive green environment, in order to compete with other capitals of other countries in attracting local and international tourists.

5) Urban Service coping with Growing Population

Lusaka City and other towns should provide sufficient urban services with adequate infrastructure and effective transport access to meet future demands due to population growth and various needs of its citizens.

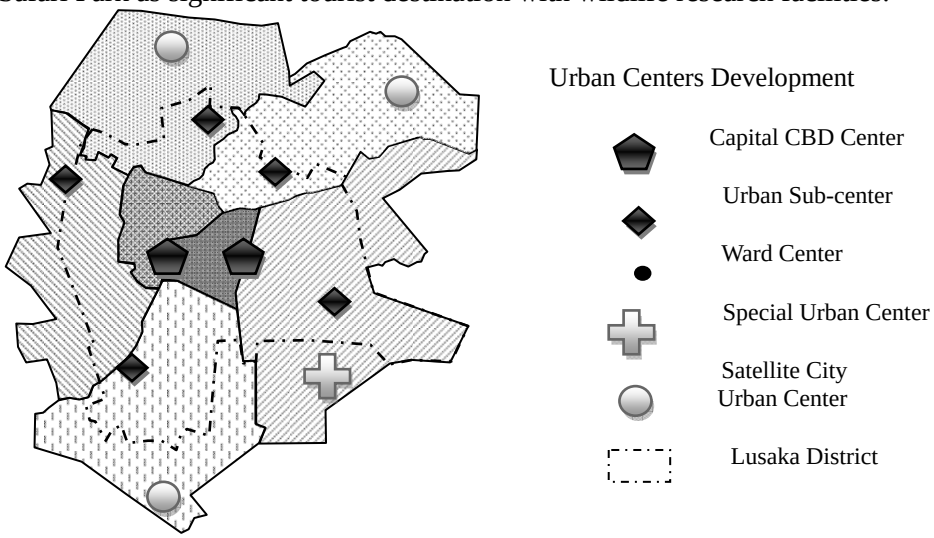


Source: JICA Study Team

Figure 5.4.1 Role and Function of Urban Centers for the Capital in Greater Lusaka Area

(2) Urban Centers Development in Greater Lusaka area

According to roles and function of urban centers in Greater Lusaka, development and strengthening of hierarchical centers are required not only for the current CBD area but also other potential areas including suburban center areas and satellite cities. Figure 5.4.2 and Table 5.4.1 shows proposed urban center development and its system in hierarchical manner. It should be noted that MFEZ would have a specific function and role to meet economic zone development in association with the development of a Safari Park as significant tourist destination with wildlife research facilities.



Source: JICA Study Team

Figure 5.4.2 Urban Center's Development for Target Greater Lusaka Area

Table 5.4.1 Urban Centers to be formulated for Greater Lusaka

Urban Centers	Location	Function and Role			Urban Development Measures
		Public/ Administration Services	Commercial and Business	Key Public Facilities	
1.Capital CBD Center (2)	Existing Lusaka CBD center along Cairo Rd. New CBD in Chiwala-Mabwe area including City Airport	• National political center • Central / City Governments • National Univ. Research Institutes, etc.	• International / business center • International / monetary financial center • Knowledge Center with ICT • Commercial/Shopping and Tourist Center	• National Univ. Research Institutes, etc for politics, ICT and economic development • National historical cultural centers • Regional health / social welfare office • Regional security office	• Redevelopment of Lusaka City Airport • Gov. Bld. Renewal • Expropriation (gov land or other vacant land)
2.Sub-Center (5)	5 in each Urban Cluster - Woodland - Kafue Rd - Chunga - Chazanga - Chamba	• Public service center • School and vocational center, etc. • Town cultural center	• Shopping center • Local business and trade center • Urban service center for utilities	• Local health/social welfare center • Local security center • Local	• Urban Renewal • Expropriation (agriculture land or other vacant land)
3.Ward Center (33)	33 Wards	• Ward administrative service office • Public service office	• Local commercial ad shops and market • Local business and services	• Health/social welfare office • Security office • Education facilities	• Urban renewal • Expropriation (agriculture land or other vacant land)
4.Specific Urban Center (1)	MFEZ	• Related administration office for MFEZ development • MFEZ promotion center	• Logistic terminal • Supporting business • Tourist hospitality center International hotel with convention facilities • Hand-craft center	• National industry development research center • Wildlife research center • Tourist visitor center for Safari Park • Local health/social welfare center • Local security center	• Expropriation (agriculture land or other vacant land)

Source: JICA Study Team

(3) Capital CBD Center Development

1) Location and Rationale

The City's CBD Center is proposed to cover 6,900 ha area surrounded by proposed arterial roads including regional-national roads of Greater East, and other trunk roads. Existing CBD is located in the current city center at the area near the intersection of Greater North-Kafue road and Greater East road, where the national railway and the central station are located. The center is also within the vicinity of a new urban development that has commenced in the eastern part near the Lusaka City Airport operated by Zambia Air Force as an emergency airfield.

On the other hand, areas between these two developments are observed to be changing gradually from large plot residential areas to commercial business land use.

In this development context, proposed CBD center needs to cover these areas as the Capital Urban Center.

2) Formulation of Capital CBD Center

The Capital CBD Center development requires wide range of urban development in integrated manner in order to achieve competitive and attractive urban center formulation. The following are key components for improvement and development of the center.

- Redevelopment of existing urban area including the highly potential Lusaka City

Airport, which will serve as heliport for emergency use of officers

- Provision of mixed land use areas to encourage private sector development in commercial and business sector combined with high-medium residential development
- Road access and public transport development to serve businesses and commercial activities based on an environmentally friendly system
- Urban amenity development linking with the pedestrian network

Source: JICA Study Team

Figure 5.4.3 Plan of CBD Area Development of Lusaka

5.4.2 Industrial Development

(1) Development Character and its Spatial Distribution of Lusaka Industry

Existing industrial areas are concentrated in Namanunga and Chinika areas in the western side of the City Center of Lusaka, where domestic and some regional market products are manufactured. Meanwhile, new industrial areas have expanded towards the southern area along Kafue road. Small manufacturers producing wooden furniture and construction materials (iron works and housing concrete block, etc) as informal

sector industry which are operated by low-income groups, has scattered in UUS.

Recent industrial development benefiting from key countries' investment such as China and South Africa, lead to progressive large-scale industrial zone establishments in the suburban area further beyond Lusaka City. This includes the Chinese industrial development at Lusaka International Airport in Chongwe. Government has also pushed for the MFEZ development in Kafue District in the southern part of Lusaka City.

(2) Spatial Development Direction in conjunction with Urban Development

Industrial development leading the role for economic development in Greater Lusaka will achieve the development vision through effective and efficient infrastructure provision. Urban centers will support urban services including human resource development and information technology services.

On the other hand, enhancement of SME is also essential to boost the economic development, contributing to low income group in the City. This is initiated through provision of adequate infrastructures and skills development and training, which are vital for the FDI industrial development, as a supporting industry. The following illustrate industrial spatial development direction in conjunction with urban development:

- Promoting export oriented industry with FDI by industrial zoning-led development in a strategic location

  Lusaka should maximize potentials of accessibility to regional economic corridor, high-skilled workers and services from the urban center in Lusaka, through promotion of FDI taking advantage of investment environment.

- Adequate infrastructure service in combination with planned urban development

  Provision of competitive industrial areas in convenient locations will be inevitable to attract advanced or high-tech industries to establish in Greater Lusaka. This requires organized planning and development to formulate urban areas with adequate infrastructure and ideal urban services.

- Encouraging SME enhancement in conjunction with urban redevelopment

  Lusaka should accelerate the improvement of SME or informal sector manufacturers which utilize poor facilities that pollute the living environment. These facilities need to be either improved or relocated to promote urban redevelopment opportunities.

- Consolidating SME industries with strategic support by urban development

  SMEs which play an important role in generating job opportunities for the low-income group, need to be consolidated through the policies of supporting industries formulated by leading manufacturers (FDI and competitive companies, etc). Urban development with the provision of convenient transportation network and appropriate land use could provide means of addressing SME's improvement through effective financial supports and betterment of living conditions.

- Formulating effective link between industrial development and research and development in a strategic location

  Lusaka in which research and development, universities and institutions are centralized, through the assistance of the management of higher level education and skilled workers, should play a significant role in improving industrial technology of old and less competitive industries.

- Motivating factories in living areas or city center to relocate to suitable suburban place

Negative impacts of polluting industries on the environment, land uses, and living conditions must be considered. Relocation sites of industries must be planned in much wider areas in Greater Lusaka including the adjoining districts.

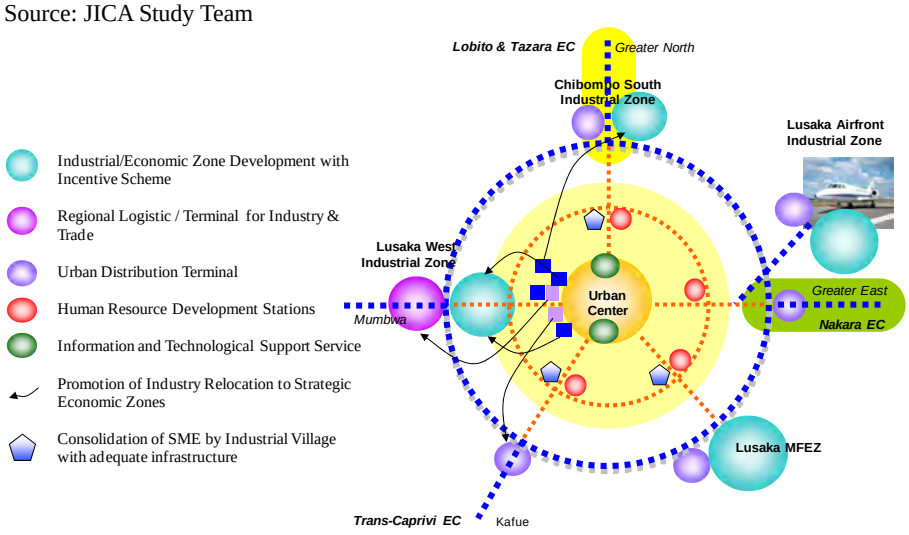
- Logistics and distribution center and research and development center close to industrial clusters

Regional logistic center for export and local distribution center for major domestic market could encourage competitive industry development. These facilities should be close to major industrial clusters for expediting manufacturers' orders. On the other hand, research and development facility will also support advanced technological improvement of supporting industry for export-oriented development.

Table 5.4.2 Strategic Spatial Formulation for Urban Industry Development

Key Industrial Development Element		Strategic Location Preference			Development Measures	Key Responsible Body
		Regional Corridor / Ring Road	Sub-urban / Rural Area	Inner City Area		
FDI	Resource-base industry	●	●	--	INF, PR, GA,	ZDA/ZIC, ML DCs
	Regional market export-oriented industry	●	○	--		
Supporting Industry for FDI / Domestic Industry	Commodities service industry	--	●	○	INF, FA	MFNP, relevant Monetary Institutions
	Local supplier (SME)	--	●	○		
	Information & Technology	○	○	●	INF, FA, PR	MTC, MSTVT
Logistic and Terminals	Inter-regional Distribution	●	○	--	INF, PR, GA,	ZDA/ZIC, ML/MCTI, DCs
	Intra-city Distribution	●	○	○	FA,GA	DCs, ML

Legend: ● = high potential location, ○ = possible location with adequate infrastructure -- = not suitable
Note: INF = Investment incentives and facilitation (tax exemption, one-window procedure for investment, etc), PR = investment promotion (brochure, web-site, etc) for FDI, GA = Government assistance for provision of land and infrastructure, FA = Financial assistance for SME by fund and loan, ZDA = Zambia Development Agency, ZIC = Zambia Investment Center, ML = Ministry of Land, MFNP = Ministry of Finance and National Planning, MCTI = Ministry of Commercial, Trade and Industry, MTC = Ministry of Transportation and Communication, MSTVT = Ministry of Science, Technology &Vocational Training, DCs = District Councils (Lusaka, Kafue, Chongwe, Chibombo).
Source: JICA Study Team



Source: JICA Study Team

Figure 5.4.4 Spatial Formation of Industry Development

5.5 Housing Development Plan

(1) Housing Development Framework

The housing stock of the Greater Lusaka in 2007 consists of estimated 260 thousand units based on the Housing Census 2000 and trend of population growth. The housing shortage may be estimated at 36 thousand units, assuming that housing requirement is equal to the number of households. This shortage implies that group of households residing together in one housing unit is commonly adopted.

Table 5.5.1 Housing Framework for the Greater Lusaka

Year	2007	2015	2020	2030
Population (000)	1,450	1,740	1,970	2,880
No. of Households (000)	296	367	425	649
Housing Stock (000)	260	395	480	649
Required Additional Housing Units				
Period	2008-2015	2016-2020	2021-2030	Total
Period Requirement (000)	135	85	169	389
Annual Requirement (000)	17	17	17	-

Source: JICA Study Team

The target number of housing stock in 2030 is set to meet the projected number of households in the same year. The number of households will increase to 649 thousand units by 2030, assuming that the average household size will decrease from 5.04 in the year 2000 to 4.44 in the year 2030 (a decrease of 0.1 every 5 years) based on the trend such as conversion of household into nuclear families, migration of young generation from rural areas and others.

In order to meet the number of households in 2030, a mass of housing units (17,000 units per year) have to be built. The target numbers of housing stock are 395 thousand units in 2015, 480 thousand units in 2020 and 649 thousand units in 2030, as shown in the above table.

The targeted numbers are not impossible to attain, however considerable effort and large funds will be required on a long-term basis. In particular, the full involvement of local governments for the provision of social housing for low-income group will be indispensable to meet the goal.

(2) Spatial Distribution of Housing Stock

The existing settlements in the Greater Lusaka are classified into PUS and the improving housing area, UUS, and the satellite town, in accordance with legal status and features. The distributions of housing stock in those classified areas are estimated based on the spatial plan of the Greater Lusaka.

Table 5.5.2 Spatial Distribution of Housing Stock

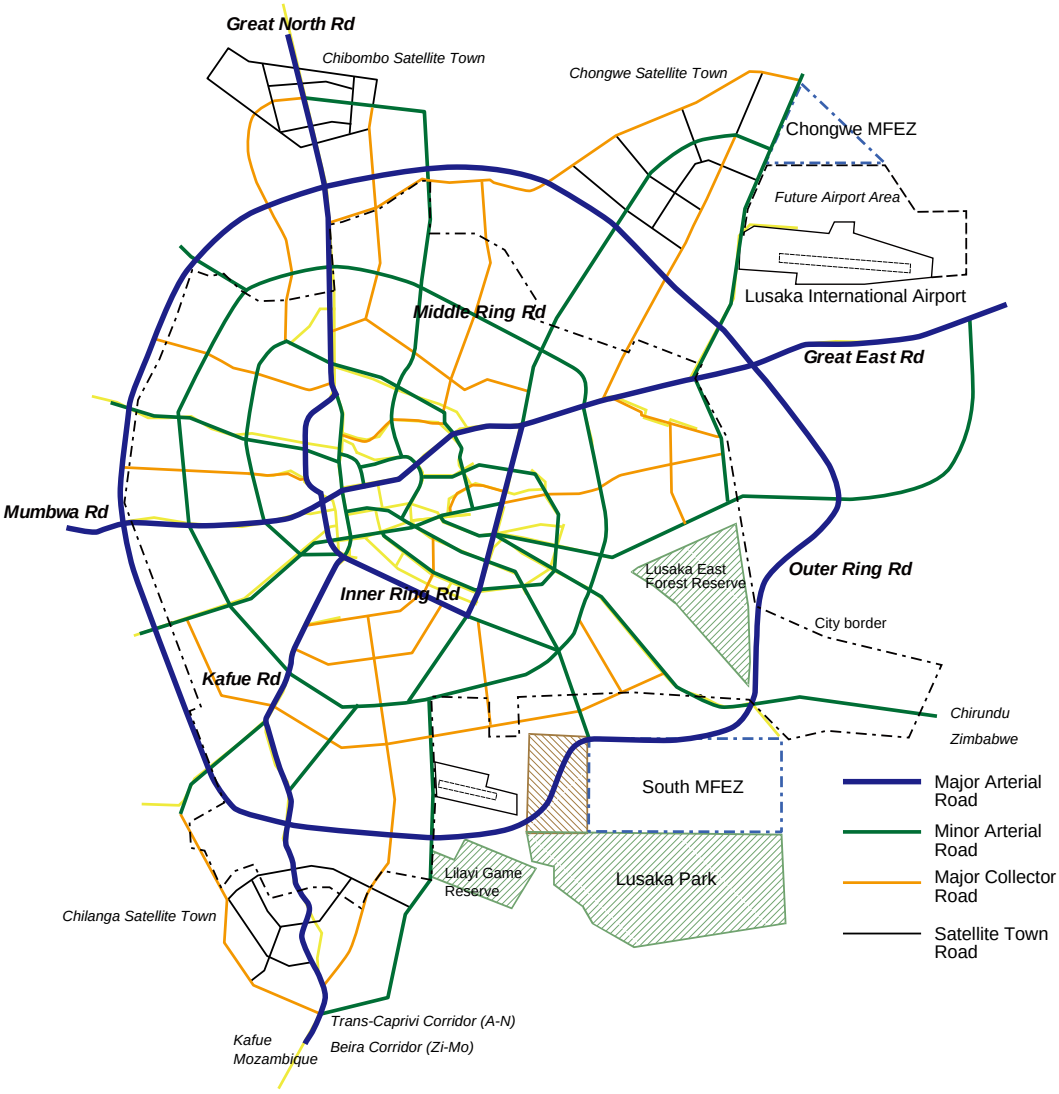
Area \ Year	2007	2008-2015	2016-2020	2021-2030
PUS & Improving Housing Areas	136,000	262,000	333,000	424,000
Maintained/Rebuilt Units	-	136,000	262,000	333,000
Newly Developed Units	-	126,000	71,000	91,000
UUS	110,000	112,000	115,000	130,000
Maintained/Rebuilt Units	-	110,000	112,000	115,000
Newly Developed Units	-	2,000	3,000	15,000
Satellite	14,000	21,000	32,000	95,000
Maintained/Rebuilt Units	-	14,000	21,000	32,000
Newly Developed Units	-	7,000	11,000	63,000
Total	260,000	395,000	480,000	649,000
Maintained/Rebuilt Units	-	260,000	395,000	480,000
Newly Developed Units	-	135,000	85,000	169,000

Source: JICA Study Team

The housing stock in the UUS will increase from 110 thousand units (2007) to 130 thousand units (2030). In UUS, 20,000 housing units will be developed simultaneously with those being renovated. The housing stock in satellite towns is assumed to be constructed to meet the required number of housing units each year. Over half of housing stock will be constructed within the PUS and the improving housing areas.

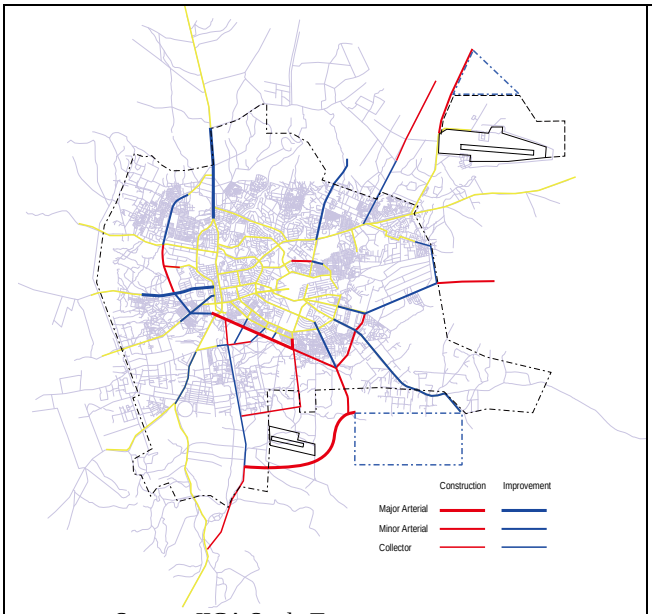
5.6 Urban Transportation Development Plan

Figure below illustrates the road network in 2030. This consists of three ring roads, 12 radial roads, and seven other major roads. Road development plan in short and mid terms are shown in the figures below.



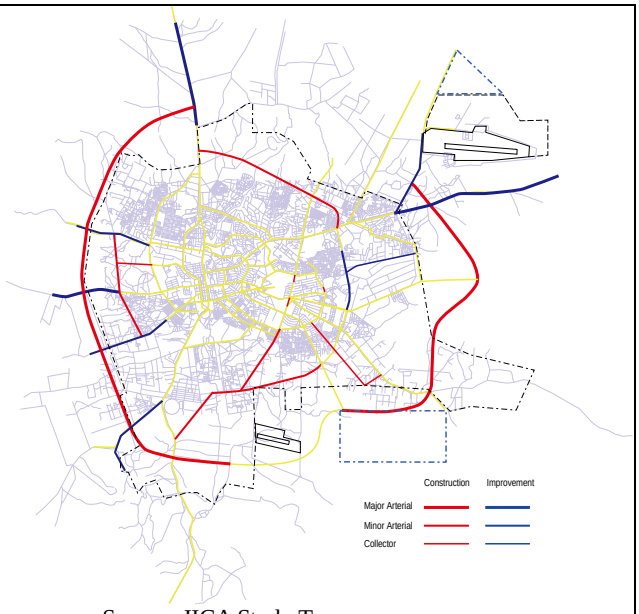
Source: JICA Study Team

Figure 5.6.1 Road Network in 2030



Source: JICA Study Team

Figure 5.6.2 Road Development Plan in Short Term

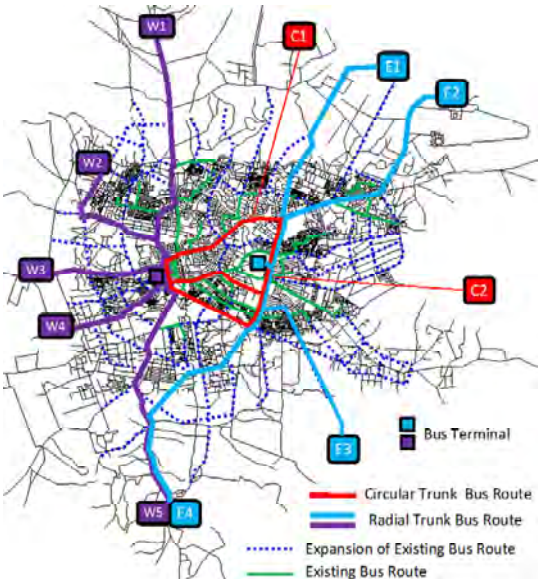


Source: JICA Study Team

Figure 5.6.3 Road Development Plan in Medium Term

Public Transport Development

The public transport system in Lusaka will evolve in accordance with the changes in its socio-economic situation, and several institutional reforms will be necessary. The future public transport system will need bus infrastructure such as scheduled bus system with the priority/exclusive lane. Commuter rail revitalization with new system operation will also be attractive public transport device for Lusaka. Figure 5.6.4 shows the trunk bus network and urban railway route proposed for the long-term. The future bus network will have two terminal points in town and the new city center. Priority or exclusive use of a lane for the scheduled buses will be introduced as trunk for faster movement of buses.



Source: JICA Study Team

Figure 5.6.4Bus Route in Long Term

Traffic Management

The major urban traffic problems in Lusaka City are traffic congestion at saturated roundabouts, un-signalized intersections, several signalized intersections, and low public transport usage, lack of parking space, and illegal parking. Bottleneck must be improved through improvement measures, which may include intersection geometry improvement, signal improvement, parking system improvement, application of road markings, introduction of TDM (Traffic Demand Management), etc.

5.7 Environmental Protection and Green Network Development Plan

(1) Environmental Character and Spatial Distribution of Greeneries in the Environment of Greater Lusaka

Greeneries and water are essential factors for establishing ECHO garden city in the Greater Lusaka area, where dolomite geological conditions spreading out Lusaka City, generates sensitive groundwater system.

Rich green area has been retained in the city center as an old town quarter forming an attractive landscape. Also, suburban area especially the southern part of Lusaka City and its east-western side retains rich green area together with intensive farm lands (so-called commercial farmer's land). Mountainous area with rich forest is only observed in the eastern side known as the Lusaka East Forest Reserved Area No.27, although other forests also remains as official protected areas with poor bushes and shrubs, unlike the designated forest reserved areas.

The Zambia Wildlife Authority has implemented Lusaka Park (Safari Park) project in 2008 in order to protect and recover natural forest areas with wild animals. The park is within the Lusaka South Forest Reserve No.26 and No.55 (7,000 ha).

Rivers and streams are filled with water only during the wet season while the Miombo wetlands penetrate into Lusaka's urban settlement, where some of these streams and rivers are encroached by illegal settlement such as those in the Mazyopa area. During wet season inundation occurs in the urban settlement areas due to lack of drainage system.

Public recreational facilities and parks are very limited in the City, while private sector green and recreation areas such as private sports clubs and golf courses occupy large areas in the city center. There is no distinctive walkway network system except for some limited pedestrian walkway in front of the private and Government facilities. However, no continuous pedestrian network is provided to link the pedestrian walkways.

Open spaces are also limited for citizens and visitors in the City except for two large public cemeteries. Meanwhile major institutions such as government, universities and hospitals occupy large site areas.

(2) Directions for Environmental Protection and Green Network Formulation

The formulation of ECHO garden city requires continuous efforts and development as part of the long-term goal. This is initiated through the creation of overall environmental protection programs executed by all stakeholders' involving citizens and designated leaders.

Environmentally vulnerable Lusaka City and its surroundings considering water system, is also an essential issue to be addressed through careful planning and management system towards a sustainable environmental protection and development. Citizens' participation will be essential for achieving the ECHO garden city goal. They are expected to provide vital contribution to the public services for park development and environmental protection program, through continuous efforts. Consequently, the following elements are required in order to achieve the ECHO garden city formulation in an integrated manner:

1) Protect Vulnerable Natural Environment

2) Securing and Encouraging Urban Environment Amenity

3) Stimulating Citizen's Pride and Participation on Environmental Program

4) Local Environmental Action for Global Environmental Issues

(3) Program Components

The programs and plans for the Environmental Protection and Green Network Development are shown in the following Table 5.7.1 and Table 5.7.2.

Table 5.7.1 Environmental Protection and Green Network Development

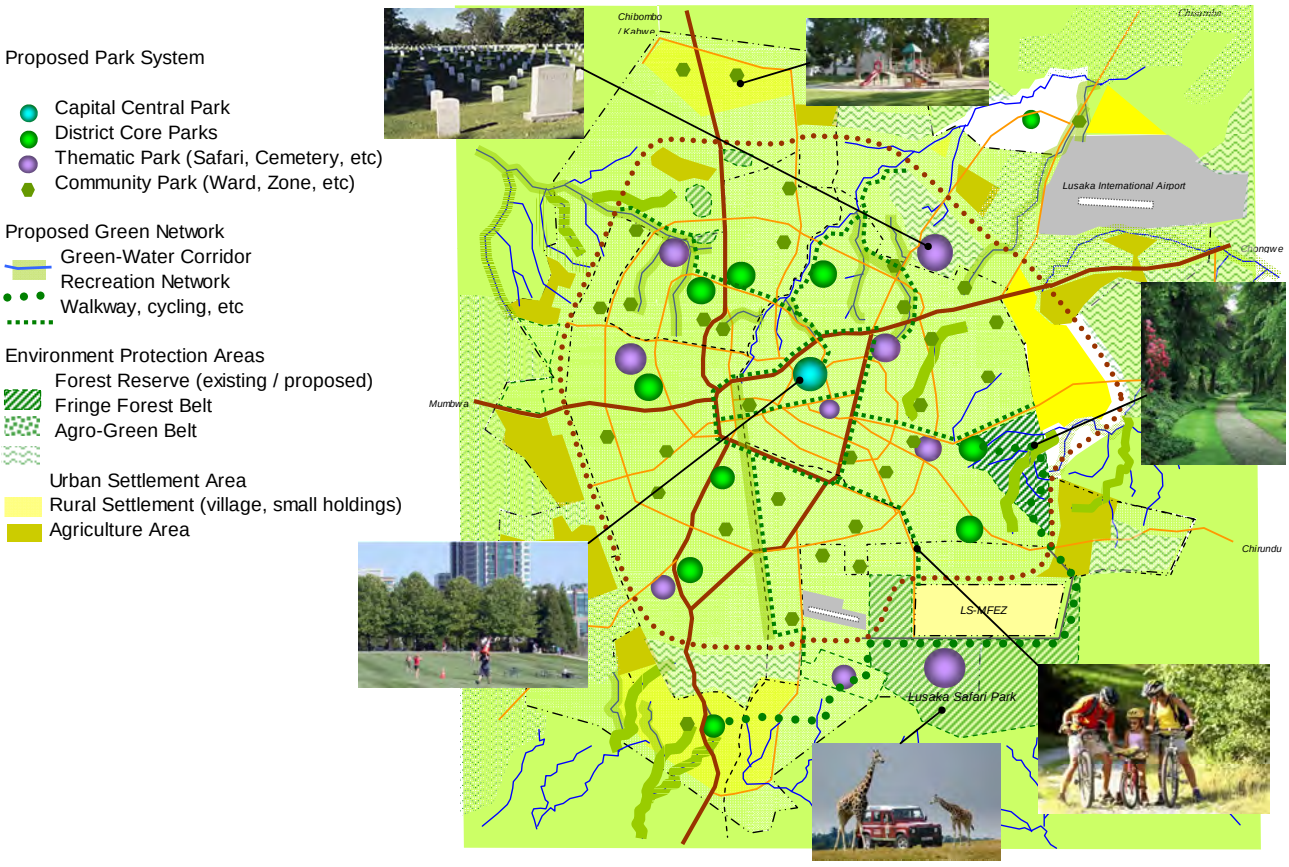
Goal	To achieve "ECHO Garden City of Lusaka" as proud of nation and citizen		
Policy	Promotion of Environmental Action in Key Areas	Development for Foundation of Sustainable Environment	Establishing ECHO Garden City
Development Phase	Short Term (-2015)	Medium Term (2016-20)	Long Term (2021-30)
Protect Ecological Urban Environment	Establish Manage-ment Plan: Water Resource; Hazard Prevent; Solid waste Plan; Nature Protection; Green Belt Plan Implementation of - Water management & project - Inundation manage & project - Disposal site & emission manage Partnership and cooperation with private sector Protection & Control: Empower legal action; Site Management; Purchase sites Designation of statutory areas of - Nature protection areas - Hazard prevention areas - Green belt area for farm land		Established sufficient and effective environmental management system of ECHO city - organization, plan, budget - staff, supportive staff - incentives, tax for environment Effective operation and efficient monitoring to improve ECHO Garden city
Securing and Encouraging **Urban Environmental Amenity**	Establish City Park System: Park standard; Guideline; Budgeting; Cemetery system; Land provision Experimental park development - Key district parks (Olympic park) - Pilot community park project - Experimental operation by community Experimental cemetery dev - Multi-story cemetery - Cemetery park development Safari Park Development Experimental Operation and Wildlife management Establish entire Safari Park Formulate Green Network System: Walkway; Cycling; Riverside route; Nature trail route; Street tree network Priority network development - Walkway in city center - Riverside cycling roots Priority network development - Walkway in city center - Riverside cycling roots		Established sufficient citizen's park with comfortable greenery - organization, plan, budget - staff, supportive staff - incentives, tax for environment Established entire and attractive green network - For citizen and community - For tourists and visitors - For business people
Citizen's **Proud and Participation**	Campaign and Environmental Education: One Community one plantation; No more charcoal campaign; Clean community campaign Participatory program for environmental betterment Establish public & private partnership for environmental program and implementation Establish community environment keepers - Park operation - Garbage CBE expansion - Environment watchers		Established citizen's proud and participation on environmental program and operation

Source: JICA Study Team

Table 5.7.2 Program and Plan for Local Environment Actions for Global Environment Issues

Goal	To achieve "ECHO Garden City of Lusaka" as proud of nation and citizen		
Policy	Promotion of Environmental Action in Key Areas	Development for Foundation of Sustainable Environment	Establishing ECHO Garden City
Development Phase	Short Term (-2015)	Medium Term (2016-20)	Long Term (2021-30)
Local Environment Action for Global Issues	Change Lifestyle: Saving Energy; Water Use Saving; Substitute Energy from Charcoal; Alternative Energy Use; Low Emission Public Transport; Saving Waste and disposal; Safe and health sanitation Technology Develop & Utilize: Alternative Energy Development; Effective & Feasible Public Transport; Feasible Septic Tank Dissemination		Ecological Lifestyle - Reuse & recycle - Ecological production consumption - Low emission transport - Low energy consumption Health Lifestyle - Safe and sufficient water - Free from key disease Safe and Comfortable Living Environment

Source: JICA Study Team



Source: JICA Study Team

Figure 5.7.1 Plan of ECHO Garden City and Green Environment Protection

5.8 Living Environment Improvement Plan

5.8.1 Improvement Strategy for Better Living Environment

(1) Overall Strategy for Living Environment Improvement

1) Improvement Strategy by Type of Living Environment

Based on the types of urban settlements such as UUS, PUS and other urban settlements, improvement scheme should be set up in consideration according to each specific characteristic and features and in terms of the road network pattern (order or disorder) and proximity to the city centers. The priority program for improvement components should be defined based on conditions of each urban settlement, i.e., UUS need quantitatively fundamental infrastructure improvement while PUSs require qualitative improvement except for some places without sufficient infrastructure and public services.

Table 5.8.1 Improvement Components Priority by Urban Settlement Type

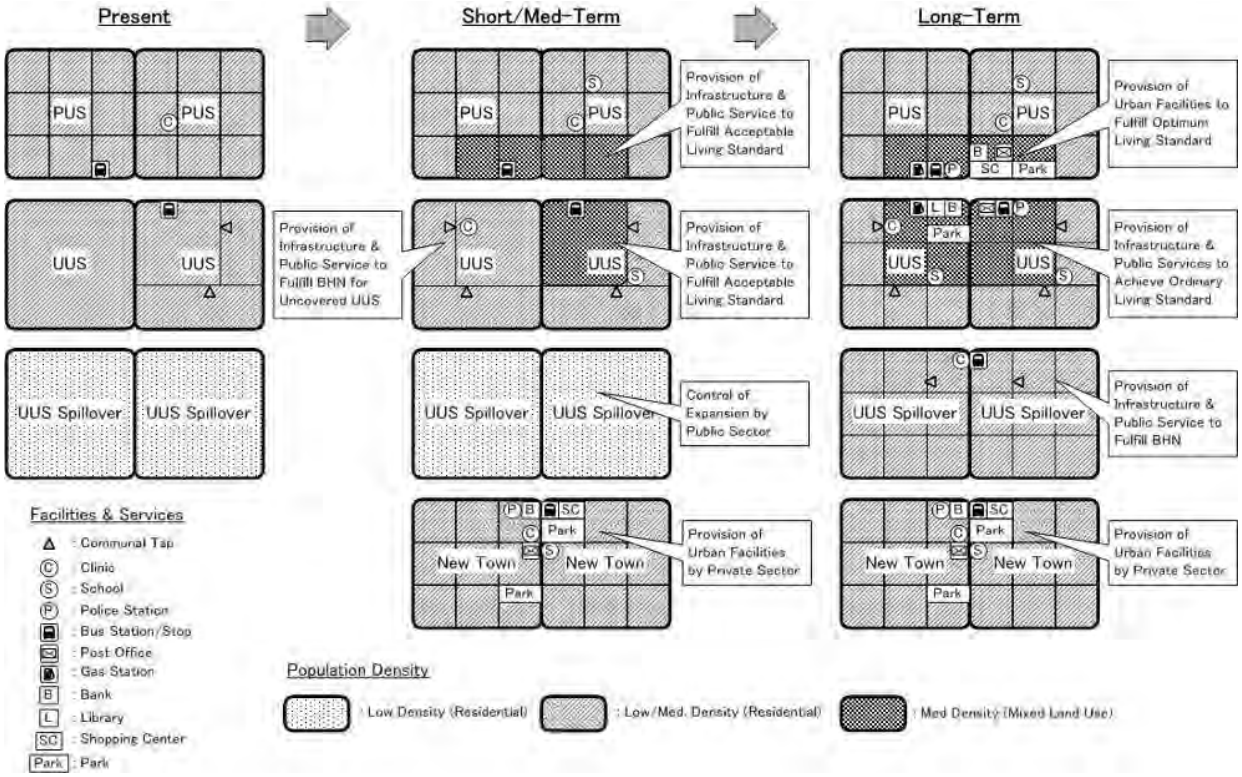
Location of Urban Settlement		Improvement Component					
		1	2	3	4	5	6
		Basic Infrastructure Improvement	Basic Public Services Improvement	Securing and Consolidating Land Tenure	Appropriate Housing Provision	Capacity Development for Community Activity	Encourage Informal Sector Business Activities
1. UUS	Urban Center	●	●	●	●	○	○
	Suburban	●	●	●	○	●	●
2. UUS Spill Over (suburban)		●	●	○	○	○	○
3. PUS	Urban Center	○	○	--	○	--	--
	Suburban	○	○	--	○	--	--
4. New Settlement	Subdivision (suburban)	○	○	--	○	--	--
	New town (rural)	--	--	--	--	--	--

Legend: Priority grade ● = compulsory improvement, ○ = partially, -- = not applicable.
Source: JICA Study Team

2) Phasing Approach for Living Environment Improvement

The priority of improvement components are interpreted through phasing of programs for every settlement. In the short/medium terms, infrastructure and public service for Basic Human Needs (BHNs) should be provided for the UUS without services. At the same time, infrastructure and public services to fulfill acceptable living standards should be also provided for the rest of the UUS.

A settlement that is located adjacent to an urban center can be improved together with commercial land development. Meanwhile, those covered by the new town development will be provided by the implementing private sector themselves. In the long term, infrastructure and public services are provided for UUS in order to achieve the normal living standards.



Source: JICA Study Team

Figure 5.8.1 Concept of Development Program by Characteristics of Settlement

(2) Living Environment Improvement in UUS

Both PUS and UUS in Lusaka experience poor living conditions and need to pursue better quality of life. However, UUS should be given the priority in resolving critical issues of Lusaka's urban areas as aforementioned.

1) Improvement Principles of UUS

Considering current issues of UUS development, the following principles are needed to initiate UUS improvement.

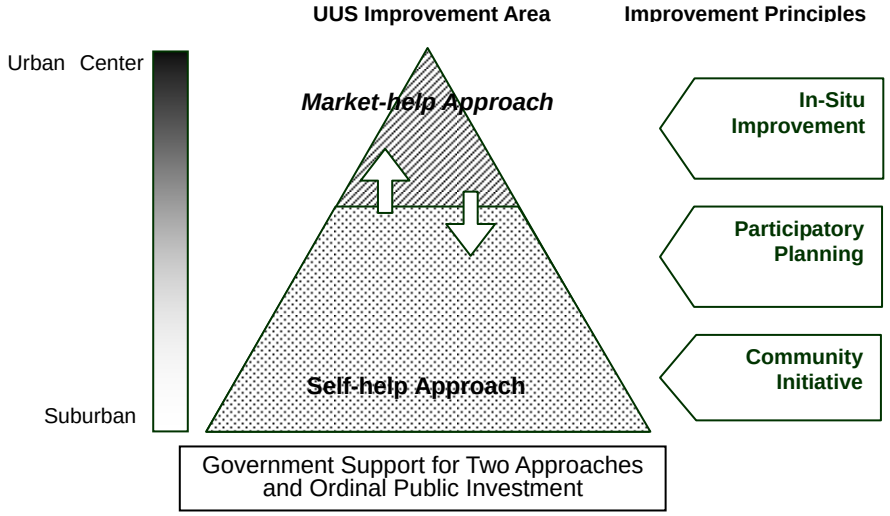
- *Participatory Improvement* in planning process in order to build community's consensus for better living environment.
- *Community Initiative Improvement* through community's participation in living environment improvement by community based organizations or enterprises such as private sector and other resources.
- *In-Situ Improvement* in order to enable residents to settle in the same site in case of necessary land readjustment and infrastructure developments.

2) Improvement Approaches of UUS

Taking account of geographic characteristic of UUS in terms of land value and accessibility to the City, and large area with large population, dual approaches are proposed to gradually improve UUS conditions.

- *Market-help Improvement Approach* enabling private sector to be involved in city's property and assets utilization through land business mechanism
- *Self-help Improvement Approach* through encouragement of existing community activities by CBO, CBE.

Effective supports from the government are required to execute both approaches, in consideration with synergy effects of ordinal public improvement and necessary institutional arrangements such as land tenure security, financial support, etc.



Source: JICA Study Team

Figure 5.8.2 Conceptual Diagram of UUS Improvement Policies and Approach

(3) UUS Improvement Components

In order to materialize the improvement approach, key improvement components are formulated to address issues of living environment shown in Table 5.8.2. As living environment improvement covers multiple sectors, improvement components should be formulated strategically in an integrated manner in association with the development of other sectors such as water and urban transportation.

Table 5.8.2 Improvement Components for Better Living Environment

Improvement Component	Strategic Improvement Approach		Public Investment and Government Assistance
	Self-help Approach	Market-help Approach	
1. Basic Infrastructure Improvement	• This is not applicable to community due to technical and financial difficulties of the community • Only support program for public awareness activities	• Area infrastructure development by urban renewal or redevelopment method • PPP development for profitable utilities (e.g. water supply)	• Investment for priority routes to link roads with key public facilities • Development of priority communal infrastructure (communal tap, community toilet, inundation mitigation, etc)
2. Basic Public Services Improvement	• CBE activities can be expanded to public service (health, education, security, fire-prevention, etc) • Voluntary activities for public services	• Guiding private sector investment (private education, health, others) into UUS with advantageous conditions	• Public investment for public service in strategic areas • Financial supports through provision of tax exemptions for CBE; provision of subsidies • Public asset concession to CBE for sustainable operation and management
3. Securing and Consolidating Land Tenure	• Public awareness program for land tenure arrangement	• Area land readjustment of public land with occupancy license residents by urban renewal or redevelopment method for land tenure streamlining • Private sector involvement in land business in conjunction with urban renewal method	• Decision making for land deed title to community by proper land distribution • Public asset management policy setting by lease hold to private sector

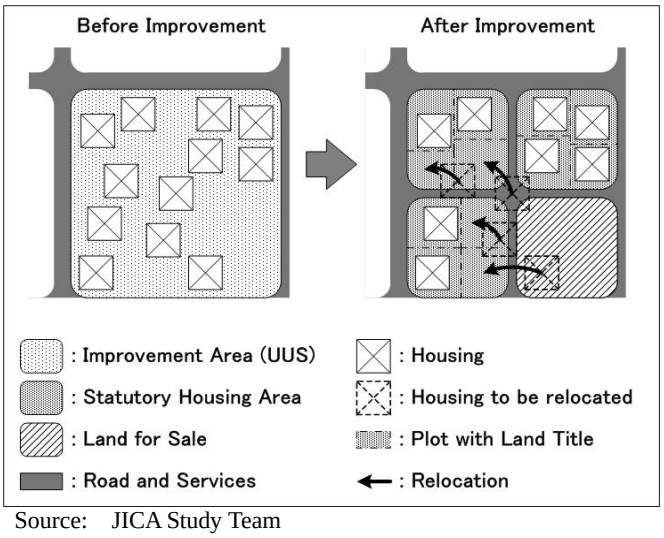
Improvement Component	Strategic Improvement Approach		Public Investment and Government Assistance
	Self-help Approach	Market-help Approach	
4. Appropriate Housing Provision	• CBO can support self-financing house construction through loan-scheme provision • CBE formulate business for better quality of building material	• Private sector promote rent-housing provision by better standard • Private sector can be encouraged by multi-stories housing development	• Financial supports by tax exemption of CBE, provision of subsidies for private housing provision • Provision of housing loan scheme for affordable housing provision • Establishment of Condominium Act for assurance of floor right
5. Capacity Development for Community Activity	• CBO/CBE needs adequate capacity to handle effectively with each component	• This is not applicable by market mechanism..	• Government program for community capacity development should be formulated in cooperation with ODA program
6. Encourage Informal Sector Business Activities	• Informal sector business can be encouraged and combined with CBE business	• Profitable business can be developed in association with private companies	• Financial supports by tax exemption of CBE, provision of subsidies for private housing provision

Note: CBO: Community Based Organization, CBE: Community Based Enterprise, PPP: Public Private Partnership
Source: JICA Study Team

5.8.2 Urban Renewal for UUS as a Market-help Approach

(1) Land Readjustment with Funding Mechanism through Market

Coping with the resident's conditions in UUS holding only occupancy licenses and situated in an area with lack of infrastructure and public facilities and services for decades, land readjustment method as part of urban renewal can be introduced. This is needed to initially address this improvement issue. The method enables residents (building owners) to possess land titles in a rational order and to generate funds for infrastructure improvement public lands of the UUS. This is executed by compacting and adjusting lands to obtain surplus lots, which will be sold to private sectors as source of funding.



Source: JICA Study Team

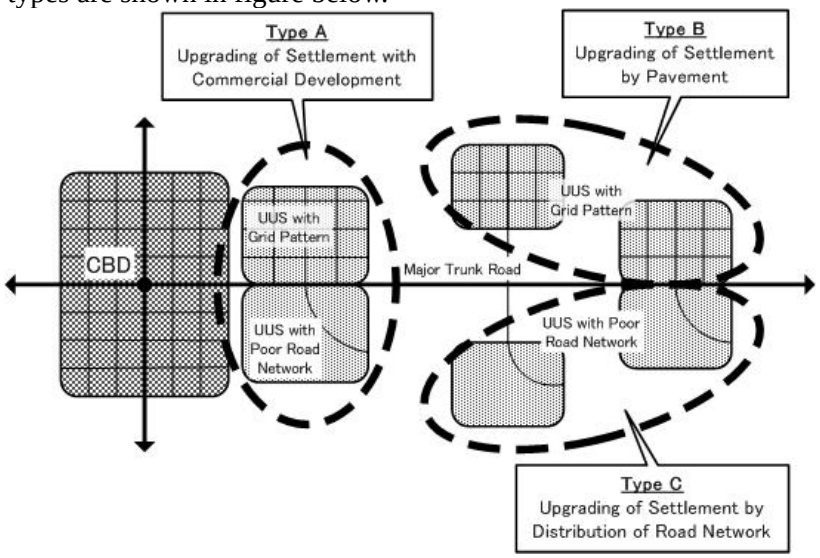
Figure 5.8.3 Conceptual Diagram for Land Readjustment Measure in Urban Renewal

(2) Necessary Improvement Package by UUS Type

UUS are roughly categorized into three types from viewpoints of level of improvement. The "Type A" UUS are located next to CBD. This type can secure funds from investors as well as execute subdivision of plots, since value of these lands are high as it is close to the urban center.

"Type B" UUS are located in suburban area, where road and infrastructure has been improved by grid pattern according to defined allocation of housing lots. This type can be improved with less difficulty in terms of re-subdivision of housing lots due to the existsing grid pattern.

"Type C" UUS by disordered sprawl in suburban or rural area does not have a grid pattern infrastructure and road network. Therefore, improvement of these UUS will be costly due to rearrangement of plots for the development of roads. Taking into account the characteristic features, UUS types are shown in figure below.



Source: JICA Study Team

Figure 5.8.4 Type of UUS Urban Form for Applicable Improvement Measure

Table 5.8.3 Categorization and Applicable Improvement Measures for Existing UUS

Name of UUS	Location			Condition of Road Network			Type of UUS
	Near to CBD	Far from CBD but Next to Major Trunk Road	Far from CBD & Major Trunk Road	Grid Pattern	Poor but Partial Grid	Poor	
Kuku/Misisi/Frank	✓					✓	A
Chawama			✓		✓		B, C
John Howard			✓		✓		B, C
Jack			✓		✓		B, C
Freedom		✓				✓	C
Kanyama			✓		✓		B, C
Chbolya	✓				✓		A
John Laing	✓				✓		A
Linda			✓			✓	C
Bauleni			✓			✓	C
Kalikiliki			✓			✓	C
Mazyopa			✓			✓	C
N'gombe			✓		✓		B, C
Garden	✓				✓		A
Chaisa	✓					✓	A
Chipata			✓		✓		B, C
Chazanga		✓				✓	C
Kabanana			✓	✓			B
George			✓			✓	B, C
Chunga			✓	✓			B
Chainda			✓			✓	C
Mtendere Exp.			✓	✓			B
Kalingalinga			✓		✓		B, C
Kamanga			✓		✓		B, C

Source: JICA Study Team

5.8.3 CBE/CBO-led Improvement for Better Living Environment as a Self-help Approach

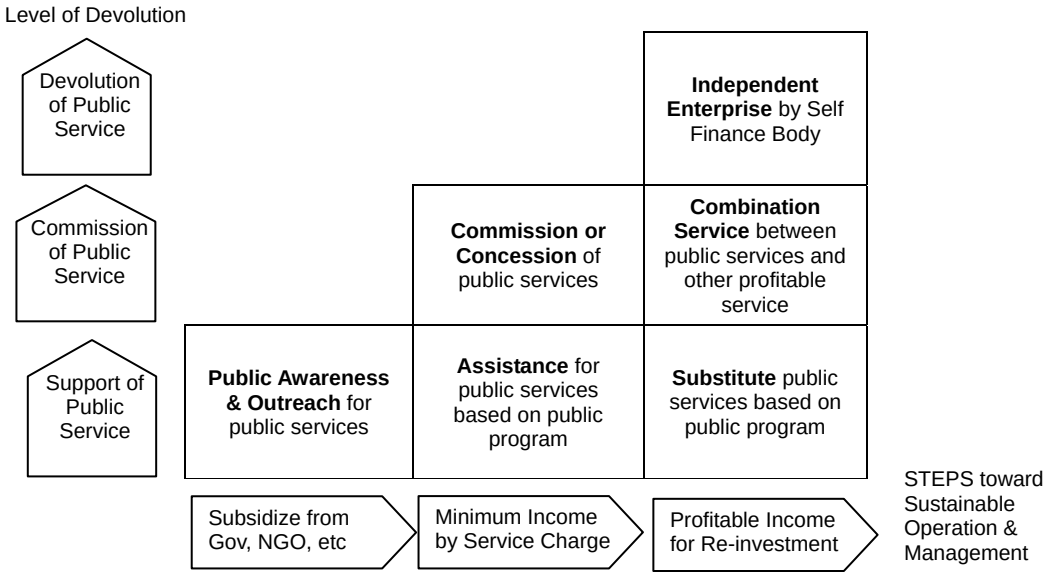
(1) Empowerment of CBE's Activities for Living Environment Improvement

1) Direction of Empowerment of CBE

Because of the financial difficulties and weak administrative capacities of LCC, standard of public services delivery would be limited. If an improved UUS or other UUS is not properly

managed, living environment would deteriorate rapidly again.

Consequently, it is expected that community would play a role in the operation and maintenance of common facilities and delivery of public services. It is considerable for communities (CBE) of UUSs to empower their sustainable operation and management in living environment improvement through gradual process of devolution of public services, while public administration improves and develop infrastructure in strategic areas. Figure 5.8.5 illustrates the direction of empowerment for CBE in UUS in order to enable CBE to operate and manage public service or beneficial activities.



Source: JICA Study Team

Figure 5.8.5 Direction of CBE Empowerment in UUS

2) Potential Sectors of Public Service and Business by CBE

Water supply, transport, drainage, security, and solid waste would be potential sectors to be managed by the CBE. Currently, waste management CBE keeps a small income in general in Lusaka. Payment in kind or reward system can be applied to improve degree of participation of community, to motivate members' participation, and to lead income increase. For example, a CBE in Chaisa UUS introduced reward system once in 2007, inviting donors and companies, and collecting commodities such as detergent, cooking oil, sugar etc. These commodities were distributed to household who contributed to waste management most.

Table 5.8.4 Potential Sector of Public Services and CBE Function in UUS

Sector	CBE	Government	Private	Income source of CBE	Potential Supporter
Water Supply (Water Trust)	Communal tap - Management - Sensitization - Fee collection	Individual tap		- Fee from communal tap user - Lend land as pay-in-kind	- LCC - LWSC
Transport	Community Road - Pavement - Maintenance - Fee collection	Major Road		Road users pay user fee at road checkpoint - Lend land as pay-in-kind	RTFA
Drainage	Construction Maintenance	Establishment/provision of prototype model		Not profitable work - Lend land as pay-in-kind	- LCC - LWSC - RTFA
Security	Vigilante group - Day/night patrol	Setup By-Law under LCC	Private Vigilante group	- Allowance from LCC - Lend land as pay-in-kind	- LCC
Solid	Waste collection	- Monitoring and	Set up solid	Fee from household	- LCC

Sector	CBE	Government	Private	Income source of CBE	Potential Supporter
Waste (Solid Waste CBE)	- Sensitization - Fee collection	evaluation of activity and management - Advice/diagnosis for sound management - Setup testimonial system for incentive	waste group per brotherhood company	- Lend land as pay-in-kind	(WMU)
Health	PHC: - Sanitary education HIV/AIDS - DOTS - Awareness/ sensitization	Responsible for total clinic work	Donation	- Fee from patient - Donation from private companies	- LCC - MoH (DHMT)
Education	Community school - Adult literacy - Basic education to children	- Governmental school - Establishment/ provision of prototype model of school	Private school	- Fee from participant	- LCC - MoE (DEBS)

Source: JICA Study Team

5.9 Social Service and Infrastructure Development Plan

(1) Social Service

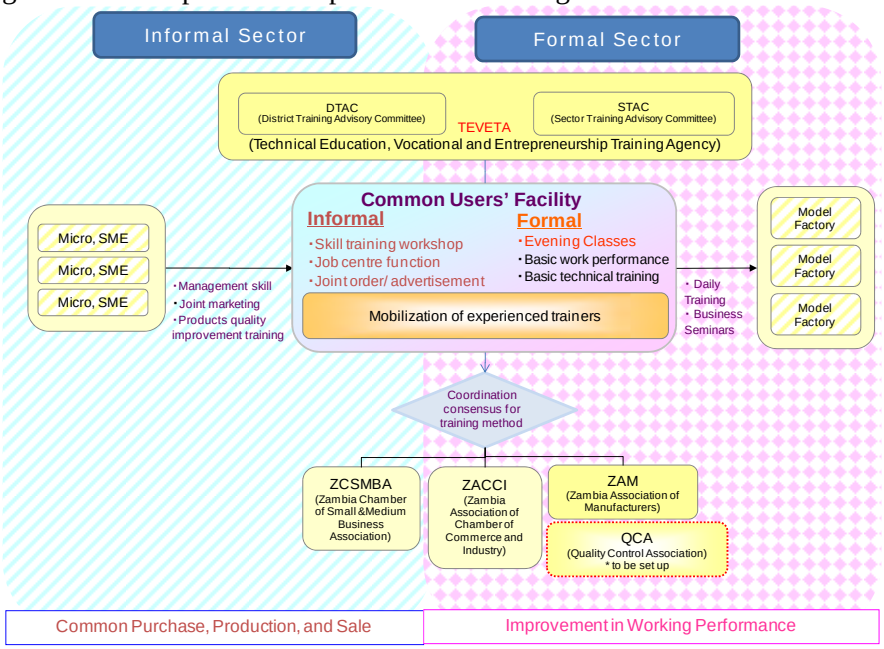
1) Income Generating System

Vocational Training

Figure 5.9.1 presents the basic concept on the strategy for vocational training for informal and formal sectors towards the future, considering roles and relationship among main stakeholders.

TEVETA is in the position to arrange all that is necessary to consolidate and enhance the system. Both formal and informal clusters, which are groups of vulnerable SME or individuals, shall be technically supported by foreign assistance through TEVETA.

Figure 5.9.1 also presents the process of switching from informal sector to formal sector.



Source: JICA Study Team

Figure 5.9.1 Strategy for Vocational Training for Informal Sector and Formal Sector

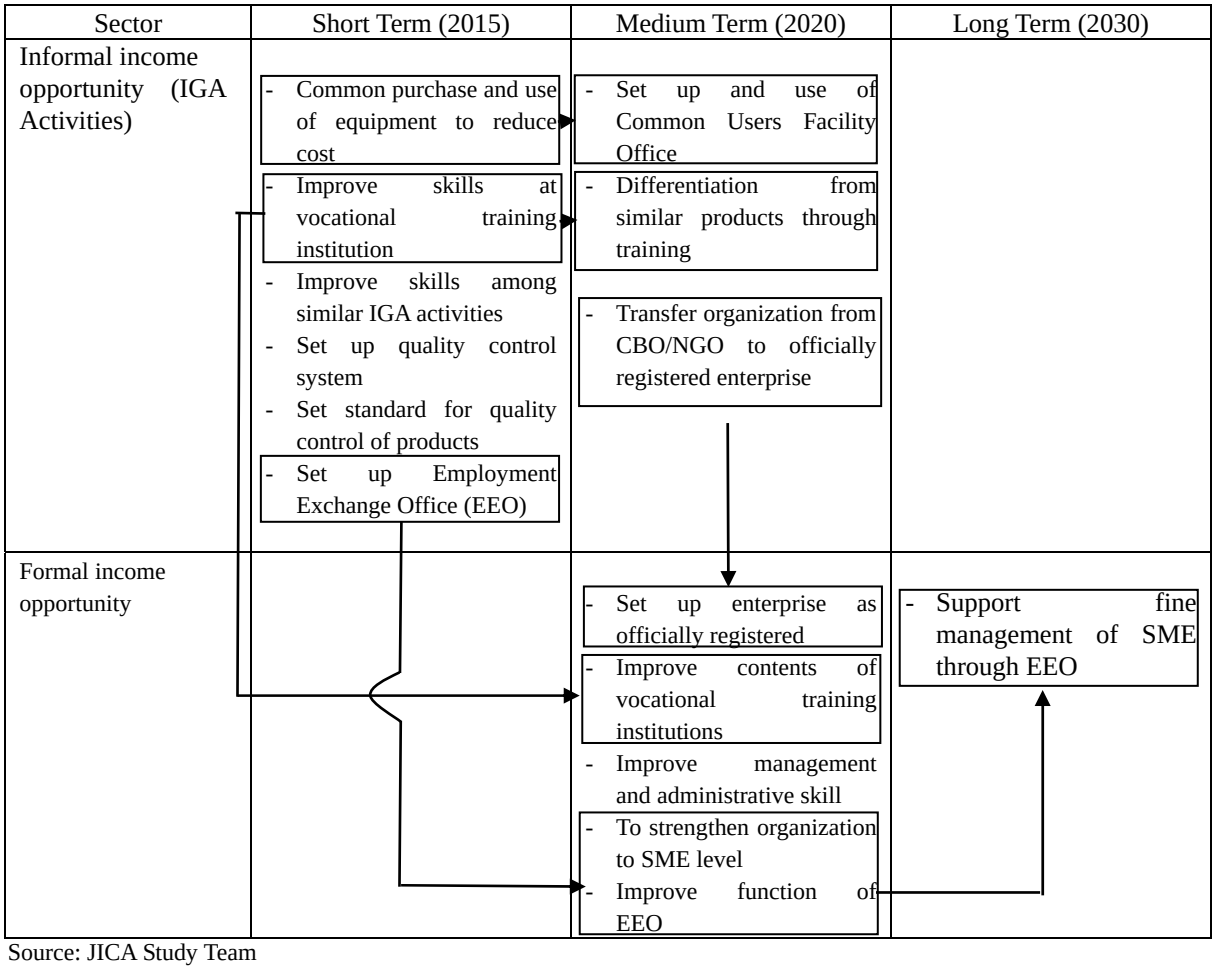
Informal sector's income opportunity such as IGA activities should be transferred to formal sector income opportunity, aiming to expand and improve regular basis job opportunity in formal sector.

In the process of transfer from informal to formal income opportunity, the vision sets per plan of short term, mid-term, and long-term.

By 2015, CBOs and NGOs cooperate for common purchase and use of equipment to reduce expenses, and improve skills. They will also exchange opinions and invite instructors. Vocational training will consequently be improved after the upgrading of the training curriculum.

By 2020, system of common purchase and use is upgraded to Common Users Facility Office. The output of CBOs and NGOs vary with added value since skills have been improved. This leads to increase in income and customers. Some CBOs and NGOs are transferred to officially registered enterprises which are the entry points of formal sector income and employment opportunity. Employment Exchange Offices (EEO) are set up to provide classified advertisements.

By 2030, role of EEO is expanded to provide basic training courses.



Source: JICA Study Team

Figure 5.9.2 Change of Existing Informal Sector Income Opportunity to Formal Sector

2) Education

Basic School

Currently, the average number of pupils per classroom is 76, which is twice the ideal standard. This should be reduced gradually until 40 pupils per classroom is achieved by 2030. Accordingly, the numbers of basic schools needed and to be operational each key year are shown in Table 5.9.1. The premises such as number of pupils to be enrolled, enrolment ratio, number of pupils per classroom and related information are also presented in the table. The estimate shows that 330, 370, and 523 basic schools should be operational by 2015, 2020, and 2030, respectively.

Table 5.9.1 Number of Basic Schools Needed and to be Operated in Lusaka

Key Year	Number of Pupils to be Enrolled	Enrolment Ratio	Number of Pupils per Classroom Actual (a)	Number of Pupils per Classroom Standard (b)	(a) / (b)	Number of Pupils/ School	Number of Schools Needed * 2007 = Existing	Number of Schools to be Operated
2007	223,284	95%	76	40	1.90	677	330	330
2015	312,536	100%	60	40	1.50	1,080	306	330
2020	314,129	100%	50	40	1.25	900	370	370
2025	322,633	100%	45	40	1.13	810	418	418
2030	363,267	100%	40	40	1.00	720	523	523

Note: The number of pupils to be enrolled is calculated based on the 7-18 years old ratio to the population, which is 25.3%, 25.0%, 22.5%, 20.3%, or 19.6%, in 2007, 2015, 2020, 2025, or 2030, respectively.
School Size: G1-G9, 2 streams.
Source: Ministry of Education

The future numbers of basic school infrastructure are projected based on demand which is determined considering various factors such as total number of pupils, enrolment ratio, and number of pupils per classroom.

Numerically, it is not necessary to construct new schools until 2015, when maximum walking distance is not taken into account. But, in present, not that existing schools provide full basic intermediate courses. For this reason, the main policy for basic school shall emphasize upgrading of the existing educational infrastructure. It is not until the rehabilitation and upgrading of the existing basic schools are completed that the construction of new infrastructure should be encouraged to meet the increase of demand.

In this context, the main policy for basic school infrastructure up to 2015 is to provide additional classrooms so that the number of pupils per classroom would be 60. Table 5.9.2 shows the number of additional classrooms for basic schools. Basically, 3,000 classrooms should be newly constructed. However, this figure does not seem realistic, judging from the current budget allocation for educational infrastructure. It is recommended that 1,000 additional classrooms would be more feasible to construct, which also satisfies the minimum demand for basic school infrastructure.

Table 5.9.2 Number of Additional Classrooms for Basic Schools (up to 2015)

	Number of additional classrooms needed by 2015	Judgment
Basic demand	3,000	Not realistic (3 times of budget for Lusaka, 2008-2015)
Adjusted (30 % of basic demand)	1,000	

Source: JICA Study Team based on the data provided in "Infrastructure Operational Plan 2008 (MOE)"

Secondary School

Secondary school infrastructure is totally insufficient in 2007. Table 5.9.3 presents the demand projection for secondary schools toward 2030. Considering that enrolment ratio increases gradually, more infrastructures need to be built progressively, otherwise, quality of education will decline. The estimate shows that 83, 143, and 220 secondary schools should be operational by 2015, 2020, and 2030, respectively.

Table 5.9.3 Number of Secondary Schools Needed and to be Operated in Lusaka District

Key Year	Number of Pupils to be Enrolled	Enrolment Ratio	Number of Pupils per Classroom Actual (a)	Number of Pupils per Classroom Standard (b)	(a) / (b)	Number of Pupils/ School	Number of Schools Needed * 2007 = Existing	Number of Schools to be Operated
2007	48,872	30%	38	35	1.09	708	69	69
2015	41,671	40%	38	35	1.09	456	83	83
2020	52,355	50%	35	35	1.00	420	143	143
2025	64,527	60%	35	35	1.00	420	170	170
2030	84,762	70%	35	35	1.00	420	220	220

Note: The number of pupils to be enrolled is calculated based on the 7-18 years old ratio to the population, which is 25.3%, 25.0%, 22.5%, 20.3%, or 19.6%, in 2007, 2015, 2020, 2025, or 2030, respectively.
School Size: G10-G12, 4 streams.
Source: Ministry of Education

As secondary schools cater for higher education, it could not completely rely on the support of the community. Most part of new constructions shall be financed and brought to operation by GRZ and private sector.

Similar to the condition of the basic schools, the future numbers of high school infrastructure are projected based on demands which is also determined considering factors including number of pupils, enrolment ratio, and number of pupils per classroom. Consequently, it was calculated that in Lusaka City, 106 high schools will be needed in 2015. Considering the budget for high school construction for 2008, which is 27 million USD for the whole nation, it does not seem realistic to demand construction of 37 new schools only for Lusaka.

Table 5.9.4 Unit Cost for New school Constructions

	1 classroom (USD)	1 whole school (USD)
Basic School	20,101	570,302
High School	33,501	864,439

Source: "Infrastructure Operational Plan 2008", Ministry of Education.

Therefore, in the short term (until 2015), the following policy could be recommended:

- Wards that have at least one high school as of 2007: No new construction is recommended, however, additional classrooms or improvement in learning environment should be enhanced.
- Wards that do not have any high school as of 2007: Construct one new high school for each ward by 2015.

In this case the number of new construction will be 14 only. The cost for this minimum number of new schools will be 12.1 million USD, which is much less than the projected budget for new high schools in Lusaka (21.6 million). In addition, improvement in equipment and rehabilitation of the existing infrastructure should also be implemented using the remaining balance of the budget.

The required numbers of basic and secondary schools by ward in Lusaka City for each benchmark year are shown in Table 5.9.5.

Table 5.9.5 Projection of Required Number of Schools (Basic and Secondary) by Ward (Lusaka District)

Ward	Present Number of B. Schools	Required number of schools 1-9 grades (Basic)				Present Number of S. Schools	Required number of schools 10-12 grades (Secondary)			
No.	2007	2015	2020	2025	2030	2007	2015	2020	2025	2030
1	5	13	15	15	17	0	1	6	6	7
2	13	16	18	19	21	0	1	7	8	9
3	0	7	8	9	10	0	1	3	4	4
4	1	4	6	9	13	0	1	2	4	6
5	8	8	10	11	14	3	3	4	5	6
6	7	5	5	5	6	1	1	2	2	3
7	8	4	5	6	9	3	3	2	3	4
8	6	11	14	16	22	1	1	5	7	9
9	0	5	9	16	28	0	1	4	6	11
10	22	21	24	26	31	4	4	9	10	13
11	0	24	28	29	34	0	1	10	11	14
12	0	7	9	11	15	0	1	4	5	6
13	1	3	4	5	7	0	1	2	2	3
14	5	5	7	8	10	8	8	3	3	4
15	16	7	9	11	14	5	5	4	4	6
16	10	13	19	26	39	5	5	7	10	16
17	9	9	11	13	16	1	1	4	5	7
18	0	3	4	5	6	0	1	2	2	3
19	10	12	13	14	16	1	1	5	6	7
20	5	5	5	6	6	0	1	2	2	3
21	5	8	9	9	10	0	1	3	4	4
22	14	14	17	18	22	1	1	6	7	9
23	0	6	8	9	11	0	1	3	4	5
24	8	6	7	7	8	4	4	3	3	4
25	5	10	11	11	12	0	1	4	5	5
26	7	13	15	15	17	1	1	6	6	7
27	11	9	11	12	14	0	1	4	5	6
28	13	10	12	13	16	1	1	4	5	7
29	6	8	11	13	17	2	2	4	5	7
30	9	16	18	19	22	6	6	7	8	9
31	4	8	10	10	12	2	2	4	4	5
32	4	6	6	7	8	2	2	3	3	3
33	11	10	12	15	20	6	6	5	6	8
Unknown	107	24	0	0	0	12	12	0	0	0
Total	330	330	370	418	523	69	83	143	170	220

Source: JICA Study Team

3) Health

Health Post

Number of health posts in Lusaka City is totally insufficient. In 2007, there are only nine existing in the City, while 214 are deemed necessary. Moreover nine out of 33 wards do not have any medical institutions. The projection based on "catchment standard" requires 255 facilities by 2015, which does not seem realistic.

Hence, it is determined that the ideal number of facilities can be attained by 2025, instead of 2015. In the short run, it is indispensable that all the wards should have at least one health post. Following this policy, the reconsidered estimate shows that 70, 150, and 255 health posts should be operational by 2015, 2020, and 2030, respectively.

Table 5.9.6 Number Properly Needed and Number after Reconsideration of Health Posts in Lusaka District

Key Year	Population	Catchment Population Standard	Number of HP Needed Ideally	Actual Number of HP	Reconsidered Number of HP Needed * 2007 - Actual	Remarks
2007	1,385,165	7,000	214	9	9	
2015	1,666,859	7,000	255	-	70	At least 1 HP for Each Ward
2020	1,861,503	7,000	279	-	150	Medium between 2015-2020
2025	2,119,102	7,000	322	-	214	Ideal Level for 2007
2030	2,475,783	7,000	368	-	255	Ideal Level for 2015

Note: 2015: The reconsidered number is calculated in a following manner.
- Wards without any medical facilities in 2007: Ideal number for 2007*0.5
- Wards with at least one medical facilities in 2007: Ideal number for 2007*0.2

Source: Ministry of Health

Health Center

This medical institution should be a neighborhood medical institution at ward level with a certain scale. As the outlook for the future is not very satisfactory for health posts, it is important to increase new facilities, and rehabilitate or upgrade the existing facilities of the health centers. Table 5.9.7 shows that 50, 52, and 67 health posts should be operational by 2015, 2020, and 2030, respectively.

Table 5.9.7 Number of Health Centers Needed in Lusaka District

Key Year	Population	Catchment Population Standard	Number of HC Needed Ideally	Actual Number of HC
2007	1,385,165	50,000	43	26
2015	1,666,859	50,000	50	-
2020	1,861,503	50,000	52	-
2025	2,119,102	50,000	59	-
2030	2,475,783	50,000	67	-

Source: Ministry of Health

Referral Hospitals

Projection for referral hospitals are as presented in Table 5.9.8. Upgrading and strengthening the present functions of four health posts (Matero, Chelstone, Kanyama, Chilenje), which are already considered as quasi-Referral 1 hospitals by Lusaka District Health Management Team (LDHMT), is the top priority. A Referral 2 hospital is under construction at Chainama (on the east of the district) as of 2008. Judging from the current poor number of hospitals with modernized medical treatment in Lusaka City, preparedness at referral 1 and 2 hospital levels should be enhanced in the long run.

Table 5.9.8 Number of Referral Hospitals Needed in Lusaka District

	2007	2015	2020	2025	2030
Referral 1 (District)	4	9	10	11	13
Referral 2 (Provincial)	0	1	3	3	4
Referral 3 (National)	2	2	2	2	2

Source: JICA Study Team based on the data provided by Ministry of Health

5.10 Plan of Project/Program and Implementing Management

Projects and Programs

Necessary projects and programs for the comprehensive urban development of Lusaka are proposed in Table 5.10.1. Development cost of the necessary projects and programs are

estimated at USD 3,100 million (equivalent to ZMK 11,000 billion) to be earmarked for the public development expenditure during next 20 years till the year of 2030 as shown in Table 5.10.2.

Table 5.10.1 Development Cost by Sector for Lusaka Urban Development (Public Investment)

(unit: **USD** million)

	-2015	2016-2020	2021-2030	Total	equiv: (ZMK billion)	Remarks
Urban transportation development	**188**	**364**	**540**	**1,092**	3,910	
Roads (new construction & upgrade)	144	211	391	746		
Public transport (scheduled bus system) /1	12	11	39	62		
Traffic management	8	5	24	37		Traffic signal improvement, Car parking management, TDM, etc.
Traffic safety and vulnerable road uses	18	12	16	46		Safety engineering, safety enforcement, safety education, etc.
Freight transport	1	5	20	26		Construction of the railway depot , etc.
Airport	5	120	50	175		Renovation/expansion
Utility development	**199**	**337**	**540**	**1,076**	3,850	
Water supply /2	163	251	490	904		
Sewerage /3	24	76	40	140		Rehabilitation of Existing Facilities, etc.
Drainage	12	0	0	12		Urgent renovation /MP for flood prevention
Electricity	State-wide upgrading plan by "Regional Electricity Development Master Plan (JICA, 2008)"					
Solid waste management	0	10	10	20		
Living environment improvement	**78**	**114**	**181**	**373**	1,330	
Living environment improvement /4	5	9	4	18		
Urgent upgrading of utility service	3	5	0	8		Communal tap, toilet renovation
CBE-led living environment improvem	2	4	4	10		Cooperative improvement/public service operation
Housing supply	73	105	177	355		
Micro-finance for housing development	11	9	5	25		Injection of government funds
Social housing	22	36	72	130		
Commercial housing	40	60	100	200		NHA provision
Social service improvement	**47**	**94**	**231**	**372**	1,330	
Education	32	77	204	313		Basic school, high school, community school
Medical care	15	17	27	59		Health post, health centre
Park, green, sports facility development	**24**	**31**	**78**	**132**	480	
Legal/Institutional reforms	**5**	**2**	**0**	**7**	20	Efficient urban management administration, etc.
Empowerment of formal/informal SME	**10**	**0**	**0**	**10**	40	Training for skill, performance upgrading, etc.
LS -MFEZ	**75**	-	-	**75**	270	
Total	**625**	**942**	**1,569**	**3,136**	11,230	

Note
/1 Cost of commuter train system development is not included.
/2 Current WB project of US$18 million is not included.
/3 Current WB project of US$5 million is not included.
/4 US$ 2,000 million cost by private initiative scheme is additionally necessary for UUS renewal.
US$1.00＝ZMK3,582
Source: JICA Study Team

Development cost by implementing organization is summarized in Table 5.10.2. LCC and LWSC will bear USD 1,600 million and USD 1,000 million until 2030.

Table 5.10.2 Development Cost by Organization for Lusaka Urban Development (Public Investment)

(unit: **USD** million)

		-2015	2016-2020	2021-2030	Total	equiv: (ZMK billion)	Remarks
1	LCC (Inclusive of RDA)	308	435	889	1,632	5,840	Road, drainage, social housing, school, medical facility, park/green, etc.
2	LWSC	187	327	530	1,044	3,730	Water supply, sewerage
3	NHA	40	60	100	200	720	Commercial housing construction
4	TEVETA	10	0	0	10	40	Training for management and technology skill
5	ZDA	75	n.a.	n.a.	75	270	LS-South MFEZ
6	National Airport Co. Ltd.	5	120	50	175	630	Renovation of LS Int. airport
Total		625	942	1,569	3,136	11,230	

Note: **USD** 2,000 million cost by private initiative scheme is additionally necessary for UUS renewal.
Source: JICA Study Team

Development schedule and the prospective implementing organization are also summarized in Table 5.10.3.

Priority Project

Priority projects and programs selected from the short term projects/programs in consideration of 1i) urgency, ii) effectiveness, iii) viability, and iv) environmental soundness. Investment cost ceiling is also considered to assess magnitude by referring the budgetary records of GRZ and LCC.

Table 5.10.3 Necessary Projects/Programs for Comprehensive Urban Development of Lusaka

Item	Imp. Schedule			Implementing Organization							
	Short	Mid	Long	CG	LCC	SA	SC	LWSC	P	NGO	Com
Transportation Network											
Roads (new construction & upgrade)	■	■	■	■	■	■	■				
Public transport development	■	■	■	■	■	■			■		
Traffic management	■	■	■		■	■					
Traffic safety and vulnerable road uses	■	■	■		■	■					
Freight transport related development		■	■	■		■					
Airport renovation		■	■	■			■				
Utility											
Water supply system & water resources expansion	■	■	■	■				■			
Sewerage development	■	■	■	■				■			
Drainage development	■	■	■	■	■						
Electric facility	■	■	■	■			■				
Solid waste management	■	■	■	■	■				■		■
Living Environment Improvement of UUS											
Renewal of UUS	■	■	■		■	■			■		■
Urgent upgrading of utility service	■	■			■			■		■	■
CBE-led living environment improvement	■	■	■		■					■	■
Housing supply											
Micro-finance for housing development	■	■		■	■					■	■
Social housing development	■	■	■	■	■						
Commercial housing development	■	■	■	■		■			■		
Social Service											
Construction of schools	■	■	■	■	■					■	■
Construction of health posts, health centers	■	■	■	■	■						
Park, Green Development(inclusive of cemetery)	■	■	■	■	■				■		
Capacity Development of Urban Management	■	■		■	■						
Empowerment of Formal/informal SME	■			■		■				■	■
LS-MFEZ	■			■		■	■		■		

Note; CG: Central Gov. SA: State Agency, SC: State Company, P:Private, Com:Community, Major public initiatives only

Source: JICA Study Team

Table 5.10.4 Priority Project/Programs for Short Term Period Implementation

Project Program Title	Cost
Urban Transportation	**108.6**
1) Inner Ring Road (Mumbwa-Kafue-Kasama, 12.7km)	29.4
2) Outer Ring Road (9.4km)+Lilay Road (7.6km)	31.8
3) LS-MFEZ Access (10.4km)	21.7
4) Airport Road Extension (LN-MFEZ, 6.4km)	4.9
5) Mumbwa road/Los Angeles Road (4.0km)	12.8
6) Kalambo Road/Benbella Road (1.6km)	0.7
7) Bus Institutional Reform	1.0
8) Traffic Management in Town	2.5
9) Intersection Improvement (10 intersections)	3.8
Water/Sewerage/Drainage	**167.0**
1) Water Resources Management Program (Acquisition of Kafue River Water Right, Study on Comprehensive Groundwater, Ordinance on Registration of Industrial/Commercial Wells)	3.0
2) Water Supply Sector	128.0
a Improvement of UFW (Leakage)	3.0
b Water Supply and Sanitation Improvement Project (Kafue Water)	85.0
c Improvement and Expansion of Distribution System	40.0
3) Sewerage Sector	24.0
a Remaining Rehabilitation of Existing Facilities	24.0
4) Drainage Sector	12.0
a Provision of Mobile Pumping Station as urgent measure	4.0
b Urgent Rehabilitation of Existing Facilities	4.0
c Comprehensive Drainage Master Plan Study	4.0

Project Program Title	Cost
Living Environment Improvement	**15.5**
1) Urgent Improvement of Living Environment (renovation of communal tap, drainage, sanitation, etc.)	3.0
2) CBE-led Living Environment Improvement/Public Service Operation	2.0
3) Enhancement of Micro-finance for Housing Development, Upgrading of Substandard Housing in UUS	10.5
Social Service Improvement	**47.2**
1) Improvement of Education Service	32.2
2) Improvement of Medical Care Service	15.0
Legal/Institutional Enhancement (Capacity Development)	**3.1**
1) Least Cost Capacity Development (A feedback process installation, basic filing and data input and management, etc.)	0.0
2) Basic Administrative Capacity Development (Strengthening data management, communication skill, etc., Promoting accreditation and increment of Qualified Planner by authorized organization)	0.5
3) Formulation of Capacity for Master Plan Implementation (Development control, building permission, inspection, penalty enforcement, implementation capacity of infrastructure project, new urban transportation planning section, planning coordination	1.2
4) Capacity for Urban & Living Environment Improvement (Reinforcing Land Management, Empowerment of local communities for public services participation)	1.4
Industrial Development/Job Opportunity Expansion	**80.0**
1) Formal/Informal Micro, SME training	5.0
2) LS-MFEZ Development (Phase1)	75.0
Total	**421.4**

USD1.00＝ZMK3,582 (ZMK' billion) **1,510**

Note: UUS renewal projects by private initiative will be necessary in addition to above.

Source: JICA Study Team

CHAPTER-6

LEGAL AND INSTITUTIONAL STRENGTHENING

CHAPTER 6 LEGAL AND INSTITUTIONAL STRENGTHENING

6. 1 Introduction

6.1.1 Current Institutional Framework

(1) Decentralization Policy

The Ministry of Local Government and Housing (MLGH) initiated the Capacity Development Program for Decentralization. The timeframe for said program is four years, from 2008 to 2012. It is presently in the process of conducting a baseline survey. Consequently, a group of consultants are designing the contents of the baseline survey to assess current capacities of government.

(2) New Bill

The revision of Town and Country Planning Act (TCPA) has commenced in the late 2006. The process of revision has been supported by the Swedish International Development Cooperation Agency (SIDA). After a series of discussions, a draft bill was prepared in November 2008. The Urban and Regional Planning Bill is scheduled to be enacted in June 2006.

6.1.2 Background of Urban Development and Planning Issues

(1) Old and Limited Range Plan against Rapid Urban Sprawl

The only spatial plan institutionalized to the zoning level is the City of Lusaka Development Plan of 1975 prepared by Doxiadis Associates. Current zoning administration is based on this, however, the area covered by the zoning is limited to the central area of LCC. Since development has been progressing in the peripheries, it is vital to extend the coverage of the zoning classification.

The planning guideline used by the Lusaka City Planning Department and Provincial Planning Offices, which serves as planning administration guide for Kafue, Chongwe and Chibombo, was prepared in 1984. As higher density development will be needed to achieve a compact urban form, the current standards need to be revised.

(2) Fundamental Low Capacity for Urban Management

1) Basic Data

The Central Statistics Office (CSO) launched the National Strategy for the Development Statistics. The National Statistical System comprises all major producers, users and suppliers of statistics. All the directors who are in-charge of planning in the ministries and institutions were requested to submit departmental statistical requirement to CSO. CSO also requested the costs for statistical capacity building program.

Data collection or capacity building program, however, were not scheduled yet. When housing surveys are conducted by the CSO, more accurate analysis and planning for improving living conditions in the compounds will become possible.

2) Limited Financial Capacity of LCC and Other Districts

The limited financial capacity of LCC affects the city planning administration. Basic administration systems in the areas of planning, processing permission and enforcement/inspection are either lacking or operate only under limited capacity. The Engineering Services Department of LCC, with limited human resource and equipment, has not been efficiently functioning to conduct administrative works for city planning

and infrastructure development.

The Housing and Social Services (HSS) Department meanwhile lacks financial resources necessary for managing files of housing registration. Its facilities are in critical condition, with some of its site offices are without water, electricity or toilet.

Other three districts, Kafue, Chongwe and Chibombo are in a state of financial distress as well and seek grants from the central government. The Provincial Planning Offices of Lusaka and the central government are supporting most of the planning administration in these districts.

3) Retention of Professionals

As Zambian economy grows, demand for professionals in the private sector becomes higher. If working conditions, including facilities and equipment in the departments, will not be improved, professionals in LCC and in other planning- related government organizations might quit their current posts and apply for work in the private sector. Meanwhile, the sources for qualified professionals are limited. In the Copperbelt University, the only institute offering higher education and a degree program related to urban and regional planning, trains less than twenty planners annually.

4) Lack of Organizational Improvement Mechanism

The current training is mainly conducted by external educational institutions. A mid-career training for planners is not available at these institutions. No intra-departmental training as well is being carried out since the current number of staff is not even sufficient to process increasing administrative works related to planning permission and inspection.

(3) Planning Coordination

1) Duality of Planning at National Level

According to the current TCPA, development plans and regional plans need to be prepared. However, regional plans have never been prepared. Development plans meanwhile have only been prepared mainly focusing on the financial aspect of planning lead by the Ministry of Finance and National Planning (MFNP). The Integrated Development Plan at a limited scale has commenced in areas such as Livingston, a tourist destination. However, the contents of this development plan, prior to the latest TCPA, may not be adequate for conducting zoning administration.

The term “integrated plan” had two interpretations, i.e., one according to the MFNP, which emphasize financial plan and the other according to the MLGH. It is expected that this discrepancy will be resolved when the new TCPA is promulgated.

2) Road Administration

The road administration became complicated with the creation of the Road Development Agency (RDA) under the Public Road Act of 2002. RDA is agency tasked to determine the respective road authorities. The road authorities' duties and responsibilities have not been defined in the Master Plan area, which are related to efficient operation, care and maintenance of road

A tentative discussion paper was circulated, however, administration on road segments (responsible jurisdiction) or roads classes to be developed or maintained have not been clearly defined. RDA needs to identify which section of roads will be managed by the designated road authority.

3) Extended Services to Adjacent Districts

The challenge in the Study is that the concerned project area covers the two provinces Lusaka Province and Central Province. According to interviews, the Lukanga Water Service Company (LWSC), established in 2007, is supposed to supply the entire project areas including Kafue and Chongwe. However, LWSC have no jurisdiction in the southern part of Chibombo, which is also part of the Central Province covered in the study area. Nevertheless, regardless of the pattern of development in this southern part of Chibombo, its distribution network shall be served by LWSC.

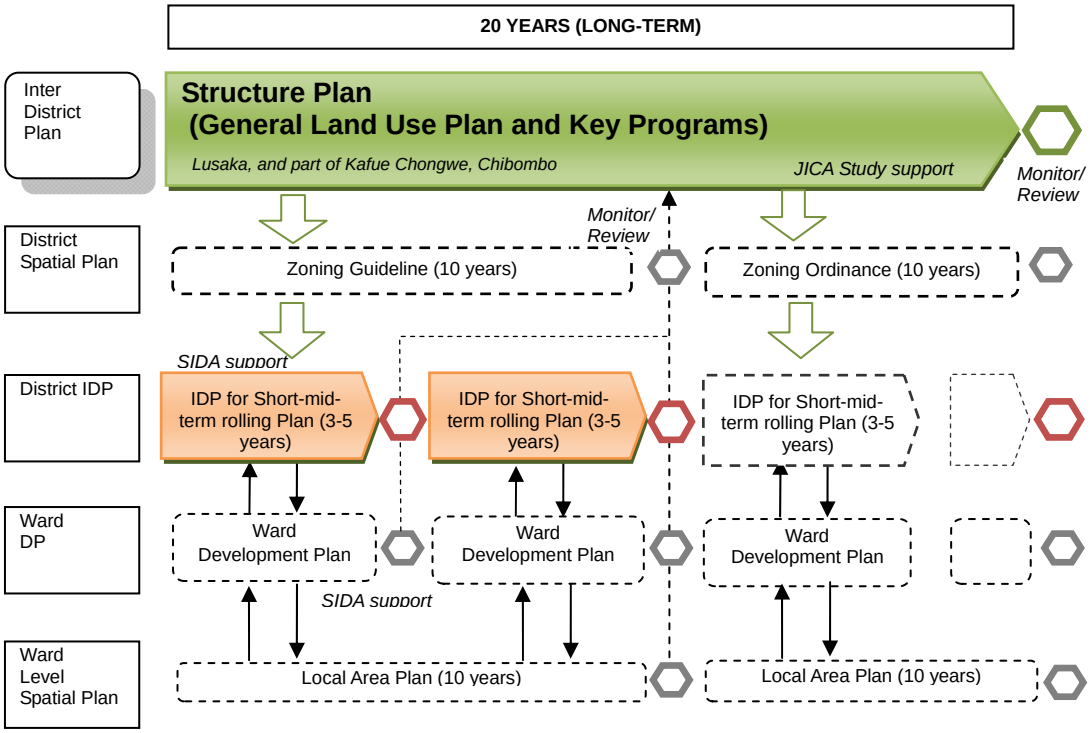
Said area is included in the Study to realize the progressing urban expansion although it is relatively far from the existing water distribution system in Chibombo. It is ideal and economically beneficial that this southern part of Chibombo be served by LWSC.

6.2 Approaches to Strengthening Urban Management System

6.2.1 Two-tier Urban Planning (long-term structure plan and Integrated Development Plan, or IDP)

The plan period of the Master Plan as a structure pan is targeted to 2030, while the IDP's plan period according the bill is three to five years. However, the planning period of a spatial component under the bill has not been specified. Until the IDPs are implemented, the Master Plan should be carried out along with the existing development plans. The approaches to structure plan application are therefore:

- Guide the current planning system in a spatially larger and periodically longer framework
- Utilize the plan as a framework for the IDPs to be prepared including the local area plans in the IDP
- Illustrate general land use framework toward statutory zoning establishment by Zoning Ordinance, while zoning guideline can be a tool for tentative tool for urban growth management (zoning control)
- Guide infrastructure development based on the Master Plan, taking account of the priority project programs for short-term budgeting as part of IDP



Source: JICA Study Team

Figure 6.2.1 Proposed Function and Role among Development Plans in combination with the Lusaka Master Plan and IDP (in the Draft Bill)

6.2.2 Effective Development Control

The Master Plan's proposed development control system for effective urban growth management in the multi-jurisdictional planning area (Lusaka, Chongwe, Kafue, and Chibombo Districts) should be entitled with necessary institutional arrangements. Two key institutional arrangements are required to formulate effective urban management in line with the proposed planning area of the Master Plan. A newly proposed institutional body as per the new bill shall be considered in the Master Plan.

(1) Joint Planning Initiative

The current coordination system for different provincial jurisdiction areas does not have integrated planning measures and institutions except for the coordination committees formed in the provinces. In spite of revised concept for creating a new planning authority and committee to be established as per the draft bill, corresponding jurisdictions remain limited within a province.

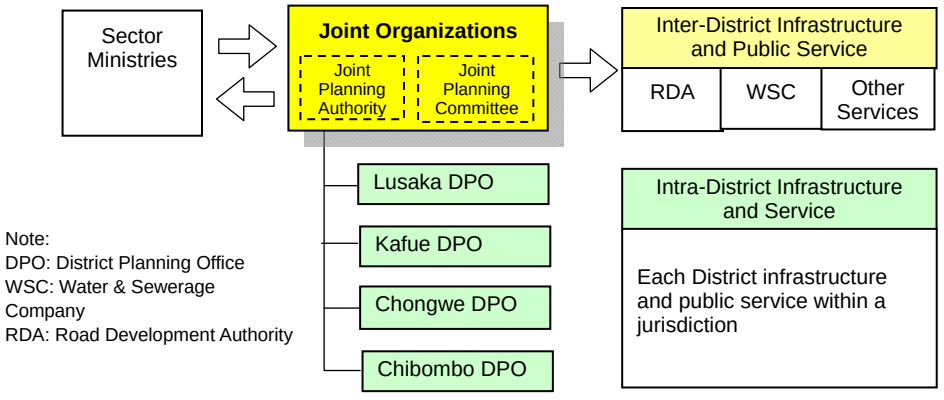
The Master Plan (Greater Lusaka) area covering Lusaka City and its adjacent areas including the Central Province requires effective mechanism for urban growth management where rapid urban sprawls exist even beyond the boundaries of adjacent areas of the neighboring districts. In order to cope with these issues on effective urban growth management, three alternatives in conjunction with expected joint planning initiatives is examined as shown in Table 6.2.1.

Table 6.2.1 Alternatives for Joint Planning Initiative for Greater Lusaka Area

Institutional Alternatives	Legal Framework (new TCPA)	Responsibility		Assessment
		Planning (Authority)	Approval (Committee)	
ALT1: Joint Planning Organization	To be re-defined newly	●	●	Effective coordination and management composing of each District Planning Office (DPO)
ALT2: Coordination Mechanism Only	To be followed by new TCPA	-- by each DPO	○ by two Committees	In line with new TCPA bill giving the priority to upper planning framework

Legend: ●= major responsibility and decision-making, ○= only responsible for coordination among stakeholders
Source: JICA Study Team

Based on the evaluation of alternative institutions, it is recommended that Alternative 1 (Joint Planning Organization) is the most effective institutional alternative in terms of inter-district infrastructure and relevant urban services, based on well-organized planning establishment point of view. Figure 6.2.2 shows an example of institution for urban growth management.



Source: JICA Study Team

Figure 6.2.2 Example of Proposed Urban Growth Management Authority of Greater Lusaka

(2) Establishment of Zoning Guideline for Proposed Zoning System

Although the draft bill (new TCPA) stipulates also the establishment of National and Regional Guideline for Regulation, implementation of the Master Plan in the particular area, Lusaka City, still requires development control in order to cope with dynamic urbanization and complicated conditions of other small urban areas. Zoning guideline is expected to play an important role in managing and operating the proposed land use zoning. The following are the recommended contents of the guideline.

Table 6.2.2 Contents of Zoning Guideline to be Established for the Master Plan

Contents	Reference
1. Policy and Principle of Zoning	Description of definition, principles of each zone
2. Application Criteria by tools	Description of control measures (FAR, BCR, etc) and indication of range and criteria to be applied
3. Special Zoning Controls	Description of special control measures for natural hazard, natural environment protection, landscape control, etc.
4. Adjustment and coordination with Building Code	Description of necessary coordination with Building Code (Public Health Act) in terms of building form control
5. Examples of application method	Description of question and answer in practical case study to show and explain of guideline application

Note: FAR: Floor Area Ratio, BCR: Building Coverage Ratio.
Source: JICA Study Team

6.2.3 Appropriate Land Management and Living Environment Improvement

The approaches to land management and improvement of living environment are to define and accelerate land registration through the urban renewal, and land readjustment mechanisms with the private sector involvement under local government's limited financial capacity. Involvement of the private sector extends to partnership with the public sector. The Chibolya Pilot Project was conducted to seek possibility of implementing an urban renewal project in Zambia. To realize higher density urban form, condominium mechanism shall be introduced along with a revised planning guideline, which stipulates requirements for smaller lots and setbacks.

6.2.4 Effective Management for Infrastructure Development

(1) Infrastructure Development

The effective management of public works in the Engineering Services Departments of four districts shall become possible after the roles of the road administration have been clarified at the national level. Under the policy of decentralization, administration of roads and its facilities will be shifted to the Engineering Services Departments. The situation of the Engineering Service Departments is an indicative factor that the efforts of capacity development shall focus on project management and quality control.

Since the costs of facility and equipment are not allocated in the council budgets, the Engineering Service Departments shall seek purchase funds for from National Road Fund Agency.

(2) Water and Sewerage

NWASCO is the deciding authority for the service areas. Therefore, Chibombo district and NWASCO shall coordinate to provide the efficient services.

6.2.5 Implementation of the Master Plan as a long-term Development Plan

(1) Transition measures for the Master Plan

1) Tentative Adoption Procedure of the Master Plan

Until such time, IDP will be prepared with zoning regulation at the district level. The Master Plan shall be used to guide the developments in the Greater Lusaka Area.

The tentative adoption of the Master Plan shall follow the decision making process of the councils. Before tentatively adopting the Master Plan, the Plan, Works and Development Committee shall conduct related discuss through public hearing and obtained comments. The Master Plan can then be adopted as a tentative plan which becomes the basis for the spatial component of the future IDP.

2) Roles of Government Institutions

The roles of the government for the tentative arrangement under the new TCPA are summarized in the following table.

Table 6.2.3 Tentative Roles after Adoption of the Master Plan

Capacity Development Area	MLGH	Province	LCC and Other districts	Ward
Strengthening development control	• Tentative Adoption of the Master Plan	• Assisting districts with less capacities • Arrangement of multi-provincial coordination • Customary land coordination	• Arrangement of multi-district plan coordination • Existing plan review and revision • Customary land coordination	• Revision of ward development plan • Customary land coordination
Strengthening urban facility/infrastructure development	• Seeking and arranging funding sources	• Assisting districts with less capacities • Coordinating with neighboring provinces	• Managing urban facility/infrastructure development • Coordination with LWSC	-
Improving public administration for better governance	-	• Assisting and conducting inspection and enforcement for districts with less capacities	• Enacting City Planning Tax Ordinance • Confirmation of inspection procedure based on the zoning guideline • Conducting inspection and enforcement	-
Improving land development mechanism for better living environment	• Study possibility of nationwide application of the Chibolya pilot project	-	• Accelerating occupancy license registration • Ground rent collection • Conducting housing surveys • Conducting C/B analysis in compounds other than Chibolya	-

Source: JICA Study Team

The MLGH is the organization that prepares the National and Regional Development Guidelines and identifies the regions concerned in the Regional and Urban Planning Bill. The provincial governments shall have a supporting function in the IDP preparation. The districts are the actual planning and implementation bodies of the IDP. Wards are THE planning and implementing bodies of the Local Area Plans. The Zambia Institute of Planners is a professional development organization which issue licenses for qualified planners.

3) Zoning Administration

The zoning administration shall maintain its current process. The zoning guideline prepared based on the structure plan of the Master Plan shall be referred to in making relevant decision where zones are not clearly defined. A large-scale-development project which may have a long-term impact shall conform to the 2030 target specified in the Structure Plan.

There planning permission procedure shall be differentiated according to scale or magnitude, i.e., major and minor applications, in order to facilitate the processing. Major applications shall be discussed by the Plan, Works and Development Committee to ensure conformity to the structure plan. Minor applications meanwhile shall be approved by the Director of City Planning.

(2) Actions towards the Implementation of the Master Plan

The plan prepared for the Greater Lusaka is for the year 2030. The long-term visions, framework and major transportation infrastructure have been planned. The framework shall become the foundation in preparing the IDP. Simultaneously, MLGH shall include the major contents of the Master Plan to the National and Regional Guideline.

1) Amendment to the Bill

Section 38 (1) of the Regional and Urban Planning Bill includes a joint planning initiative. However, it does not define the provincial governments' involvement in the joint initiative. A new section shall therefore be added as suggested below.

Multi-Provincial Planning Coordination

A multi-provincial planning coordination would be necessary since the area covered by the Master Plan includes the two provinces Lusaka and Central Province. The suggested section to be added to the current bill is as follows.

BOX Amendment of Draft Bill

After Section 38

Section xx Joint Planning Area Agreement by Provincial Planning Authorities

Two or more Provincial Planning Authorities may create a planning area jointly by written agreement to facilitate the joint initiative in Section 38 and to resolve regional issues such as:

- Land use planning with adjacent administrative units;
- Natural disaster planning;
- Regional cooperation in emergency situations such fire prevention and solid waste disposal; and
- Utility planning and development.

Planning Period

The current Bill defines the planning period of IDP as three years. The financial component, a capital investment program, shall be reviewed and revised every three years with reference to the annual budgeting requirement of district councils. The spatial component, however, shall have a longer planning period of ten to fifteen years since, for example, a segment of road planned needs to have longer perspective.

Zoning

The bill does not include provision for zoning regulations. It needs to include requirements on zoning ordinance promulgated by a district. The zoning ordinance shall

become the legal instrument of the zoning administration, the foundation for planning permission administration. Under the current bill zoning administration based on the spatial element of the IDP is vague.

2) Approval by the District Councils

The district councils, before the commencement of IDP preparation, shall approve the Master Plan as a framework of the Greater Lusaka Area. The structure plan was carefully prepared to guide and control development activities of Greater Lusaka Area. Therefore, the 2030 land use plan shall be studied in detail when IDPs are prepared at the districts concerned.

3) Approval by the Minister

The Minister of MLGH shall approve the Master Plan as a structure plan which would become the long-term framework of the Greater Lusaka Area, covering four districts and two provinces.

4) Revision of Existing Plan

After the Master Plan is approved by MLGH and the Councils, the City Planning Department, LCC and other planning departments in the districts need to review and revise existing development plans aiming to prepare the IDPs.

Since planning capacity of Kafue, Chongwe and Chibombo are low, Provincial Planning Offices of Lusaka and Central Province will be tasked to review and revised development plans according to the current TCPA, in order to prepare IDPs in the near future. Once IDPs are prepared, the zoning guideline shall be reviewed before preparation of zoning ordinances within districts.

(3) Effective Utilization of the Outputs of the Study

The outputs of the Study shall be utilized in the administrative processes in local governments; however, acquiring technical skills may not guarantee a feedback system of constant improvement of public administration procedures. To some extent, the staff in the district councils may be able to improve their operation procedure.

In the concrete, the Master Plan sets the directions of the Greater Lusaka Area. It is positioned as a framework for IDP preparation. The implementation mechanism of IDP based on the Master Plan lies on zoning administration. The TCPA Bill which is the legal basis of IDP has not been established including procedures for zoning administration. Therefore, the Master Plan will be implemented, reviewed and revised when administrative capacities organized by local governments under TCPA Bill by a joint organization are raised to enable the revision of the Master Plan except technical planning capability such as traffic demand analysis and UFW management.

These planning capacities require a priority capacity development to the Lusaka District with initiative roles among Districts in the Greater Lusaka area to handle with technical planning tasks covering other three Districts as the leading planning authority where technical planning capabilities are necessary to be strengthened.

Short-term utilization of the Master Plan remains technical for the reasons stated. The data, information and methodologies for technical studies in the Master Plan collected, used and processed are important assets for the organizations involved. The Study components in the Master Plan, organizations and outputs to be utilized for planning review and revision technically toward short-mid term range by relevant agencies are summarized in the Table 6.2.4.

The outputs are major components to be focused by the organizations, especially relevant organization in the LCC as a leading local government with better capability than other Districts, when overall Mater Planning methods and results need to be updated and utilized by relevant departments in cooperation with relevant district councils.

Table 6.2.4 Utilization of Study Outputs for Sustainable Planning Capability to Review and Revise of the Master Plan in Short-mid Term Range

MP Study Component	Utilization of Study Output	Organization Capacity to be developed	
		LCC	Other Districts
Urban Planning	• Method of Urban Planning • Land Use Planning Framework	CPD (planning section)	Coordination with LCC-CPD
	• Zoning Guideline based on the Framework • Development Control	CPD (planning section, building inspection section	CPD
	• Population projection • Socio-economic Development Framework • Industrial Development	CPD (Research & Project Section)	Coordination with LCC-CPD
	• GIS database used for plan preparation	CPD (GIS section)	Assisting and cooperation with LCC
Urban Transportation	• Person Trip Survey Results • Transportation demand forecast • Travel demand model • Public transportation management	CPD (Proposed Transportation Planning section)	
	• Urban road classification and network	CPD / ESD	ESD
Living Environment	• Chibolya Urban Renewal Pilot Study • Property survey results and methodology	HSSD / CPD	Referring to LCC in case of necessity
Water Supply and Sewerage	• Water demand forecast • Sewage Effluent Forecast • UFW (water leakage) management	LWSC	Assisting and cooperation with LCC

Note: CPD = City Planning Dept. ESD = Engineering Service Dept. HSSD = Housing and Social Service Dept.
Source: JICA Study Team

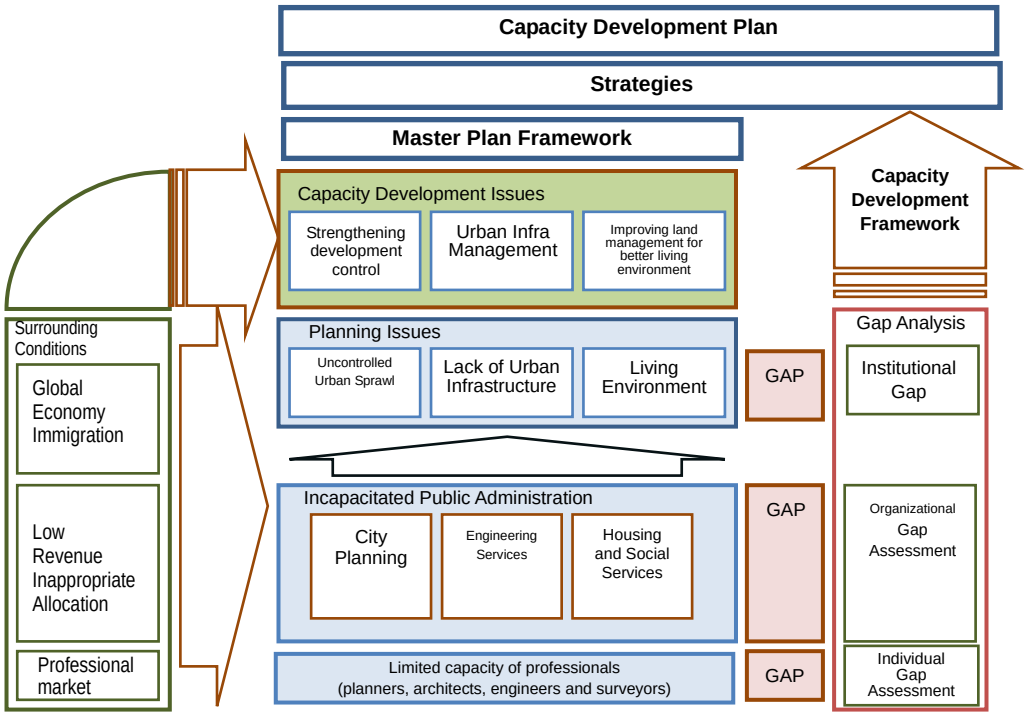
6.3 Capacity Development toward Effective Urban Management System

6.3.1 Overall Structure of Capacity Development

The approaches to strengthening urban management system covered three major themes: effective development control; two-tier urban planning; appropriate land management and living environment; effective management for infrastructure development; and implementation of the Master Plan as a long-term development plan.

This section includes the capacity development issues based on the urban development planning issues in an environment of the decentralization and the new TCPA discussed in the previous section as considering scenarios for effective urban management.

The current policy formulation capacity and policy execution capacity are compared against the scenarios for the future to identify gaps. Based on the gaps analysis, capacity development capacity framework is formulated with consideration of the Master Plan Framework. Strategies are then formulated to prepare the capacity development plan. The overall framework of capacity development is shown in the following figure:



Source: JICA Study Team

Figure 6.3.1 Overall Capacity Development Framework

6.3.2 Capacity Development Issues

The capacity development issues in terms of city planning administration are: i) strengthening development control; ii) improving land management mechanism for better living environment; iii) infrastructure project implementation; and iv) improving public administration.

(1) Strengthening Development Control

The capacity development issues on development control are:

- Regional Coordination and Planning to Deal with Uncontrolled Urban Sprawl
- Strengthening Administrative Functions for implementing the Master Plan
- Implementation

The planning area of the Master Plan will be approved by all stakeholders including people in the customary lands. MLGH, Provincial Planning Offices and District Planning Offices need coordination to realize the planning area recognition. The administrative functions need to be strengthened mainly in the City Planning Department.

(2) Improving Land Development Mechanism for Better Living Environment

The issues on improving land development and living conditions are:

- Regional Cooperation for Efficient Public Service Delivery
- Accelerating Land Registration (Statutory Improvement Areas)
- Financing Public Services
- Efficient Land Use

For broader and efficient services on cemeteries and solid waste disposal, regional cooperation is required. The JST found that about half of the houses in Chibolya were not registered. A similar condition also exists present in other improvement areas. Financing public services are difficult at district levels. Dealing with land management and to improve living conditions without sufficient funds from the district councils is

deemed immediate issues.

(3) Infrastructure/Facility Development Project Implementation

The issue on infrastructure deficiency is serious. Moreover, financial capacity of the districts is insufficient to implement infrastructure development project. The role of the districts is vital in implementing infrastructure development project. Therefore, rather than focusing on technical capacity development, management capacity would become significant in considering operational improvement of organizational units of the district councils.

(4) Improving Public Administration

To conduct all the issues discussed, administrative capacity of the departments of city planning, engineering and HSS needs to be initiated. Utilizing appropriate information technology would be fundamental to organizational capacity development. As new plans will be put into place both at the national level and local levels, coordination system becomes essential. The issue of systemic improvement in an organization would be improved with the introduction of technological instruments while coordination needs to be conducted to achieve the same levels of understanding for each issue to be resolved.

6.3.3 Capacity Development Goals

According to the capacity development issues, future desirable states for administrative capacity as development goals are formulated. These goals become benchmarks to assess the current administrative capacity by identifying gaps between current capacity and future goal. Both top-down and bottom-up improvement of urban management systems shall function in any of the scenarios.

- To achieve effective and efficient urban growth management through establishing the statutory plan of the Master Plan and strengthening development control
- To achieve desirable management for living environment improvement through establishing effective land management system, adequate development standard and promoting community's partnership for social services
- To establish effective implementation mechanism for infrastructure development and urban renewal
- To achieve effective and sufficient public administration services through strengthening professional development, information management and related institutional arrangement

Table 6.3.1 Capacity Development Goals

Development Goals	Future Achieved Status by Thematic Areas	
To achieve effective and efficient urban growth management	Statutory Master Plan	• Statutory plan will be promulgated and implemented with effective development control and infrastructure development.
		• Institutional arrangement for the joint planning initiative will be completed.
	Effective development control	• Bylaws for development control with regulations and standards will be available.
		• Capacity of districts and wards function as bodies of planning and development control will be strengthened.
To achieve desirable management for living environment improvement	Effective land management	• Lands of Improvement Areas and customary lands will be registered; the local tax base will be expanded.
		• Institutional arrangement will be completed for urban renewal by redevelopment and land readjustment measures.
	Efficient public & social services	• Public and social service participation by communities are enhanced and well-organized.
		• Wider public service covering Greater Lusaka will be formulated and implemented by common service fields.
To establish effective implementation mechanism	Sufficient infrastructure management	• Appropriate personnel and funding will be allocated to administer infrastructure development project.
		• Organizational arrangement will be completed for efficient administration.
	Effective urban transportation management	• Transportation planning skills will be developed and established.
		• Organization for public transportation will be established.
To achieve effective and sufficient public administration services	Sufficient planning skill	• Licensed professionals will be turned out constantly by official organization (Zambia Institution of Planners).
	Sufficient basic skills for public administration	• Basic management skills, facilities and will be improved to ensure adequate functionalities of organizational units.
		• Information management for urban management administration will be achieved.
		• Devolution of key administration (part of permission, etc) to Wards will be established.

Source: JICA Study Team

6.3.4 Capacity Gap Analysis

(1) Method

The capacity gap assessment is conducted through the following three steps:

Step 1 Categorization of Capacity Development Elements
Step 2 Identification of Gaps between the Scenarios and the Issues
Step 3 Identification of Commonalities of Gaps in Policy Execution

(2) Categorization of Capacity Development Elements

The capacities are analyzed at institutional, organizational and individual levels. The scales of analysis are categories according to the capacity areas. The qualitative scales are used to gauge gaps between the current state and the future state as Goals. The institutional arrangement is the policy formulation mechanism and the organizations and individuals are to execute the policies.

Table 6.3.2 Categorization of Capacity Area

Policy Function	Capacity Area	Capacity Scale
Policy Formulation	Institutional Arrangement	• System completion (existence of loopholes and possibility of system failure) • Consideration to the policy execution capacities
Policy Execution (Improving Public Administration)	Organizational Functionality	• Roles in solving capacity development issues • Levels of functions to solve capacity development issues
	Individual Capability	• Staff allocation • Skills and Experience

Source: JICA Study Team

System completion (existence of loopholes and possibility of system failure) and capacity of implementing policies by organizations and individuals are the institutional capacity scales for gap assessment.

At the organizational level, roles corresponding to issues are different. As the roles of organizational units in the districts are considered, capacity gaps are assessed based on the functions of organizations. The individual levels of scales are skills and experiences. The targeted individuals are the professionals: architects; engineers; planners; and surveyors.

(3) Identification of Gaps between the Goals and the Issues by Capacity Elements

1) Institutional Gap for Policy Formulation

The institutional gaps are assessed considering implementation environment and system completion. Implementation environment includes funds, political and cultural, organizational, and human resources. The system completions are assessed based on conducted interviews and discussions.

Table 6.3.3 Institutional Gap Assessment

Development Goal	Criteria	Assessment	Note
Achieve effective and efficient urban growth management	Planning /Coordination	Incomplete/ Inadequate	Multi-provincial cooperation is not available in the new TCPA.
	Planning Permission	Inefficient	A zoning regulation is old and vaguely defined.
	Enforcement /Inspection	Inadequate	Building standard is obsolete while administration capacity is below the current requirements.
Achieve desirable management for living environment improvement	Land Registration	Incomplete/ Inadequate	Low administration capacity; illegal rental units in Improvement Areas.
	Urban Renewal Management	Not established	Unplanned Urban Settlement facing very poor living conditions for decades needs effective renewal measures.
	Efficient public service	Insufficient	Social enterprises (e.g. CBE) are necessary to be strengthen by establishment of partnership for social services in communities.
Establish effective implementation mechanism	Coordination	Incomplete	Roles of road administration are not clearly defined in the Public Road Act.
	Funds	Incomplete	Funding mechanism for district councils is not established.
	Monitoring	Inefficient	The rules of project monitoring have not been established due to vaguely defined roles of government organizations.
Achieve effective and sufficient public administration	Professional Skill	Insufficient	No institutional mechanism for providing licensed professional for urban management planners
	Administrative Role sharing	Inefficient	Very limited role sharing against public service demand in Ward level (permission, others).
	New administration	No action	No establishment of Satellite Cities' management administration.

Source: JICA Study Team

The new TCPA is still under discussion with matters such as multi-provincial cooperation, planning period, and zoning ordinance requirement considered as keys to development control. The planning and building permission systems are on-going but regulations and standards are obsolete and inadequate. Inspection and enforcement are also based on old regulations under limited enforcement capacity.

A regional coordination mechanism to provide public service does not exist. Only sector planning work is initiated at the national level. Land registration system exists

but its implementation is inadequate to control illegal leasing in improvement areas. The land use regulation and standards are also old and inadequate with the 1984 Planning Guideline and 1975 Doxiadis Zoning being the only basis for land use planning.

2) Organizational and Individual Gaps for Policy Execution

The results of the organizational gap assessment are summarized in the following table:

Table 6.3.4 Organizational Gap Assessment

Development Goal	Assessment Criteria	Gap Assessment					
		City Planning		Engineering Services		HSS	
		Role	Gap	Role	Gap	Role	Gap
Achieve effective and efficient urban growth management	Planning/Coordination	●	●	○	○	○	○
	Planning Permission*	●	●	-	-	-	-
	Enforcement/Inspection	●	●	-	-	-	-
Achieve desirable management for living environment improvement	Land Registration	○	○	-	-	●	●
	Urban Renewal Management	●	●	○	○	●	●
	Efficient public service	○	○	○	○	●	●
Establish effective implementation mechanism	Coordination	○	●	●	●	○	○
	Implementation	○	●	●	●	○	●
	Monitoring	●	●	●	●	○	○
Achieve effective and sufficient public administration	Communication/Coordination	●	●	○	○	○	○
	Staff allocation	●	●	●	●	○	○

● Major role / Large gap; ○ Minor role / Medium gap; - Small role / Small gap, * = Department of Public Health has a partial responsibility for allocation documents appraisal.
Source: JICA Study Team

The results of the individual gap assessment are shown in the following table:

Table 6.3.5 Individual Gap Assessment

Development Goal	Assessment Criteria	Gap Assessment for Skill							
		Planner		Architect		Engineer		Surveyor	
		Role	Gap	Role	Gap	Role	Gap	Role	Gap
Achieve effective and efficient urban growth management	Planning/Coordination	●	●	○	○	○	○	-	-
	Planning Permission	●	●	●	○	●	●	-	-
	Enforcement/Inspection	●	●	●	●	●	●	●	●
Achieve desirable management for living environment improvement	Land Registration	○	○	-	-	○	○	●	●
	Urban Renewal Management	●	●	○	○	○	○	●	●
	Efficient public service	○	○	-	-	○	○	●	●
Establish effective implementation mechanism	Coordination	○	○	○	○	○	●	○	○
	Implementation	-	-	●	●	●	●	○	○
	Monitoring	●	●	●	●	○	●	-	-
Achieve effective and sufficient public administration	Planning/analysis skill	●	●	●	○	●	○	-	-
	Professional/functional skill	●	●	●	○	●	○	●	-
	Coordination skill	●	●	●	○	●	○	○	-

● Major role / Large gap; ○ Minor role / Medium gap; - Small role / Small gap
Source: JICA Study Team

Planning/coordination works have been absent, since the development plans under the former TCPA have accomplished little without a spatial element. Planners in the Planning Department, therefore, do have little knowledge of preparing and monitoring

the plans.

Planning permission including building permission has been established; however, due to increasing number of applications, processing of application based on inappropriate or very old zoning maps have been conducted with less capacity. Facility environment is in a critical condition without storage spaces. The application recording system has not been updated since the 1950s; a paper media have been used. Lack of guidelines for structural engineering disables the permission function by the engineers who are assigned to review from the Engineering Services Department. The architectural review has been functioning based on the old standards.

Enforcement activities are minimal using one vehicle to cover the entire jurisdiction. Inspection in the UUS is also limited for accessibility to the areas is limited with limited mobility of the inspection section.

Since the institutional arrangement has not been established, the functionality toward the land development mechanism and living environment improvement is absent. The most of the functions of land survey has been outsourced, already, but due to the valuation regulations, private surveyors are not allowed to assess properties. Housing registration in UUS is paralyzed without appropriate site offices for registration. Computer system is gradually installed, but there are offices without water or electricity. A tattered document in rusty storage condition is a reality.

The infrastructure/facility project implementation has been conducted at a limited scale because of lack of funding. At the district level, a new road development project has not been implemented. Facility environment is analogue without a function of duplicating drawings. The number of staff in the Engineering Department has been reduced because of the financial condition, which is contradictory to the situation of rapid urbanization.

(4) Identification of Commonalities of Gaps in Policy Execution

The gap assessment derived commonalities of gaps. The overall underlining commonality is the financial constraints. The other is basic administrative functions: research, organizing, coordinating/communication, allocation of staff and planning. Individuals who actually conduct administrative work are influence by three factors: facility environment, professional development opportunities and competition against the private sector. The market condition of the private sector influences the retention of professionals which influence organizational capacity.

Table 6.3.6 Commonalities of Policy Execution

Policy Execution Level	Commonalities
Organization	• Research • Organizing • Coordinating/communicating • Allocation of staff • Planning
Individual	• Facility Environment • Professional Development Opportunity • Competition against the private sector (level of retention)

Source: JICA Study Team

1) Organization

(i) Research

The research functions of each department are weak. In the City Planning Department, the research function is very limited, but it has tremendous impact to quality of city planning. In the Engineering Department, the planning function is mainly initiated in

the form of the Annual Work Plan. Research function of transportation planning is missing both in the City Planning and Engineering Services Departments. Research needs on housing condition are large especially in the Improvement Areas; however, because of limited facilities and human resources, the function has not achieved to an appropriate level.

(ii) Organizing

The fundamental organizational function as far as documentation and data and information area is very low in all the departments. Record keeping functions are weak in personnel management and inventory management. Basic filing systems are lacking in most of the offices; the situation is worse in the site offices.

(iii) Coordinating/Communicating

Coordination and communication functions are also low especially in the Engineering Service Department where lines of command and communication have not been established or ignored by managers and directors. The functionality of coordination and communication will be significant for the City Planning Department when the department will have to start preparing the Integrated Development Plan in the participatory planning processes.

(iv) Allocation of Staff

Allocation of staff means appropriate place of staff in each department. The Engineering Services Department has less staff to function properly in all the sections. In the City Planning Department, the District Unit has only two; six members in the Inspection Section cannot cover the entire area in the city; no staff allocated for research function for planning.

(v) Planning

Planning function means to prepare annual work plans according to the budget requirement. The fundamental functionality is present in all the department, but activities are not monitored and documented in a form of an annual accomplishment report except for the Housing and Social Services-the only department that has been preparing an annual report.

2) Individual

(i) Facility Environment

For all the professionals, facility condition is low except for the architects who may be able conduct the work using the analogue system. When telecommunication facilities such as fax and the internet are provided, their coordination and communication capacities may be improved.

(ii) Mid-Career Professional Development

The mid-career development opportunities are limited in all the professionals. The retention gap level is the largest for engineers and surveyors. Internal career development or human resource development opportunities are limited in the district councils.

(iii) Competition against the Private Sector

Architects, engineers and surveyors are fluid in the professional market, while planners and managers of the district councils are less influence by market forces. Planning professionals generally work in the public sector. Other professionals are in direct competition with the private sector. The condition of the Surveyors is the worse in all the professionals. Professional surveyors who would like to learn new skills using digital survey equipment as career development are unlikely to work in the district councils.

6.3.5 Capacity Development Framework

The legislature formulates policies; the executives implement policies; individuals (public sector) support policy formulation and implementation. The basic framework for capacity development of governance is the institutional arrangement.

Table 6.3.7 Capacity Development Framework

Capacity Development Issues	Capacity Development Sub-Issues	National	Ministries/National Agencies	Province	District Councils
Effective Development Control	Master Plan Implementation	-	• Acceptance of the Master Plan	-	• Acceptance of the Master Plan
	Planning Permission	• New TCPA	• Planning Standards	-	• Zoning Code
		• Zoning Enabling Act	• Zoning Standards	-	• Zoning Code
	Enforcement/Inspection	• New TCPA	-	-	• IDP
		• Building Standard Act	• Building Standards	-	• Building Code
		• Public Health Act	• Public Health Standards	-	• Health Code
Land Development Mechanism and Living Environment	Regional Cooperation	• New TCPA	• Inter-Agency Agreement	Inter-Provincial Agreement	-
	Land Registration	• Urban Renewal Act	-	-	• Local Area Plan
		• Land Readjustment Act	-	-	• Local Area Plan
	Land Use	• New TCPA	-	-	• IDP
Infrastructure/facility Improvement	Coordination	• Defining roles of Ministries and Agencies	• Inter-Governmental Agreement	• Inter-Governmental Agreement	• Inter-Governmental Agreement
	Funding	• National taxation/International funding	• Subsidy administration	-	• Local taxation
Basic Administration	Decentralization	• Fund allocation to district councils	-	-	• Organizational restructuring

Source: JICA Study Team

6.3.6 Overall Capacity Development Strategies

The overall capacity development strategies are to achieve self-sustaining governance to establish an effective urban management system. A long-term financial independence needs to be achieved with self-improvement mechanisms. A thematic functional improvement is urgent, but it needs to be based on a basic administrative capacity improvement.

The strategies are structured in a way to achieve a long-term-incremental improvement. For both basic administrative capacity improvement and thematic capacity improvement, the strategies for least cost capacity development are set forth.

The underlining financial constraints shall be improved with appropriate institutional measures to allocate funds from the central government to the district councils as the decentralization of governments progresses. The cost effective local taxation and collection shall become possible with the revaluation of real properties and registration of houses in UUS as shifting the occupancy licensing system to certificate of title system. Evaluation of the public servants shall be put in place to reflect their performance to promotion; the compensation schedule may need a review in the process.

6.3.7 Strategies for Least Cost Capacity Development

The financial constraints of the districts have been chronicle; private properties are loosely defined. These are two fundamental surrounding issues of capacity development. The issues of local government finance needs to cover: allocation of funds from the central government; raising revenue base for local government; and revision of salaries for public servants.

A partial solution to the issue of private property has been attempted as to define real property by means of land readjustment and urban redevelopment mechanisms.

Existence of these issues known and solution to the local government finance Given that these issues exist and cannot be resolved in the course of this Study, incremental improvement for public administration is proposed.

(1) Basic Administrative

Installation of Operational Improvement Mechanism

Operations of administration have not been documented in most administrative units. A routine work as shown in below shall be analyzed and standardized for efficient operation. The exercise is the foundation of cost effective administrative improvement.

- **Operation Analysis:** The directors shall list all functions of sections and prepare work flow diagrams for operation improvement.

- **Activity Analysis:** The System Analysis Section of the Information Management Unit, Finance Department shall lead the activity analysis. Once the documentation by the System Analysis Section is completed, the directors shall take necessary measures to improve operational functionalities of the Departments.

Basic Information Management

Currently planning applications are piled up on the floor and housing registration documents are not easy to locate. The Legal Services Department needs more storage as the number of land registration increases. A council level filing system is called for as introduction of a council-wide-filing system will substantially reduce the cost of administration as well as avoiding possible litigation due to misplacing legal documents.

- **Paper Filing:** All the documents shall be classified into technical and administrative. There shall be a list of documents to be prepared and filed in a spread sheet format. The technical documents shall be classified into general, supporting, reference, research and so forth. The administrative documents shall be classified into general and accounting. The classification shall be further categorized into two or three tiers. The documents shall be kept at specified locations with labels in accordance with the designed document list.

- **Electronic Filing:** The documents such as Zambia Laws are already in a PDF format. All considerable documents (e.g. Gazettes, Planning Standards,

Regulations, etc.) for common use should be typed and converted to a PDF format as well with the current facility and technology. Technical documents which shall be shared by the staff shall be prioritized for the purpose of individual capacity development. Documents of legal importance shall be kept in a paper media until security is assured.

Data need to be entered to spread sheets rather than word processor. Human resource records, inventories, planning application, inspection record, enforcement orders and others that are recorded as files of word processor shall be encoded to spread sheet to enable future utilization in database.

(2) Thematic Capacity Development

Knowledge Sharing

Internal or departmental seminar is a cost effective way to learn new skills and acquire new knowledge. A presenter or lecturer would be the senior staff in each department. Individuals who have participated in seminars or training could share their experiences to other staff. Presentation materials and records can become a basis of training materials. Knowledge sharing has been exercised to a certain extent as seen in the City Planning Department where a senior staff teaches AutoCad operation to other staff. It is an informal On-the-Job training conducted. The process can be formalized and programmed to a systematic On-the-Job training.

Use of the Internet

Self-study using the internet is a way to learn any subject matter. There are numerous web sites to search and learn. Manuals and know-how of computer application usages are on-line without any fees. Google Earth is a strong tool for spatial planning when commercial satellite images are not available. The use of data of Google Earth shall be limited in accordance with the policies of Google Earth not to violate its copyright.

Introduction of Free Software

A computer system is a high investment for the district councils and other government organizations. Wise use of free software shall reduce the cost of software substantially. One of the effective ways is to introduce Open Office which has compatible functions as Microsoft Office. There are sophisticated but cost effective database management systems available such as MySQL or Postgres. Rather than using commercial software such as Oracle or SQLServer, under current financial constraints, it is recommended that MySQL or Postgres shall be used as database management system.

In the long-run, a planning information system will be shifted to the internet based information system. Use of the Google Earth system will become critical in the future, the departments which use spatial information shall prepare use of the XML based information system-a text based objective database system.

6.3.8 Strategies for Basic Administrative Capacity Improvement

(1) Basic Administrative Capacity Development Directions

The strategies for basic administration improvement are structured for the short-term, mid-term and long-term planning periods at the district and ward levels. The short-term measures are incremental improvement of the current situation where the strategies for the districts are organized as they were organized in the gap analysis: research, organizing, coordinating/communicating, staff allocation, planning and implementation/monitoring. The fundamental strategies are to systematize administration: from informal to formal; centralized to decentralize; and from analogue

to digital method of management.

To achieve the administrative capacity development at the organizational level, some institutional arrangement will become necessary with regard to formalization of administrative procedure and decentralization. The formalization means to conduct operations under sets of rules. The rules are based on laws and regulations. While such laws and regulations are not available or incomplete, the formalization of administration cannot be achieved.

As for decentralization of planning and building application approval procedures, amendment to the new TCPA will be required. Such planning administration shall be delegated to the ward level during the mid-term planning period. The current approval procedure needs to be amended.

The satellite offices for the Satellite Cities shall be established during the mid-term planning period. The public services only offered at the headquarters of the district offices shall be available to meet demands from the citizens.

For efficient and effective management and organization of records and documents, database will become applicable to public services. For research, communication, coordination, and planning, the internet will become a strong tool in the future. The spatial data for planning, development and project management will be utilized as the geographic information systems will be available at the ward level.

Professional development is significant to draft rules and regulations for the districts along with the regular administrative tasks. The zoning code and building/development code are two significant rules to be established at the district level when IDPs will be prepared.

Table 6.3.8 Basic Administrative Capacity Development Themes

Admin. Unit	Area	Short-Term (-2015)	Mid-Term (2016-2020)	Long-Term (2020-2030)
Districts	Research	• Socio-economic data management and analysis • Topographic analysis-current land use study and update • Environmental analysis	• Immigration monitoring and research • GIS based research and data management	• Reinforcement and innovation based on abreast with the latest developments
	Organizing	• Analogue filing system installation and record keeping • Database development for record management • Introduction of an inventory management	• Internal functionality available for an organizational system analysis /improvement • Analogue to digital data management (installation of database in all the departments)	• Reinforcement and innovation based on abreast with the latest developments
	Coordination/ Communication	• Knowledge sharing within departments • Intra-district coordination and communication • Inter-governmental coordination system (provincial and national) • Information dissemination to citizens	• Emergency communication system • Installation of communication system among the site offices, satellite offices and the headquarters of the districts • Facilitation for citizen involvement	• Reinforcement and innovation based on abreast with the latest developments
	Staff allocation	• Introduction of a human resource management system • Human resource development programming • Training record management system • Job description database • Outsourcing and contract management • Professional development	• Internal organizational system review process • Directors' performance appraisal system implemented by the national government • Coordinate oriented staff allocation	• Management oriented staff allocation
	Planning	• Annual work planning • IDP • Ward development planning with a spatial plan • Participatory planning in the customary lands	• Advanced usage of CAD and GIS	• Internet based participatory planning system
	Implementation/ Monitoring	• Annual reporting (Accomplishment report) • Contract Management • Project Monitoring including international projects	• GIS based project management	• Internet based project management
Wards	Concurrent role with multiple areas	• Facility improvement • Ward development planning with a spatial element	• Delegation of minor planning/building application administration (subdivision without roads, development without First and Second Schedule of EIA requirements) • Delegation of zoning administration (monitoring and inspection)	• Delegation of major planning/building approval (except for the projects under Second Schedule of EIA requirement)
Satellite Offices (Satellite City Management)	Concurrent role with multiple areas	• Preparation for new urban administration organization • Reinforcement of current district administration in cooperation with LCC urban administration	• Issuance of birth/death certificates, PHD • Issuance of photo IDs (Social Security Number), LSD • Land registration, LSD • Fee payment services (rates, ground rents, other fees), FD • Citizen information services, CPD • Employment information services, HSSD • Facility development and maintenance, ESD • Security (District police, Fire brigade, ESD) • Community schools, HSSD • Public health services, Public Health Department	• GIS based cadastral mapping system • Internet based citizen information services • Outsourcing facility development and maintenance works • Privatization of community schools • Privatization of public health services

PHD: Public Health Department, LSD: Legal Services Department, FD: Finance Department, CPD: City Planning Department, ESD: Engineering Services Department, HSSD: Housing and Social Services Department

Source: JICA Study Team

6.3.9 Strategies for Thematic Capacity Development

(1) Development Control

1) Regional Coordination

Section 38 (1) of Regional and Planning Bill states that:

Two or more local authorities may agree to jointly prepare IDPs or may establish designated parts of their respective council areas as a multi-jurisdictional council service area, to facilitate the provision of public services in those parts of the council areas. The district councils of Lusaka, Kafue, Chongwe, and Chibombo shall coordinate and establish areas to be managed under the land use plan of the Master Plan.

2) Administrative Functions for Implementing the Master Plan

(i) Verification of the Structure Plan for IDP

The structure plan is intended for year 2030. The IDP's planning period is five to ten years while the financial component will be reviewed annually. The framework of the Master Plan needs to be verified according to local conditions.

(ii) Zoning Guideline (base on MP)

Zoning guideline shall be prepared to enable preparation of a zoning plan based on the structure plan.

3) Enforcement

(i) Building Standards

Building regulations are stipulated in the Public Health (Building) Regulations of the Public Health Act. These regulations shall be revised to meet the current cases of mid-high rise development. As the planning guideline needs revision, the Public Health (Building) Regulation should be consequently modified.

(ii) Progressive Inspection Fee

The inspection fee is ZMK 50,000 regardless of the development scale. The fee schedule shall be changed according to the total floor area and the defined major use after improvement. The equation of the progressive inspection fee shall be as follows:

Inspection Fee = Total Floor x Major Use Coefficient x Inspection Fee Rate

The actual major use coefficient (residential, commercial or industrial) and the inspection fee rate shall be determined considering the total inspection work (labor hours and costs for material and equipment). For this purpose, a planning permission monitoring system shall be developed.

(iii) Prioritization of Enforcement

Under the limited capacity of the district councils, priority shall be given to enforcement of existing administrative capacity. Enforcement notices shall be categorized into four namely, immediate demolition, priority demolition, and discontinued use.

(2) Strengthening of Urban Facility/Infrastructure Development

1) RDA

RDA can be strengthened in the fields of contract management and quality control. The engineering services department shall coordinate with the RDAs especially with regards to technical matters. The quantity survey database being prepared by RDA shall be

utilized in the contract management work of the quantity survey section of the engineering services department.

2) Water/Sewer Development Administration

LWSC is in-charge of water and sewer development administration. Water leaks and fee collection are issues to be resolved. Also, NWASCO, LWSC, MLGH, and LCC shall coordinate to expand the service area to the Chibombo South area, the northern part of the Master Plan area coverage.

(3) Improving Land Development Mechanism for Better Living Environment

1) Regional Cooperation for efficient service delivery

A public service entity shall be formed to deal with regional or multi-provincial public services and land uses for regional needs. The Ministry of Finance as well as MLGH are involved in regional development issues, hence, coordination work between these agencies are required.

2) Accelerating Land Registration (Improvement Areas)

The land registration can be accelerated using an urban renewal mechanism presented as a pilot project in Chibolya.

Another method which is effective for land registration is through land readjustment scheme which is more appropriate for residential areas.

3) Financing of Public Services

Financing of public services can be executed in three ways namely, public, private, and public and private partnership. A community based public services can be a bonding mechanism in communities included in the improvement areas. In financing of pubic services, urban renewal and land readjustment shall be one of the prerequisites.

4) Efficient Land Use

(i) Condominium Act

A condominium bill shall be enacted to encourage higher density development. A condominium is a building used for residential, commercial or industrial purposes. The ownership of a condominium can be divided into parts namely, common areas managed by a corporation and the other areas operated by a separate organization formed. All the residents in condominium become members of the corporation who will decide on matters related to repair and maintenance of common areas and other rules and regulation for the use of its facilities. Any owner can own part or parts of a condominium. The condominium title may specify the type of ownership.

(ii) Revision of the Planning Guideline

The current planning guideline does not include provisions on low cost housing. Hence, the subdivision and building standards shall be reviewed to include low cost housing and motivation for higher density development.

Subdivision Regulation for Low Cost Housing

There shall be subdivision regulations and standards for:

- Temporary housing
- Residential Development (low cost residential development)
- Commercial development
- Condominium project

The subdivision regulations shall set the following standards:

- Public facility requirement: parks and community facility requirements
- Road standards
- Minimum lot size
- Maximum lot size
- Setback requirement
- Lot frontage requirement
- Block length
- Water Supply System
- Sewage Disposal System
- Drainage System

Building Regulation for Low Cost Housing

Building regulation is necessary for the development of commercial areas. Since the current regulations stipulated in the regulations in the Public Health Act shall be amended, new building standards shall be consequently prepared.

(iii) Road Standards for UUS

The road standards for urban renewal areas shall be prepared by the RDA and the engineering services department of the LCC and by other local RDAs in the Master Plan area.

(4) Improving Functions for City Planning Administration

To achieve administrative requirements discussed, the functions of the City Planning Department and HSS shall be developed.

1) City Planning Department

In the case of LCC, the functions of the City's planning department shall be strengthened by forming a new transportation section and research/management section. This shall also be required in other districts. An example of organizational structure is shown in the following table. The districts shall alter allocation of the staff according to the needs of planning administration.

Table 6.3.9 Proposed Organization Structure and Functions for Urban Planning (An example of Short-term for LCC)

Section	Functions	Personnel	No
Director's Office	Plan Coordination, Operation Improvement	Director	1
	Plan Coordination Assistant	Planning Coordinator	2
Assistant Director's Office	Plan Coordination	Assistant Director	1
	Plan Coordination Assistant	Planning Coordinator	1
Research/Project Management Section	Project management (coordination including the customary lands)	Project manager	1
	Socio-economic Analysis	Statistician	1
	Ward data, sector data collection and organization	Coordinator	2
Planning	Plan Coordination	Senior Planner	1
	Planning permission	Planner	6
	Local Area Planning Coordination	Coordinator	1
	Environmental Requirement Processing	Environmental Planner	1
	Plan coordination	Assistant Planner	1
Transportation	Transportation Planning	Transportation Planner	1
	Public Transport	Public Transportation Planner	1
GIS	Geographic Analyses	Surveyor	1
	Digitalization of Survey Data	GIS Operator	2
	Operation Assist	Operation Assistant	1
	Plan Monitoring/Update	Remote Sensing	1
Survey	Inspection/boundary	Survey	4
	Customer service	Survey assistant	2
Building Inspection	Inspection	Building Inspector	8
	Peri-urban inspection	Peri-Urban	5
	Demolition/Eviction	Demolition/Eviction Coordinator	1
Administration	Procurement, Contract Record, Human Resource	Administrator	1

Source: JICA Study Team

(i) Director and Assistant Director's Office

The roles of the director and assistant director mainly involve planning coordination to motivate joint planning initiative. The district councils of Lusaka, Kafue, Chongwe, and Chibombo shall coordinate with other agencies involved. The offices shall be in-charge of the revision of the planning guideline, preparation of zoning guideline and preparation of a draft zoning bylaws.

(ii) Planning Section

The major functions of the planning section are:

- Verification of the structure plan;
- Reference of zoning guideline; and
- Processing planning applications in consideration of the new zoning, including urban development promotion zones.

Verification Work

The verification of the structure plan shall be conducted in coordination with the GIS Section with regards to verification all required data stored in a GIS system.

Zoning Guideline Application

Planning application shall be processed based on a new zoning guideline to be prepared.

New Zoning

When new zoning maps are prepared with the legalization of zoning bylaws, the planning section shall review planning applications according to these new maps and ordinances.

For smooth and efficient processing, all the planning application shall be categorized as major and minor application. Major and minor applications shall be processed subject to the approval of Plan Works Department (PWD) Committee and Director of City Planning, respectively.

Development of Planning Permission System

The data encoding using word processor was initiated in the Planning Department of LCC in 2007. The text-based record system can be upgraded to database. At least from the year 2000, encoding can be conducted to determine the current development trend and to monitor development activities. The initial contents of the database are shown in Table 6.3.13.

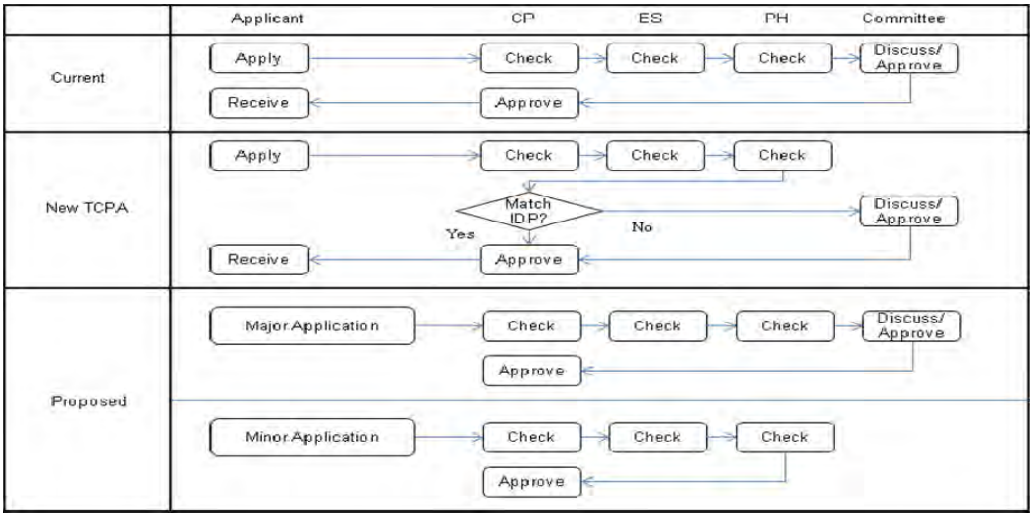
A three-table database is proposed where the key is the "Application No." The status and recommendation tables are added to augment functionality of the database. Any status change shall be recorded in one table while a recommendation table is added to record the details of recommendation (who, what and when). If database is not available, a spreadsheet form of application can be used to record the required details of application.

The old ledger input system currently used since the 1950s shall be replaced with a new application registration system. The planning offices of Lusaka and Central Provinces shall develop the similar system to assist the planning administration for Kafue, Chongwe and Chibombo districts.

Table 6.3.10 Planning Permission System (Initial Schema)

Table	Field
Application	Sheet No
	Application No
	Stand No
	Road
	Applicant/Owner
	Architect/Designer
	Nature of Proposed Development
	Estimated Development Cost
	Scrutiny fees
	Receipt No
	Use Zone
Status	Application No
	Status
	Date of Status Change
Recommendation	Application No
	Recommendation
	Date of Recommendation
	Recommended by

Source: JICA Study Team



CP: City Planning, ES: Engineering Services, PH: Public Health.
Source: JICA Study Team

Figure 6.3.2 Proposed Planning Application Procedure

(iii) GIS Section

The GIS Section, City Planning Department, LCC shall continue to prepare graphical maps required by other sections. This GIS Section shall engage in the housing development monitoring projects which cover the entire Lusaka City. The base information shall be the satellite data. Building foot prints shall be delineated to produce housing maps in the improvement areas. The activities shall be coordinated with HSS and legal departments.

Coordination in conducting housing surveys in the improvement area shall ensure efficient collection of ground rents. The GIS Section shall keep and manage all the spatial and related data for the City's planning department. It shall also coordinate with other sections for updating the data timely. The following table shows systems to be managed in the GIS Section. The provincial planning office shall be equipped with a similar system to support Kafue, Chongwe and Chibombo Districts.

Table 6.3.11 System Development Requirement in the City Planning Department

Section	System	Major Data
Research/Project Management Section	Socio-economic analysis system	CSO and other data
	Project management system	Project description, schedule, cost, implementing agencies
Transportation Planning Section	Transportation Planning System	Transportation Model
	Public Transportation Route Planning	Location of transportation facilities
		Public Transportation Routes
GIS Section	Urban Information Management System	Satellite images
		Topographic maps
		Planning permission
		Planning inspection
		Special project monitoring system
		Improvement Area Management System
		Urban Transportation Management System
	Master Plan Verification System	Current Land Use
		Current Zone
		Current Infrastructure
		Current Public Transportation
		Public transportation
		Land Use Plan 2030
		Infrastructure 2030
	Zoning Guideline Preparation	Digitization of the current zoning maps
		Current Zoning Maps
		Planned Zoning Maps
Planning Inspection	Planning Permission Monitoring System	Planning application
	Enforcement Management System	Enforcement Notices

Source: JICA Study Team

(iv) Research/Project Management Section

Currently, there is no research section in the planning department. The proposed research/project management section shall function as the basis of socio-economic planning in the planning department. The GIS section shall be responsible for collecting and organizing spatial data such as satellite images and topographic data.

The research/project management section shall monitor development activities of private sectors. The regulatory requirement on subdivision projects shall be monitored to ensure that land development complies with the plan.

Said section shall also monitor road developments and other facility development activities in relation to city planning. The activities shall be monitored in coordination with the GIS section which has the base map for the city of Lusaka.

Table 6.3.12 System Development Requirement in the Research/Project Management and City Planning Department

Section	System	Major Data
Research/Project Management Section	Socio-economic analysis system	CSO and other data
	Project management system	Project description, schedule, cost, implementing agencies

Source: JICA Study Team

(v) Survey Section

The research/project management section is recently established to deal with all socio-economic data analyses.

The functions of the survey section will reduce after the current analogue survey data is replaced with the digital data. Instead of the survey section, the GIS section needs to have more staff to deal with activities in the departments including the Legal Department and HSS department regarding mapping and registration of the Land Record Cards and Occupancy Licenses in the UUS.

(vi) Inspection Section

a) Enforcement

Enforcement Notice covered in the TCPA Cap 283, Section 31(1) is the basis for controlling the illegal structure. The information contained in the enforcement notice shall be stored in a database to monitor enforcement activities. The activities of enforcement shall be prioritized to concentrate on the limited capacity of the inspection section.

b) Inspection

Since the major problem of inspection is its mobility for processing nearly 3000 applications annually (in LCC), deployment of six motorcycles is proposed. Eight members shall take turns on uses of the motorcycle while two persons shall work in the offices daily to organize documents. When new building and planning standards are available, the staff shall be given opportunities for training. The districts of Kafue, Chongwe and Chibombo shall be mobilized to conduct the inspection work as well.

(vii) Transportation Planning and Management Section

The new section, transportation planning, shall work with the engineering services department and RDA. The section shall monitor and plan all activities related to transportation planning which should be incorporated to the IDP. The section shall propose and monitor a capital investment plan in the field of transportation annually, which should be incorporated to the three-year revision of the capital investment plan in the IDP. (Detailed capacity development is referred to Volume II Sub-programs: Urban Transportation)

2) Housing and Social Service Department

The major functions of the HSS are to prepare mechanisms for urban renewal and land readjustment programs. These projects on land registration are expected to improve the living environment in improvement areas.

(i) Director and Assistant Director's Offices

Housing Survey

Before the implementation of the urban renewal projects, HSS shall conduct surveys in

all improvement areas to obtain fundamental data and information required for feasibility analyses of urban renewal and land readjustment projects.

Data Management

All the data and information acquired through housing surveys shall be stored into a data management system which could be accessed by the GIS section, city planning department and legal department. The data shall be used to monitor possible illegal activities. In the future, these data shall be linked with the database of the ground rent project and the rate server.

(ii) Peri-Urban Section

The peri-urban section shall continue to support the housing registration works and ground rent collection. The registration information shall be stored in the database for efficient monitoring. The land record card system shall be replaced with occupancy licenses. All the ground rents are collected while the system of eviction is administered smoothly. The peri-urban section shall continue to act as coordinator for ward development committees.

(iii) Community Development Section

The community development section shall lead the community based services in improvement areas. These services currently proposed are in the field of water supply and waste management. The district councils may hire a consultant to organize these services.

3) Engineering Service Department

Since the private sector for major engineering services have been developed, the engineering service department in LCC shall focus on project management and quality control.

(i) Quantity Survey

The quantity survey section shall own a computer installed with a project management software such as MS Project or equivalent, spreadsheet and database software. Past cost estimate data shall be stored in the database to ensure appropriate costs of projects.

(ii) Road and Drainage

The road and drainage section shall be the main section of the road and road facility project management. This section shall have adequate survey and other equipment as tool for carrying out quality control at sites.

(iii) Architecture and Park

Architecture and park section's tasks shall include contract management of the private sector which has been designated to accomplish architectural projects. The functions of this section are mainly to manage contractors. For this purpose, project management systems shall be utilized by the section.

(5) Professional Planners' Capacity Development

The Zambia Institute of Planners is organized, but not institutionalized. For institutionalization, the Zambian Institute of Planners Bill was proposed. The position of the bill is significant for the Regional and Urban Planning Bill includes provisions of "qualified planners"; the licensed planners' qualification is defined in the bill of Zambian Institute of Planners. Even though the Regional and Urban Planning Bill will be passed in June 2009, licensed planners' organization may not be institutionalized

unless the bill will be passed.

To animate activities and to increase members and qualified planners, the Zambia Institute of Planners shall be passed as soon as possible before the enactment the revised Town and Country Planning Act.

The Zambia Institute of Planners shall be capacitated to become the central body of professional development in Zambia. The Zamia Institute of Planners Bill has not been passed; however, the Institute shall prepare programs for increasing memberships immediately.

(i) Administration

At least one full time administrator is necessary. Initially, an institution consisting of volunteers shall engage in the process of developing the organization with sufficient accounting records.

(ii) Membership Promotion

The membership promotion shall be strategically planned using different media according to the targets. According to the Regional and Urban Planning Act, planning consulting firms need to employ registered planners to conduct governmental planning activities. Considering the legislative schedule of June 2009 for the new act, the administration office of the Zambia Institute of Planners shall prepare a system for the promotion and registration of planners.

The initial members shall be practitioners in the field of planning who have passed the required license examination. A licensing exam system shall be developed gradually as the IDP processes are put in practice.

Promoting student and citizen planners are significant to raise funds for the institute. Newsletters and invitation to attend workshops and seminars shall motivate students and citizen planners.

(iii) Newsletters Development

A newsletter of the institute shall be issued to its members. It is a means of updating the members with regards to knowledge and information on legislation, technology, cases of urban development and others.

(iv) Professional Development Program

The Zambia Institute of Planners shall lead to create a professional development program. The professional development program shall be linked to the licensing system to make capacity of planners sustainable throughout of his/her career. The functional or technical knowledge and skill development, the Institute shall coordinate with the Copperbelt University. As for procedural or administrative skills, planning and development guidelines, building standards, zoning regulations need to be put in place after the promulgation of the new Town and Country Planning Act and formulation of related regulations.

The administration of the Zambia Institute of Planners shall monitor seminar/workshop and lectures conducted by institution of higher learning and international organizations. The institute shall assign units to each professional development opportunities, and keep attendance records to keep professional development activities by members.

The training manuals for the IDP preparation shall be prepared so that a planner in charge will be able to follow the guideline to prepare IDP based on the status quo.

The Zambian Institute of Planner shall provide a professional ethics training—code of conduct as professional planner. A seminar shall be conducted whenever political issues arise. The ethics is very significant because the Zambian Planning System can be considered fluid with quasi-judicial power granted to planners under less defined institutional mechanism of zoning. There are many area and situation when planners need to judge for the betterment of society or make recommendations to decisions makers.

6.3.10 Project and Programs for Capacity Development

(1) Projects and Programs for Capacity Development

According to the capacity development framework consisting of two sectors of basic capacity development and thematic capacity development in previous section, projects and programs for capacity development are formulated. Although both sectors may have inter-relation effects in terms of implementation, two sectors still need to implement separately due to considerable weakness of basic capacity of administration and necessity of new establishment of administration for proposed Satellite cities in three Districts.

Programs and projects are programmed by four pillars of 1) least cost programs for basic and thematic programs, 2) basic capacity development, 3) capacity formulation for Master Plan implementation, 4) capacity building for urban and living environment improvement.

Table 6.3.13 Capacity Development Pillars and Projects and Programs with Focused Area of Development

Development Pillars		Key Projects and Program for Capacity Development		CAPDEV Focused Area		
				Individual	Org	Institution
Least Cost Capa-city Development	Basic CD (LB Group)	1)	Installation of Operational Improvement Mechanism	○	●	--
		2)	Basic Information Management	●	●	--
	Thematic CD (LT Group)	3)	Knowledge Sharing	●	○	--
		4)	Use of the Internet	●	○	--
		5)	Accelerating the Basic IT skills by using free software	○	●	--
Basic Administrative Capacity Development (BC group)		6)	Data management, communication, basic skill, no. of staff	●	●	--
		7)	Empowerment of Ward role and function in urban management	●	●	○
		8)	Establishment of urban management administration for Satellite Cities	●	●	--
		9)	Accreditation of qualified Planner by organization	●	--	●
Formulation of Capacity for Master Plan Implementation (MC group)		10)	Establishment of statutory zoning and development control by guideline	●	●	○
		11)	Empowerment of building permission, inspection, penalty enforcement	○	●	○
		12)	Reinforcement of infrastructure project implementation	●	●	--
		13)	Formulation of urban transportation planning section in CPD	●	●	--
		14)	Planning coordination organization (authority, committee) for G-Lusaka	○	●	○
		15)	Skill development for review, update and revision of the plan	●	●	--
Capacity for Urban & Living Environment Improvement (IC group)		16)	Land management enhancement	a) land registration promotion	○	●	○
				b) promotion of public asset management	○	●	○
				c) Chibolya pilot project implementation	○	●	○
		17)	Formulation of regional public service (water, waste, ambulance, etc)		○	●	--
		18)	Establishment of Condominium Law for dense development		○	○	●
		19)	Reinforcement of planning standards and building codes		●	○	●
		20)	Empowerment of local communities (CBO/CBE) for public services		○	●	○

Legend : ●= priority, ○ =partial, -- = not applicable
Source: JICA Study Team

The projects and programs for the basic capacity development aim at strengthening basic administrative capacity for basic urban management through organization consolidation, new administration establishment for 33 Wards in LCC and Satellite Cities and basic administrative skill as professional to address increase of demand of public service toward 2030.

The second group for capacity development focuses on practical programs and projects for effective and appropriate implementation of the proposed Master Plan, of which projects and programs aim at coping with critical urban management issues such as development control and infrastructure development management. Thirdly, projects and programs for capacity development are set for urban and living environment improvement including institutional building and empowerment of local community. Each pillar is broke down into projects and programs of the capacity development shown in Table 6.3.17, and Table 6.3.18, showing detailed projects and programs of which implementation schedule and outlines are indicated.

Table 6.3.14 Projects and Programs (1) of Capacity Development Plan for Urban Management

Code	Project and Program	Project and Program Outline	Cost mil US$	Target
LB02	Installation of Operational Improvement Mechanism	Operational capacity development based on organizational and procedural analysis conducted by the system analysts in the IT Unit and improved by the directors.	0.0	S
LB02	Basic Information Management	Basic file management and preparatory work for database development.	0.0	S
LT01	Knowledge sharing	Sharing knowledge and skills acquired through seminars and training conducted internally or by the international organizations and institutes of higher learning.	0.0	S
LT02	Use of the Internet	Individual capacity development using the Internet focusing on cases useful for administration improvement and IT training.	0.0	S
LT03	Accelerating the Basic IT skills by using free software	Accelerating IT skill capacity by minimizing cost of software procurement. Training is based on self-learning using the Internet and knowledge sharing.	0.0	S
BC01	Data Management and Documentation Skill Development	Formulating basic administrative capacity to manage documents and data with necessary equipment and its skills for urban management in all departments of City Planning, Engineering Service.	0.25	S
BC02	Empowerment of Ward role and function in urban management	Reformation of administrative function and role for urban management in Lusaka City by devolution and delegation of Council's service (e.g. permission, registration, etc.).	0.3	S/M
BC03	Establishment of urban administration for Satellite Cities	Capacity development for new administration in each District of Kafue, Chongwe and Chibombo to manage Satellite City and serve residents to provide public services.	1.50	M
BC04	Accreditation of Qualified Planner by authorized organization	Promotion of accreditation through passing Bill for Zambia Institute of Planner (ZIP) and consolidation of training program for professional skill development.	0.25	S
MC01	Reinforcing development control through statutory zoning establishment and its guideline provision	Strengthening administration for development control through putting proposed land use zoning into effect in association with guideline provision and its management.	0.15	S
MC02	Empowerment of building permission, inspection, penalty enforcement	Strengthening mobility of inspection and rationalizing permission process to address increase of construction of buildings in urban planning areas in association with penalty enforcement.	0.8	S/M
MC03	Reinforcement of infrastructure project implementation	Strengthening implementation capacity for infrastructure development (road and water & sewerage network) taking account of technical capability, financial management utilizing ODA funding and project management skill.	0.15	S
MC04	Formulation of urban transportation planning section in CPD	Capacity development of urban transportation planning to address public transportation planning and traffic management skill toward establishment of Division of Transportation Planning under City Planning Department.	0.25	S
MC05	Planning coordination organization (authority, committee) for Greater Lusaka	Formulating Joint Planning Organization (authority and committee) to review and monitor the Master Plan through discussion and agreement with relevant authorities in Greater Lusaka area.	0.1	S
MC06	Skill development for review, update and revision of the plan	Capacity development of planning skills for review, update and revision of the Master Plan utilizing outcomes and study processes of the Plan including methodology, survey, demand projection, and other planning tools regarding to master planning and other key sector development plan.	0.15	S

Source: JICA Study Team

Table 6.3.15 Projects and Programs (2) of Capacity Development Plan for Urban Management

Code	Project and Program	Project and Program Outline	Cost Mil US$	Target
IC01	Promoting land registration in UUS	Consolidation of registration system by data management, mapping, work encouragement for land management (Occupancy License) succeeding SIDA program	0.4	S/M
IC02	Promoting public land asset management	Introduction of land management and its capacity for public asset (land) to generate fund or utilize (especially UUS land and generation of fund for living environment improvement)	0.2	S/M
IC03	Formulating Chibolya Urban Renewal Pilot Project	Formulation of implementation body, financing, project management through capacity development program with expert's technical assistance	0.8	S
IC04	Strengthening regional public services	Introducing regional public service to 4 Districts for waste disposal site, cemetery, other as common service operation in multi-jurisdictions (Lusaka, Kafue, Chongwe, Chibombo)	0.2	S/M
IC05	Establishment of Condominium Law for dense development	Formulating property right for floor area in multi-story housing by condominium system in order to achieve dense development in urban area and encourage residents right as part of economic activities	0.3	M/L
IC06	Reinforcement of planning standard and building code to meet modern urban development	Reviewing and revising existing old-dated planning standard and building code to meet modern urban development requirement (multi-story building, efficient urban land use, new urban activities)	0.5	S/M
IC07	Empowerment of local communities (CBO/CBE) for public services participation	Capacity development of administrators and local community organization regarding to devolution of public service for waste management, other public services	0.4	S
		Total (project and program (1)+(2))	6.7	

Note *: S = Short-term (-2015), M = Mid-term (2016-2020), L = Long-term (2021-2030)
Source: JICA Study Team

(2) Priority Projects and Programs

Among short-term proposed projects and programs including projects and programs ranging mid or long-term for capacity development, the priority projects and programs are evaluated under consideration of; (i) Technical Difficulties, (ii) Stakeholders Linkage Effects, (iii) Benefit across Organization Units, (iv) Preparedness (e.g. motivation, organization, budget, etc) and (v) Relevance to Urban Management Issues. The result of the evaluation is shown in Table 6.3.19 and Table 6.3.20.

Table 6.3.16 Evaluation (1) of Priority Projects and Programs of Capacity Development Plan for Urban Management

Code	Project	Project Outline	Cost mil US$	Evaluation Criteria					Total
				I	II	III	IV	V	
LB01	Installation of Operational Improvement Mechanism	A feedback process installation by department for administration improvement	0.00	H	H	H	H	H	YES
LB02	Basic Information Management	Basic filing and data input and management	0.00	H	H	H	H	H	YES
LT01	Knowledge Sharing	Teaching each other and sharing technologies and skills learned in seminar and training	0.00	H	H	H	H	H	YES
LT02	Use of the Internet	Getting information, learning and using the Internet	0.00	H	H	H	H	H	YES
LT03	Accelerating the IT skills by using free software	Accelerating the IT skills by using free software	0.00	H	H	H	H	H	YES
BC01	Data Management and Documentation Skill Development	Formulating basic administrative capacity to manage documents and data and its skills	0.25	M	H	H	H	H	YES
BC04	Accreditation of Qualified Planner	Promotion of accreditation through passing Bill for Zambia Institute of Planner (ZIP)	0.3	M	H	H	H	H	YES

Source: JICA Study Team

Table 6.3.17 Evaluation (2) of Priority Projects and Programs of Capacity Development Plan for Urban Management

Code	Project	Project Outline	Cost mil US$	Evaluation Criteria					Total
				I	II	III	IV	V	
MC01	Reinforcing development control through statutory zoning establishment	Strengthening administration for development control	0.15	H	H	H	H	H	YES
MC02	Empowerment of building permission, inspection	Strengthening mobility of inspection and rationalizing permission process in association with penalty enforcement	0.8	M	H	H	H	M	YES
MC03	Reinforcement of infrastructure project implementation	Strengthening implementation capacity for the infrastructure development	0.15	H	H	H	H	H	YES
MC04	Formulation of urban transportation planning section	Capacity development of urban transportation planning t under City Planning Department	0.25	M	H	H	M	H	YES
MC05	Planning coordination organization for Greater Lusaka	Formulating Joint Planning Organization (authority and committee) to review and monitor the Master Plan	0.1	H	H	H	H	H	YES
MC06	Skill development for review, update and revision of the plan	Capacity development of planning skills for review, update and revision of the Master Plan utilizing outcomes and study processes of the Plan	0.15	H	H	H	H	H	YES
IC01	Promoting land registration in UUS	Consolidation of registration system by data management, mapping, work encouragement	0.4	H	M	H	H	H	YES
IC02	Promoting public land asset management	Introduction of land management and its capacity for public asset (land) to generate fund or utilize	0.2	M	H	M	M	M	NO
IC03	Formulating Chibolya Urban Renewal Pilot Project	Formulation of implementation body, financing, project management through capacity development	0.8	H	H	H	H	H	YES
IC04	Strengthening regional public services	Introducing regional public service to 4 Districts for waste disposal site, cemetery, other as common service operation	0.2	M	M	H	M	M	NO
IC06	Reinforcement of planning standard and building code	Reviewing and revising existing old-dated planning standard and building code	0.5	M	M	M	M	H	NO
IC07	Empowerment of local communities (CBO/CBE)	Capacity development of administrators and local community organization regarding to devolution of public service	0.4	H	H	H	H	H	YES

Legend: I = Technical Difficulty, II = Stakeholder's linkage effects, III = across benefits among organizations, IV = Preparedness, V = Relevance to urban management issues
Ranking: H = high positive impact, M = medium or less impact or unknown impact, L = low or negative impact
Source: JICA Study Team

(3) Action Plan (priority projects and programs) for Capacity Development

The action plan of priority projects and programs for capacity development is prepared as the following Table 6.3.21. The costs are sum of the staff cost, domestic consulting cost and international consulting costs. The cost is approximate; it is subject to change. The total cost of the priority projects and programs is about US$3.36 million.

The actions for the two components: development control and improvement of living environment are listed in the following Table 6.3.22,-23,-24,-25. Activities for the district councils are generally coordination.

Domestic planning consultants and international consultants will be necessary to prepare guidelines and regulations on planning, urban renewal, land readjustment, etc. The tasks are preparation of zoning guideline and zoning by-law which directly and indirectly affect value of properties. Consultation, workshop and seminars will be necessary in all the decision making processes.

Table 6.3.18 Priority Projects (Short-term) and Programs as Capacity Development Action Plans for Urban Management

Action Plan for Capacity Development			Expected Organization	Contents of Activities	Type of Implementation	Project Cost (us$-mil)
LB01	A feedback process installation by department for administration improvement		LCC/ 3Districts	Organizational analysis	Gov. Finance	0.00
LB02	Basic filing and data input and management		LCC/ 3Districts	Filing and data input	Gov. Finance	0.00
LT01	Teaching each other and sharing technologies and skills learned in seminar and training		LCC/ 3Districts	OJT	Gov. Finance	0.00
LT02	Getting information, learning and using the Internet		LCC/ 3Districts	On-line training	Gov. Finance	0.00
LT03	Accelerating the basic IT skills by using free software		LCC/ 3Districts	Basic IT training	Gov. Finance	0.00
BC01	Strengthening data management, communication skill and mechanism, basic skill of technical work		LCC/ 3Districts	Manual provision, training, discussions	Gov. finance / TA (ODA)	0.25
BC04	Promoting accreditation and increment of Qualified Planner by authorized organization		Zambia Institute of Planners	Teachers training teaching material	Gov. finance	0.25
					Sub-total	**0.5**
MC01	Reinforcing development control through statutory zoning establishment and its guideline provision		LCC/ 3Districts	OJT, provision of guideline of operation	TA (ODA)	0.15
MC02	Empowerment of building permission, inspection, penalty enforcement		LCC/ 3Districts	OJT, increment of staff,	Gov. finance	0.4
MC03	Strengthening implementation capacity of infrastructure project (technology, finance, manage)		LWSC/Road Admin (ESD)	Guidance provision, training, OJT	TA (ODA)	0.15
MC04	Formulation of urban transportation planning section (traffic management, public T) in CPD		LCC (CPD)	Training, recruiting staff, setting Section	TA (ODA)	0.25
MC05	Formulating planning coordination organization (authority, committee) among 4 Districts		LCC/ 3Districts	Task force setting, discussions, organizing	Gov. finance	0.1
MC06	Skill development for review, update and revision of the plan		LCC mainly	OJT for data management, planning	TA (ODA)	0.15
					Sub-total	**1.2**
IC00	Reinforcing Land Management	IC01 Promotion of land registration	LCC/ 3 Districts	Data management, training, recruiting staff	Gov. finance	0.2
		IC03 Promotion of Chibolya urban renewal pilot project	LCC/MLGH/ MoFNP/MoL	Implementation body, financing, investors promotion, engineering	Gov. finance / TA (ODA),	0.80
IC07	Empowerment of local communities (CBO/CBE) for public services participation		LCC/WDC/CBO/CBE	Task force setting, pilot study, model project	Gov. finance / NGO	0.40
					Sub-total	**1.4**
					Total	**3.1**

Legend : LCC = Lusaka City Council, CPD = City Planning Dept, HSSD = Housing Social Service Dept, ESD = Engineering Service Dept. WDC=Ward Development Committee, LWSC = Lusaka Water and Sewerage Company, MoFNP= Ministry of Finance and National Planning, MoL = Ministry of Land, CBO = Community Based Organization, CBE = Community Based Enterprise

Source: JICA Study Team

Table 6.3.19 Capacity Development Action Plan: Strengthening Development Control

Code	Item	Institutional Capacity Development Action	Organizational Capacity Development, Responsible Organization	Organizational Actions
MC01	Verification of the Structure Plan for IDP	Preparation of IDP proposal to PWD Committee, LCC	Planning, the District Councils	Preparation of explanatory document
			GIS, LCC and Provincial Planning Offices	Preparation of graphics
		PWD Committee approval for plan preparation	PWD Committee	Approval
		Structure Plan/IDP Planning System	GIS, LCC and Provincial Planning Offices	Installation
		Digitization of current zoning maps to the UIMS	GIS, LCC and Provincial Planning Offices	Scan and digitize
		Analysis of the Structure Plan	Planning, the District Councils	Land use/infrastructure analysis
				Coordination seminar/workshop
	Zoning guideline (based on MP)	Procedural agreement on the zoning guideline	MLGH, City Planning, the District Councils	Legal studies for zoning guideline application
		Zoning guideline preparation	Planning, the District Councils LCC; GIS, LCC and Provincial Planning Offices	Zoning map and guideline preparation
		Zoning guideline approval	PWD, the District Councils (coordination with MLGH)	PWD, LCC
		Zoning Map and By-Law Preparation	Planning, the District Councils	Zoning By-Law Preparation
		Zoning Map and By-Law Approval	the District Councils	Zoning By-Law Approval
	Urban development promotion zoning	PWD approval on development promotion zones	Planning, the District Councils	Promotion zoning, map preparation
			PWD	Approval
	New zoning application enforcement	Clarification of rules of application	Planning, the District Councils	Define major and minor planning permission
			Planning, the District Councils	Planning Application Monitoring System
MC02	Enforcement procedure	Revision of building regulations	Public Health, Planning, Engineering, the District Councils	Building Standards
		Coordination/promotion	Public Health, Planning, Engineering, the District Councils	Preparation of promotion materials
		Revision of enforcement procedure	Inspection, the District Councils	Preparation of enforcement procedure
		Approval of the procedure	PWD	Approval
MC03	Project Implementation	Preparation of task force unit for infrastructure development project	LCC-Engineering Service Dept, LWSC	Task force unit provision, technical and management skills for infrastructure project
MC04	Transportation Management	Setting new section for urban transportation planning	LCC-City Planning Dept	Setting new section, recruiting expert, skill development, training for traffic management and public transportation
MC05	Joint Planning Initiative (new TCPA, Sec. 38(1))	Confirmation of the areas included in the Master Plan	MLGH	Preparation of maps and explanatory documents , Administrative Support, Approval
			Provincial Planning Office, Lusaka and Central	Map Preparation, Planning area recognition, Coordination seminar/workshop, Approval
			District Planning Offices	Map Preparation, Planning area recognition, Coordination seminar/workshop, Approval
		Agreement on the areas arrangement	Provincial Planning Office, District Planning Offices and Planning Committees (PWD Committee)	Preparation of maps and documents to be agreed and signed
				Coordination seminar/workshop
		Inclusion of the customary lands to the planning area agreed by Chiefs	Provincial Planning Office, District Planning Offices and Planning Committees (PWD Committee)	Preparation of maps and documents to be agreed and signed
				Coordination seminar/workshop

Note: UIMS: Urban Information Management System, PWD: Plan, Works and Development. Source: JICA Study Team

Table 6.3.20 Capacity Development Action Plan: Improving Land Development Mechanism for Better Living Environment

Code	Item	Individual Capacity Development Action	Organizational Capacity Development Responsible Organization	Organizational Actions
LB01	Operation Improvement	Preparation of work flow charts (activity chart)	IT Unit, Finance Department, the District Council(s)	Operation analysis
		Revision of existing operation procedures	Directors, the District Councils	Operation improvement
LB02	Basic data management	Listing technical and administrative documents	HRD, the District Councils	Filing system development
		Filing in accordance with the filing system	CPD, HSS, ESD, the District Councils	Space allocation for filing
		Typing analogue documents	CPD, HSS, ESD, the District Councils	Prioritization of digital documents
		Encoding list-type documents in spread-sheet	CPD, HSS, ESD, the District Councils	Selection and prioritization of encoding
BC01	Basic administrative capacity development	Data and information management development	CPD, HSS, ESD, the District Councils	Coordination communication task setting
		Documentation skill development	CPD, HSS, ESD, the District Councils	Manual development and distribution
		Coordination and communication skill development	CPD, HSS, ESD, the District Councils	Group discussion, routine coordination meeting
BC02	Promoting accreditation and increment of Qualified Planner	Promotion of bill passing for qualified planner	Zambia Institute of Planners, MLGH	
		Curriculum development for urban planning	Zambia Institute of Planners, MLGH, CopB-University	Teachers training for planning skill development
			Zambia Institute of Planners, MLGH, CopB-University	Teaching material development (manual)

Note: LCC = Lusaka City Council, CPD = City Planning Dept, HSSD = Housing Social Service Dept, ESD = Engineering Service Dept., NHA: National Housing Authority, CopB-University = Copperbelt University

Source: JICA Study Team

Table 6.3.21 Capacity Development Action Plan: Thematic Capacity Development (Common for MC and IC)

Code	Item	Individual Capacity Development Action	Organizational Capacity Development Responsible Organization	Organizational Actions
LT01	Knowledge sharing	List of knowledge	Directors	Listing knowledge and skills by individual
		List of seminars and training session attended	HRD, the District Councils	Training and seminar attendance records
		Sharing knowledge and skills	HRD, the District Councils	Organizing a seminar or scheduling OJT
LT02	Use of the Internet	Internet connection	IT Unit, Finance Department, the District Council(s)	Maximizing internet connection within capacity
		Information search; self learning	IT Unit, Finance Department, the District Council(s)	Scheduling hours of internet usage
LT03	Use of Free Software	Providing Free Software	IT Unit, Finance Department, the District Council(s)	Free software installation
		Learning using the Internet	CPD, HSS, ESD, the District Councils	Scheduling hours of internet usage

Note: MC=Master Plan Implementation Capacity Development; IC= Capacity for Urban & Living Environment Improvement; HRD=Human Resource and Administration Department LCC = Lusaka City Council, CPD = City Planning Dept, HSSD = Housing Social Service Dept, ESD = Engineering Service Dept.

Source: JICA Study Team

Table 6.3.22 Capacity Development Action Plan: Capacity for Urban and Living Environment Improvement

Code	Item	Institutional Capacity Development Action	Organizational Capacity Development Responsible Organization	Organizational Actions
IC01	Promotion of land registration	Registration system improvement for effective land management	Registration Office, HSS, the District Councils	Strengthening database management, identification of registration issues, staff allocation
IC03	Formulation of Implementation body	Formulation of urban renewal project implementation entities	The District Councils, new Agency, private, resident organizations	Workshop/discussion
		Institutionalizing the urban renewal mechanism	HSS, the District Councils	Bill and regulation preparation
		Site office improvement and community coordination and land management	HSS, the District Councils	Site office renovation, facility improvement for occupancy license
	Project formulation for Land readjustment	Establishing regulations and implementing organizational setting agreement	The District Councils new Agency, private, resident organizations	Formulation of an implementing organization
			The District Councils (MLGH, Ministry of Land)	Preparation of draft regulations
	Investment promotion	Formulation of incentives, promotion of private sector investment	Implementation body	Promotion of private sector, public financial authorities,
	Public and Private Partnership	Formulation or partnership for urban renewal project implementation	The District Councils	Coordination
IC07	Formulation of Implementation body	Organizing communities for public service delegation	Community organization utilizing CBO and CBE	Consultation
	Pilot project formulation	Implementation of feasibility study, identification of adequate program for public service improvement by Community	Community organization utilizing CBO and CBE	Guidance, training skills for services

Note: HSS: Housing and Social Services, NHA: National Housing Authority

Source: JICA Study Team

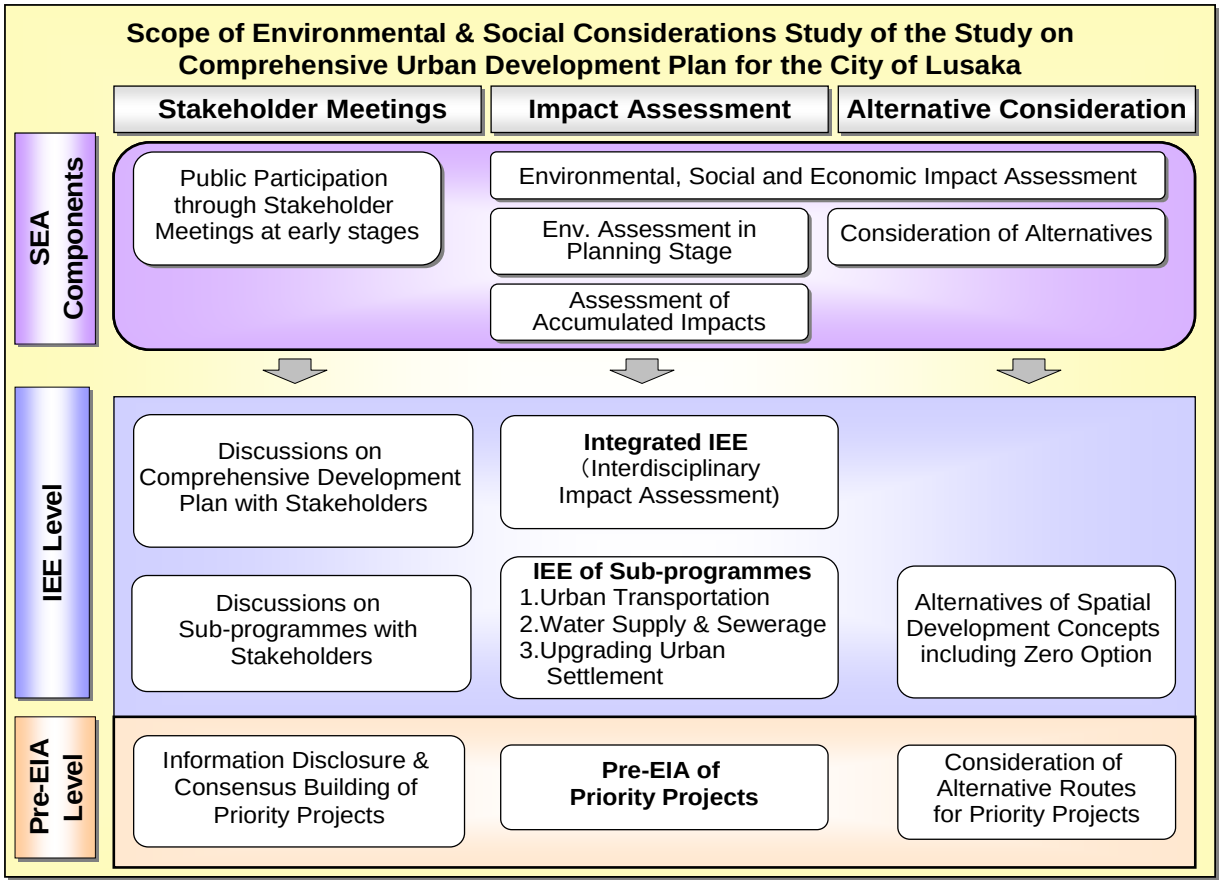
CHAPTER-7

ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

CHAPTER-7 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

7.1 Scope of Environmental and Social Considerations Study

In this study, the Initial Environmental Examination (IEE) level study for the master plan as well as three sub-program master plans and the Pre-Environmental Impact Assessments (Pre-EIA) level studies for three priority projects are both required. Additionally, some elements of the Strategic Environmental Assessment (SEA) are also required for this study, and the scope of SEA will be described in the following section. The overall scope of environmental and social considerations for the study is shown in Figure 7.1.1.



Source: JICA Study Team

Figure 7.1.1 Development Direction of Lusaka

7.2 Adoption of Elements of Strategic Environmental Assessment (SEA)

In the JICA Guidelines for Environmental and Social Consideration of 2004, SEA is defined as "an assessment being implemented at the policy, planning and program level rather than a project-level EIA." More specifically, conventional components of SEA are the following:

- Assessment of environmental, social and economic impacts at the program, plan and policy levels;
- Impact assessment at the early decision-making stage (e.g. planning stage);
- Consideration of alternatives;
- Public participation at the earlier stages; and

- Assessment of accumulated impacts beyond one project.

Considering the above-mentioned SEA components, four components are adopted in this study as shown below. Initial SEA of alternative considerations for the spatial development concept was conducted in 2007 as described in Section 4.2.4.

(a) Impact assessment at the early decision-making stage (e.g. planning stage);
(b) Alternatives were considered for spatial development concepts for the Master Plan;
(c) Stakeholder meetings: Seminars/workshops have been organized for the Master Plan formulation. Public consultation meetings are planned to be organized for selected priority projects; and
(d) Accumulated impacts of three sub-program master plans were assessed by considering other expected developments as the integrated IEE of the Comprehensive Urban Development Master Plan.

7.3 Current Condition of Natural and Social Environment of Lusaka City

The relevant data on social and economic conditions are provided in the chapters listed below:

- Chapter 2, Volume I: Information on topography, geology, climate, population, poverty, economic activities and employment
- Chapter 3, Volume I: Economic development, income sources, current land use, social infrastructure
- Chapter 3, Volume II: Current living environment status such as social infrastructure
- Chapter 2, Volume II: Water use, demand and quality

Aside from the abovementioned environmental issues, additional conditions of the natural and social environment are described in the following sections for environmental and social considerations of the Study.

(1) Vegetation

The open deciduous woodland, "*Miombo*" comprises 80% of the forest areas while the Savanna woodland is the majority in the other areas. Forest areas are found to the north and east of the city, while Savanna woodlands are to the south and west. In most areas, natural vegetation is cleared and cultivated. Farming economy is based on mixed farming, with strong emphasis on maize and beef production.

(2) Forests

The common flora type in Lusaka is the *Miombo* Woodland[1]. There are 3 gazetted forests in/around Lusaka City, namely the Lusaka East Forest Reserve No. 27, Lusaka North Forest Reserve No. 28 and Lusaka South Forest Reserve consisting of No. 26 and No. 55.

The Lusaka North Forest Reserve No. 28, of 368 ha, was established with imported trees, eucalyptus for commercial timbers for construction and domestic purposes. Moreover, the Lusaka East Forest Reserve No. 27, of 1,764 to 1,895 ha, is an indigenous forest and still intact. It provides fuel wood. Lastly, the Lusaka South

[1] *Miombo* Woodland is the major woodland in Zambia. It is a two-storeyed woodland with an open or semi-evergreen canopy for 15 - 20 m high. The woodland consists of *Bachystegia*, *Jubernardia* and *Isoberlinia* species. The Soil in the *Miombo* Woodland is often poor, shallow and slightly acid with quartz rubble and laterite underneath ("Know Your Trees-Some Common Trees Found in Zambia," A.E. G. Storrs, 1995).

Forest Reserve, which consists of Forest No. 26 and No. 55, has an area of 4,793 ha and 1,982 ha, respectively or approximately 7,000 ha in total. The South Forest Reserve was established to prevent soil erosion and protect Chalimbana headwaters as well as to provide wood.

There are two (2) private forests consisting of pines and eucalyptus in the Makeni area to provide firewood and construction poles. Moreover, some natural forests are located in Chisamba, Chipeme and Chongwe, and consist of acacia, pine and mukusi trees.

Although there are no valuable, rare or endangered species listed in the IUCN Red List, there are species which are locally recognized to be endangered in the forest areas according to the Forest Department, MoTENR. These species include *Brachystegis*, *Julbernadia*, *Recicopsis SPP* and others. The rare species and endangered species include *Pterocapus angolensis* (*Mukwa* as a local name), *Afzelia quanzensis* (*Mupapa* as a local name), *Khaya nyasica, Guibortia Calespermum, Baikea Pluriijuga*, and black ebony. Among these, *Pterocapus angolensis* and *Afzelia quanzensis* are often found in Lusaka City.

(3) Fauna

Endangered and vulnerable animal species in Zambia are shown in the following table according to the State of Environment in Zambia 2000. In the study area, no official endangered and vulnerable animal species are identified according to the Forest Department, MoTENR.

Table 7.3.1 Endangered and Vulnerable Animal Species in Zambia

Order/Suborder	Species	Status
Macroscelidea	Checkere Elephant Shrew (*Rynchocyon cirnei*)	Vulnerable
Carnivora	African Wild Dog (*Lycan pictus*)	Endangered
	Cheetah (Acinonyx jubatus)	Vulnerable
	Lion (Panthera leo)	Vulnerable
Proboscidea	Elephant (Loxodonta africana)	Endangered
Perissodactyla	Black Rhino (Diceros bicornis minor)	Endangered
Artiodactyla	Kafue Lechwe (Kobus leche kafuensis)	Vulnerable
	Black Lechwe (Kobus leche smithemani)	Vulnerable
Aves	Slatey Egrett (Egretta vinaceigula)	Vulnerable
	Taita Flacon (Falco fasciinucha)	Vulnerable
	Lesser Kastrel (*Falco naumani* i)	Vulnerable
	Black Cheeked Lovebird (*Agapornis nigrigenis*)	Endangered
	Shoebill stork (*Balacenips rex*)	Vulnerable
	Wattled Crane (Burgeranus caranculatus)	Vulnerable

Source: State of Environment in Zambia 2000 (Environmental Council of Zambia, 2001)

However, there are common duikers and small animals which are locally recognized to be under pressure or overused in the forests according to the Forest Department, MoTENR.

(4) Protected Areas

In the Zambia Wildlife Act of 1998, the following categories of protected areas are established:

- National Parks;
- Game Management Areas (Buffer Zones)[2];
- Bird Sanctuaries;

[2] The Game Management Area (GMA) is a buffer zone surrounding a national park and managed by the government. In the GMA, controlled hunting is permitted. On the other hand, game ranches are owned by the private and provide the opportunities to customers to hunt animals on a commercial basis.

- Forest Reserves;
- Botanical Reserves;
- National Heritage Sites; and
- Protected Fishing Areas.

There are three (3) forest reserves in the study area; however, no other protected area is identified.

(5) Cultural Heritage

The National Heritage Conservation Commission Act of 1989 prescribes the conservation of ancient, cultural and natural heritage sites in Zambia. Based on the heritage site list obtained from the National Heritage Conservation Commission, there are currently 110 sites, including 80 archaeological sites, 28 historical sites and 2 architectural sites, in the study area of Lusaka District. The list includes various infrastructure and sites such as old and current buildings, roads, farms, mines, cemeteries, etc.

(6) Flood

Lusaka City has a record of a 20-year cycle of flooding due to its flat terrain and high water table. In the past, flooding has occurred in 1926, 1954, 1977-1978 and 1996. Additionally, an increase in solid waste from street vendors also contributes to clogged storm water drainages and causes flooding.

In the last rainy season between Oct. 2007 and Feb. 2008, Lusaka experienced serious inundation.

Consequently, flooding causes water-borne diseases such as diarrhea and cholera by polluting the ground and surface water. It also provides the breeding ground of mosquitoes and other bacteria.

(7) Soil Erosion

Soil erosion occurs in most parts of the city caused by overgrazing, devegetation, insufficient storm water control and drainage system, pedestrian traffic and trackways, quarrying and poorly maintained roads. Illegal quarrying is also one of the reasons for soil erosion and wastage of topsoil.

(8) Air Quality and Climate Change

Although air pollution is not serious in Lusaka City because most big industries are located outside of Lusaka City, air pollution is worsening due to increasing urbanization. In Lusaka City, air pollution is caused by fumes from vehicles, dust due to soil erosion, blasting and quarrying, and smoke and dusts from factories.

Ambient air quality has not yet been regulated and monitored by the ECZ. There is an ambient air quality standard; however, there is no quantitative monitoring data for Lusaka City.

Currently, ECZ monitors air emissions from industries and business activities as prescribed in the Air Pollution Control (Licensing and Emissions Standards) Regulations, 1996. However, the monitored data is submitted irregularly by a limited number of companies due to lack of information.

Additionally, monitoring of emissions from vehicles is currently planned with

assistance of the World Bank (WB) and the Nordic Development Fund (NDF) as a part of the Copperbelt Environmental Project (CEP) and would be started in 2009 after procuring the necessary equipment in 2008.

Besides emissions from business activities, it was identified in the Environmental Outlook Report for Lusaka City that use of charcoals and other wood fuels contributes to air pollution. The report mentions that 54% of households in Lusaka City uses charcoals and other wood fuels, which causes poor indoor air quality and could cause diseases such as bronchitis, asthma, lung cancer and heart diseases by emission of COx, PM, HCs, NOx and SOx as well as suffocation by carbon monoxide (CO). The use of wooden fuels was often observed in the informal settlements during the site visits by the Study Team.

Additionally, burning wooden fuels causes emission of greenhouse gases such as CO_2, N_2O, CO_2, N_2O, CO and CH_4. Although the extent of the direct impacts of the wooden fuels is not known, an increase in the maximum and minimum average temperatures by 1^oC over the last 20 years in Lusaka City was observed according to the Zambia Meteorological Department.

(9) Water Quality

Water pollution, which includes both surface and ground water, is identified as one of the serious environmental issues in Lusaka City. It was known that surface water in Lusaka City was contaminated with coliform bacteria. Groundwater is also contaminated with nitrates, nitrites, ammonia and coliform bacteria due to indiscriminate waste dumping and insufficient number of pit latrines and unlined pit latrines (LIDP 2000).

The qualitative data on water pollution in Lusaka City is very limited. Ambient water and drinking water have not yet been regulated and monitored by ECZ or any other governmental bodies, while effluent and wastewater from industries are monitored by ECZ as prescribed in the Water Pollution Control (Effluent and Waste Water) Regulations. However, the effluent and wastewater monitoring data is submitted by limited number of companies and other organizations. According to the past data of treated sewage test results of 1999, the Total Coliform (TC), Faecal Coliform (FC) and Biochemical Oxygen Demand (BOD) often do not meet the standard (LIDP 2000).

Additionally, water and groundwater monitoring is currently planned by ECZ with the assistance of WB and NDF as a part of the Copperbelt Environmental Project (CEP) and would be started in 2009 after procuring necessary equipment in 2008 according to a hearing with ECZ.

(10) Waste Management

Illegal dumping of waste is common in the city due to lack of financial resources for waste disposal fees. Illegal dumping is often observed especially in compounds, and it was observed often during the site visits of the JICA Study Team. Moreover, according to Environmental Outlook Report for Lusaka City, the amount of generated waste of the City in 2006 was 242,803 mt, however, only 63,577 mt or approximately 26% of the total waste was collected. Therefore, improvement of the waste collection system is required. For the long term, sorted collection of solid waste should be adopted to reduce the volume of solid waste, reuse materials and for safe management of the landfill.

7.4 Environment-related Activities/Projects of Other Donors

There are several environment-related activities and projects conducted by the other donors in Lusaka City. The major activities/projects are briefly described as follows.

(1) Globally Harmonized System (GHS) of Classification and Labeling of Chemicals

The GHS aims to develop national regulations to promote safe use, transportation and disposal of chemicals in a consistent manner to eliminate risks to human health and environment. Zambia developed a National Action Plan to facilitate the implementation of GHS and proposed several activities to achieve this, including; i) registration of chemicals under the pesticides and toxic substances regulations; ii) amendment of legislation for GHS implementation; iii) awareness-raising activities; iv) introducing a chemical safety awareness day; v) formation of a coordinating committee for emergency response; vi) creation of a database of chemical-related accidents; vii) initiation of poison control centers; viii) development of educational materials for Consumer Health Care (CHC); and ix) training of Customs Officers.

(2) Removing Barriers to Invasive Plant Management in Africa Project (RBIPMA)

The project aims to conserve the ecosystem, species and genetic diversity in Africa by preventing invasive species and to remove barriers of invasive species management to implement the Convention of Biological Diversity (CBD). The project is assisted financially by the Global Environment Facility (GEF) through UNEP, technically by CABI Africa and the World Conservation Union's Eastern African Regional Office (IUCN-EARO) and is implemented by ECZ.

(3) Capacity Building Programme on Cleaner Production (CP)

The CP project has been funded by the NORAD under the Industrial Pollution Prevention Programme (IPPP) and provided training programmes to the private sector, institutions and ECZ since 1998. Establishment of a CP centre was proposed as a next step.

(4) Zambia Environmental Outlook Report 2006

Another opportunity to assess the environment of Zambia at a national level has been provided technically and financially by NDF and the United Nations Environment Programme (UNEP). It also aims to develop capacity of decision-makers as well as to provide an opportunity to assess the environment by adopting integrated environmental assessment, which is equivalent to the Strategic Environmental Assessment (SEA). Currently, the latest draft is under review.

(5) Environmental Outlook Report for Lusaka City

The opportunity to assess the state of the environment at a district level has been provided. It aims to improve access to data and information as well as to build up the capacity of decision-makers so that they can reach a deep understanding of successful programme planning and service delivery in order to achieve sustainable development. The report preparation was technically and financially supported by the United Nations Human Settlements Programme (UN-Habitat) and the UNEP as a part of the Sustainable Cities Programme (SCP). The report identifies environmental, social and economic issues in Lusaka City and discusses scenarios and policy options to tackle identified issues. The report was finalized in February 2008 and is available on the website of the ECZ.

(6) Zambia: Lusaka Urban Sector Profile

The report was prepared in 2007 as a part of the Rapid Urban Sector Profiling for Sustainability (RUSPS), which is a rapid and action-oriented urban assessment of the needs and capacity-building gaps. It was technically supported by UN Habitat and financed by the European Commission as well as the Governments of Italy, Netherlands, Finland, and Belgium. The profile gave an opportunity to assess the urban issues consisting of governance, slums, gender and environment, formulate priority project proposals and implement projects.

(7) Sanitary Landfill

The Canadian International Development Agency (CIDA) and the United States Agency for International Development (USAID) supported the studies on waste management before 2001. Based on the studies, the Danish International Development Assistance (DANIDA) has supported waste management in Lusaka City since 2001, and a sanitary landfill was constructed next to the old dumping site by DANIDA and has been operating since 2007. Currently, the sanitary landfill is operated by the Waste Management Unit of LCC on a commercial basis.

7.5 Land Acquisition and Resettlement Practice in Zambia

(1) Relevant Legal Documents

There is no resettlement policy or law in Zambia; however, there are three (3) major guiding legal documents on land acquisition. Additionally, land ownership types, such as the Land Record, Occupancy License and Certificate of Title are described in Section 2.3.2.

- Chapter 1 of the Laws of Zambia, Article 16 of the Constitution of Zambia;
- Lands Acquisition Act; and
- Town and Country Planning Act.

The Constitution provides for the fundamental right to property and protects persons from the deprivation of property. It is stated that anyone cannot be deprived of property compulsorily unless it is required under the authority of an Act of Parliament providing sufficient compensation.

Section 3 of the Land Acquisition Act provides the compensation procedure and conditions and secures the compensation at the open market price; however, compensation is provided to the residents with a Certificate of Title and Occupancy License, which is given to the residents in statutory housing areas and the improvement areas of UUSs, respectively.

Part VII of the Town and Country Planning Act also provides a legal guidance on land acquisition for public development and compulsory acquisition.

(2) Current Practice of Land Acquisition and Resettlement

The detailed procedure on resettlement and compensation was clarified through the hearings with the Department of Physical Planning and Housing and the Department of Government Valuation of MLGH. Both the MLGH and LCC are the government bodies in charge of resettlement for development projects in Lusaka City. However, it was explained by the MLGH that in practice, if land use change is required by resettlement, MLGH shall be involved in the land acquisition and resettlement procedure; if not, LCC is able to do land acquisition and the resettlement process on its own.

As for evaluation for compensation in Zambia, in principal, the compensation value is determined by registered evaluators of the Department of Government Valuation or private real estate companies based on the open market value as expressed in the Land Acquisition Act. More specifically, the evaluation is carried out based on the open market reference values surveyed by the Department of Government Valuation. The survey report is issued as a Property Market Bulletin by the Department of Government Valuation.

In case of the project which requires the RAP, the World Bank Operational Policy 4.12 Involuntary Resettlement has been adopted in Zambia since the late 1990's because there is no resettlement policy or law in Zambia in accordance with hearings with MLGH and local environmental consultants. However, in the past, there are a few RAPs formed based on the World Bank OP 4.12., and they were conducted for mainly mining projects which were funded by the WB/International Finance Corporation.

Additionally, when the RAP is conducted in Zambia, the asset inventory survey at 100% of the potential resettlers' households is required for the RAP, and the sampling survey of the socio-economic survey is considered not sufficient to form the RAP but can be conducted for the RAP framework preparation according to local environmental consultants.

Regarding compensation for illegal occupants, the official understanding is that illegal occupants with Occupancy Licenses are entitled to compensation while those without Occupancy Licenses are not entitled according to MLGH. However, due to political pressure and the increasing number of illegal occupants, the government also considers and recognizes compensation for structures and relocation costs for illegal occupants by adopting the World Bank Operational Policy 4.12 on Involuntary Resettlement in accordance with the hearings with MLGH.

7.6 Stakeholder Participation and Information Disclosure

To encourage stakeholder participation, working groups and stakeholder meetings have been organized through the Study.

7.6.1 Working Groups

The regular working group meetings are organized for better information exchange as well as for deeper involvement of the GRZ. The working group meeting is also considered an opportunity to effect the technical transfer programmes. Three working groups were established to cover three sub-programs of the Study, namely urban transport, water supply and sewerage, and urban planning/living environment. The working group meetings were organized as described below.

Table 7.6.1 Past Working Group Meetings

No.	Working Group	1st Meeting	2nd Meeting	3rd Meeting
1	Urban Planning & Living Environment Working Group	12 Nov. 2007	27 June 2008	17 Nov. 2008
2	Urban Transport Working Group	11 Dec. 2007	11 July 2008	-
3	Water Supply Working Group	19 Dec. 2007	3 July 2008	-

Source: JICA Study Team

(1) Urban Planning and Living Environment Working Group

The 1st working group was attended by core members of the working group for urban planning and living environment on 12 November 2007. An approach to the comprehensive urban planning was introduced, and urban development issues including customary tenure, functions of the Lusaka City airport, investment incentives for

housing and commercial development, and improvement in unplanned urban settlement were identified and discussed by participants.

The 2nd working group meeting was organized on 27 June 2008. The meeting was attended by working group members including those from the Chibombo District Council and Kafue District Council. The discussions included i) future urban structure in year 2030, ii) urban growth management, iii) living environment and housing, iv) institutional alternatives for the metropolitan, v) integrated development plan, vi) capacity development for implementation, vii) housing framework, and viii) upgrading of unplanned urban settlements.

(2) Urban Transport Working Group

The first working group for urban transportation was organized on 11 December 2007. The outcome of the traffic survey was explained to the participants. Road and traffic, public transport and environmental issues were identified and discussed by the participants. Other issues included the demand for road construction, traffic congestion, public bus service improvement, railway use and pollution were discussed.

The 2nd working group meeting was organized on 11 July 2008. The discussion topics included i) demand analysis, ii)the vision of the master plan, iii)future road network, iv) goals, objectives and strategies, v) the possibility of public transport, vi) estimated master plan costs, and vii) possible funding arrangement.

(3) Water Supply/Sewerage Working Group

The first working group for water supply/sewerage was organized on 19 December 2007. An evaluation of groundwater resources was explained to and discussed by participants. Groundwater development strategies and methods of groundwater management were discussed.

The 2nd working group meeting was organized on 3 July 2008. The discussion consisted of the i) water demand forecast, ii) Kafue River water development potential, and iii) water supply system development plan. The presentation was followed by brainstorming among the participants.

7.6.2 Stakeholder Meetings

Aside from the working group meetings, stakeholder meetings consisting workshops and seminars were organized during the Study. Objectives of meetings are; to i) inform the progress of the Study and the outcomes of the relevant surveys; ii) exchange information and opinions among the C/P, other stakeholders, and the Study Team; iii) discuss issues and build a consensus on relevant issues of the Study; and iv) obtain feedbacks so that the study reflects comments and suggestions from various stakeholders.

The workshop style meeting targets relatively direct stakeholders, namely the members of the working groups, other relevant governmental officials, members of the academe, the business society, NGOs, and relevant donors in Zambia. On the other hand, the seminar style meeting was planned to target broader stakeholders, including representatives of wards and the surrounding districts in addition to relevant government officers and experts.

The schedule of the stakeholder meetings are shown in the following table.

Table 7.6.2 Schedule of Stakeholder Meetings

No.	Study Phase	Main Subjects	Date
1	Formulation of the Vision and Strategy	- Introduction of study outputs - Discussion on alternatives - Discussion on issues of sub-programmes	Organized on 19 Feb. 2008
2	Formulation of the Comprehensive Urban Development M/P & M/Ps of 3 sub-programmes	- Information dissemination of the draft M/Ps to representatives of communities - Collection of feedbacks from stakeholders including residents	Organized on 16 July 2008
3	1st Stakeholder Meeting on Inner Ring Road Project	- Sharing understanding with the stakeholders (ward representatives) on the proposed Inner Ring Road Project, the expected environmental/social impacts by the Project, and the social/environmental consideration study for the Project - Obtaining comments/suggestions from stakeholders	Organized on 7 Nov. 2008
4	Presentation on the Comprehensive Master Plan for the City of Lusaka (draft)	- Invite general public and the media to discuss the draft master plan and obtain their opinions.	Organized on 17-28 Nov. 2008
5	Pre-F/S of Priority Projects (Workshop)	- Introduction of study outputs - Discussion on priority projects	28 Nov. 2008
6	2nd Stakeholder Meeting on Inner Ring Road Project	- Informing the study outcomes of the air quality, noise level and the socio-economic survey for the RAP to the stakeholders (ward representatives). - Explaining the mitigation measures for environment and social impacts including the RAP framework. - Obtaining comments/suggestions from stakeholders.	Organized on 27 Jan. 2009
7	Finalization of the Study & Preparation of the Draft Final Report (Workshop)	- Information dissemination of the draft M/P & F/S to the Vice President and ministries - Collection of feedbacks from participants	5 Feb. 2009
8	Presentation on the Comprehensive Master Plan for the City of Lusaka	- Invite general public and the media to the exhibition to inform the master plan and obtain their opinions.	5-6 Feb. 2009

Source: JICA Study Team

(1) First Stakeholder Meeting - Workshop organized on 19 February 2008

The first workshop was organized on 19 February 2008 to discuss the urban structure alternatives which were previously described in Chapter 4, current issues of the sub-programmes and possible priority projects.

For the workshop, relevant government officials of three working groups for the three sub-programmes, councils of the surrounding three districts, donors, NGOs, academics, the business society and the other relevant stakeholders were invited. As a result, the workshop was attended by more than 50 participants from the government, academe, private sector, NGOs and donors.

Key Discussions emerging from the Consultation

In the first session, Mr. Asakura, Team Leader of the Study Team, briefed on the outline of the Study and explained the study progress to the participants. The Q & A session was also organized after Mr. Asakura's briefing, and some questions on the financial provision and government participation, some positive comments, and suggestions on transport development were received and answered by the Study Team.

Following the first session, the group discussions on three sub-programs were organized intensively for four hours. The outcomes of the group discussions are summarized in the following table. The details of the discussions are recorded in the Summary of Workshop.

Table 7.6.3 Summary of the Group Discussions

Working Group	Discussed Subjects	Recommendations	No. of Participants
Urban Planning/ Living Environment	- Water, - Access to roads, - Health care, - Job creation, - Drainage, - Security, - Education, and - Energy	- Alternative 1 of the Greater City Concept and Satellite Development was selected by participants. - Redevelopment of inner area by using the case of Chibolya - Provision of water pumping in the short and long term for low areas, and water collection ponds, to address the flooding situation - Provision of urban agriculture for job creation, and raw materials for industry and food security - Provision of green environment within the city	17 participants
Urban Transport	- Road, - Intersections, - Non-Motorized Transport, - Intra-City - Public transport, - Railway, and - City Airport and - Resources	- Integrated development of three transport modes, - Maintenance and development of rail and road transport with government resources, private sector resources and PPP - Construction of the inner ring roads especially arterial roads - Development of the second track of the railway system for passengers and cargo - Improvement in intra-city public mass transport system - Maintenance of traditional roundabouts - Construction of roundabouts in residential areas - Improvements in intersections with road markings, signaling and synchronization	20 participants
Water Supply & Sewerage	- Ground water, - Water Supply, and - Sewerage	- Development of surface water by examining and balancing groundwater use in the long term - Continued use of groundwater as a low cost water source - Further research on groundwater and examination of water utilization and conservation policy - Utilization of water trust - Discussions with a relevant donor, the World Bank - Rehabilitation and capacity maximization of the current sewerage system	14 participants

Source: JICA Study Team

After the group discussions, each group presented the discussion results in a wrap-up session, where the participants exchanged opinions on the issues.

Workshop

Group Discussions by Sub-Group

(2) Second Stakeholder Meeting – Seminar organized on 16 July 2008

The first seminar was organized on 16 July 2008; i) to synthesize outcomes of the Master Plan Study on "Comprehensive Urban Development of Lusaka", ii) to integrate the outcomes of the master plans on the three sub-programs of urban transportation, water supply and sewerage and living environment improvement, and iii) to collect opinions and suggestions from stakeholders on the final draft plan.

The full-day seminar consists of 6 sessions and Q&A sessions as follows:

- Session 1: Outline and Progress of LUSEED Project
- Session 2: Presentation on Comprehensive Urban Development Plan for the City of Lusaka
- Session 3: Presentation of Master Plan and Priority Project of Urban Transport Sub-program
- Session 4: Presentation of Master Plan and Priority Project of Water Supply and Sewerage Sub-program
- Session 5: Presentation of Master Plan and Priority Project of Living Environment Improvement Sub-program
- Session 6: Presentation on Environmental and Social Considerations Study and Conceptual Environmental Strategy

The seminar was attended by more than 120 participants such as the three working group members, relevant ministries and agencies, academia, chairpersons of the ward development committees, ward councilors, members of parliament from each constituency, NGOs, relevant international donors, the JICA Zambia Office, JICA-MFEZ Study Team and the other relevant stakeholders. The list of participants is included in the Summary of Seminars.

Key Discussions Emerging from the Consultation

In the first session, Mr. Asakura, Team Leader of the Study Team, explained the purpose of the seminar, the outlines of the Study and the study progress to the participants.

Due to active participation of the seminar participants in the Q&A sessions, the seminar lasted for approximately eight hours. The summary of the Q&A is described in Table 7.6.4. After the seminar, several participants visited the office of JICA-LUSEED Study Team to further discuss the issues. The details of the Q&A are included in the Summary of Seminars.

Seminar Participants
Photograph: JICA Study Team

Table 7.6.4 Summary of the Q&As

Major Comments/Questions by participants	Answers from the Organizers
Master Plan	
1) Electricity should be considered in the master plan.	Electricity is being studied.
2) Should financing be also considered in the study?	Financing will be the next stage. This study considers costs, though C/P and the Study Team are discussing possible sources.
3) How is your study team going to ensure that the Zambian are involved in coming up with these plans?	(Study Team) LCC and MLGH are involved. Local consultants are employed for the Chibolya project as well. (LCC) We are interacting on a daily basis, and we are learning a lot from the study team. Additionally, working groups consisting of relevant ministry, agencies and LCC are organized.
4) We hope that these plans become part of the government statutory plan.	We are trying to make the study as a formal plan for Lusaka.
5) What about the plans for solid waste management?	Waste management is being studied.
Chibolya Pilot Study	
6) If there is relocation of people in a pilot study in Chibolya, during the implementation of these plans, how will you ensure that the children in these areas are going to school?	The renewal program will cover necessary infrastructures such as school and health infrastructures.
7) There is a need to have intensive survey to find out if the targeted people will pay for the services after renewal. There is also need to have intensive training for the people to understand and utilize these new plans. It will be vital to consider income generation programs. (Comments)	N.A.

Source: JICA Study Team

(3) Stakeholders meeting on Inner Ring Road Project – Organized on 7 November 2008

The stakeholders meeting on the Inner Ring Road Project was organized on 7 November 2008; i) to share understanding with the stakeholders, namely the Ward Development Committee's chairpersons, councilors, and community-based women's organizations on relevant information on the inner ring road project, the expected environmental and social impacts by the project, and the scope of the environmental and social impact assessment for the Project; and ii) to obtain comments and suggestions from the stakeholders to reflect to the surveys for the environmental and social impact assessment.

Representatives from all the eight wards (Nkoloma, Kamwala, Kabwata, Libala, Chilenje, Harry Mwaanga Nkumbula, Lubwa and Chisankane-Kafue) attended the meeting.

The discussions were centered on:

- Safety measures for communities and pedestrians;
- Impacts of the existing land use in the project site;
- Economic benefit to local residents;
- Compensation measures for resettlers and other Project Affected Persons;
- Project site tour for the meeting participants; and
- Sensitization program of the proposed project

(4) Presentation on the Comprehensive Master Plan

To disseminate the draft master plan and to obtain feedbacks from the wider public, the exhibition was continuously organized at three different locations, the Lusaka City Council, Arcades Shopping Mall and the Lusaka City Market, from 17th to 28th November 2008. A questionnaire survey was conducted to receive written comments from participants, which will be analyzed and considered when finalizing the

Comprehensive Master Plan.

(5) Workshop on Pre-F/S of Priority Projects

The workshop on the pre-F/S of priority projects were organized on 27 Nov. 2008 to discuss on the priority projects and obtain comments and suggestions from participants. The participants were divided into three groups of i) urban city planning / living environment, ii) transportation, and iii) water supply for disucussion, and they basically agreed to the priority projects.

(6) 2nd Stakeholder Meeting on Inner Ring Road Project

The stakeholders meeting on the Inner Ring Road Project was organized on 27 Jan. 2009; i) to brief the study outcomes to the stakeholders, namely the Ward Development Committee's chairpersons, councilors, and community-based women's organizations; ii) to discuss the mitigation measures for environmental impacts as well as the compensation and assistance for resettlers; and iii) to obtain comments and suggestions from the stakeholders. Representatives from all the eight wards (Nkoloma, Kamwala, Kabwata, Libala, Chilenje, Harry Mwaanga Nkumbula, Lubwa and Chisankane-Kafue) attended the meeting.

Major comments and suggestions were summarized below:

- Involvement of the Ward Development Committees was suggested for the implementation of land acquisition and resettlement.
- To find the resettlement site for resettlers, consultation with surrounding districts was suggested to see if they can help affected person and the project proponent.
- ZESCO and ECZ should also be brought on board since they are considered the big stakeholders.

(7) Finalization of the Study and Preparation of the Draft Final Report (Workshop)

The workshop for high-ranking officials consisting the Vice President, the ministries, Lusaka, Chongwe, Chibombo, and Kafue districts, and other related organizations was conducted on 5th Feb. 2009 to disseminate the master plan and obtain their comments. It was recognized that the master plan should be realized through undertaking of the Government of Zambia in cooperation with the stakeholders.

(8) Presentation on the Comprehensive Master Plan for the City of Lusaka

The exhibition on the Master Plan was organized at Mulungushi Conference Center on 5th and 6th Feb. 2009 to disseminate the outcomes of the study to the public. It was found that the response from attendance was positive and expected the realization of the master plan.

7.6.3 Information Disclosure

The newsletter of the Study was regularly issued to inform the stakeholders of the study progress. The hard copy of the newsletter is distributed to stakeholders at individual meetings, working group meetings and stakeholder meetings. The soft copy of the newsletter is also available through the websites of MLGH and LCC.

Table 7.6.5 Issued Newsletters

No.	Main Subjects	Date
1st	- Introducing the study objectives, components and schedule	Oct. 2007
2nd	- Providing preliminary findings and the progress of the vision and strategy formulation	Dec. 2007
3rd	- Covering outcomes of the three working groups organized in Nov. and Dec. 2007	Feb. 2008
4th	- Providing outcomes of the workshop organized in Feb. 2008	Mar. 2008
5th	- Outline of Environmental & Social Considerations for the Master Plan	Jul. 2008
6th	- Outline of the Comprehensive Urban Development Master Plan	Jul. 2008
7th	- Outline of the Transportation Master Plan	Jul. 2008
8th	- Outline of Water Sector Master Plan	Jul. 2008
9th	- Outline of Living Environment Improvement Master Plan	Jul. 2008

Source: JICA Study Team

7.7 Integrated Initial Environmental Examination for the Comprehensive Urban Development Master Plan

The integrated IEE and sub-program IEEs have been carried out as part of the master plan study. The objectives of the IEE consist of i) evaluating potential impacts of the master plan on to the natural and social environments, and ii) proposing potential mitigation measures. Since this study considers overall impacts of the master plan consisting of several program lists, the environmental management plan and environmental monitoring plan shall be prepared in the latter stage when a program/project is implemented.

7.7.1 Approach of the Overall IEE Study

The IEE was conducted referring to relevant laws, regulations and standards applicable in Zambia, and the JICA Guidelines for Environmental and Social Considerations. The relevant laws and regulations in Zambia are listed in Section 2.3.4. For the IEE, thirty environmental impact items were ranked from A to D (both positive/negative) depending on its environmental and social significance in accordance with the rating criteria listed below.

Rating Criteria

- A+/-: Significant positive/negative impact is expected.
- B+/-: Positive/negative impact is expected to some extent.
- C+/-: Extent of positive/negative impact is unknown. (A further examination is needed, and the impact could be clarified as the study progresses.)
- Blank: No impact is expected.

7.7.2 Summary of the Environmental and Social Impacts of the Comprehensive Urban Development Master Plan

The summary of the integrated IEE for the Comprehensive Urban Development Master Plan is shown in Table 7.7.1. The overall impacts were determined by considering the overall development strategy as well as the master plans of individual sub-program. The significant and remarkable impacts will be discussed in following section.

Table 7.7.1 Summary of Environmental and Social Impacts of the Comprehensive Urban Development Master Plan

Env. Impacts / Impact Phase	Social Environment												Natural Environment									Pollution								
	1.Involuntary Resettlement	2.Local Economy such as Employment & Livelihood, etc.	**3.Land Use & Utilization of Local Resources**	**4. Social Institutions such as Split of Communities**	5.Existing Social Infrastructures & Services	6.The poor, indigenous & ethnic people	7.Misdistribution of Benefit & Damage	8.Cultural Heritage	9.Local Conflict of Interest	**10.Water Usage or Water Rights & Rights of Common**	11.Sanitation	12.Hazards (Risk), Infectious Diseases such as HIV/AIDS	13.Topography & Geographical Features	14.Soil Erosion	15.Groundwater	16.Hydrological Situation	17.Coastal Zone	18.Fauna, Flora & Biodiversity	19.Meteorology	20.Landscape	21.Global Warming	22.Air Pollution	23.Water Pollution	24.Soil Contamination	25.Waste	26.Noise & Vibration	27.Ground Subsidence	28.Offensive Odor	29.Bottom Sediment	30.Accidents
Overall Master Plan	A-	A+	A+/-	A-	B-	C-	C-	B-	C-	A-	A+	A+	B-	B-	A+	A+		B-		A+		B-	A+/B-	A+/B-	B-	B-				
Transportation	A-	A+	A+	A-	B-	C-	B-	B-	B-		B+		B-	B-	B-	B-		B-		B-	B-	A-	B-		B-	A-		B-		C-
Water Supply/ Sewerage	B-	A+	A+		B-					A-	A+	A+			A+	A+						B-	B-	A+	B-	B-		B-		
Urban Settlement Improvement	A-	A+	A+	A-	B-	C+/-	C-		C-		A+	A+								A+			B-	A+	B-	B-				

Source: JICA Study Team

7.7.3 Expected Negative Environmental and Social Impacts of the Comprehensive Urban Development Master Plan

As shown in Table 7.7.1, four significant negative impacts were identified by the integrated IEE. The impacts include involuntary resettlement, land use, social institutions (split of communities), and increased water usage/change in water rights. Initially, the new land use plan would affect residents in UUSs and in the areas which original land use was completely changed. Second, in conjunction with resettlement in UUSs, there is a relatively high possibility to cause split or division of communities due to new infrastructure development. Third, the existing land use would be affected in both negative and positive manners. Although overall land use planning would be improved by the master plan, forest areas/open spaces would be converted into industrial areas including 2 planned MFEZs. Fourth, increased water use is be expected due to industrial development, population increase, and increased consumptions of former groundwater users.

The other less significant but remarkable negative impacts consist of overall pollution, the poor, mal-distribution of benefits and damages, and local conflicts of interest. First, pollution such as air pollution, water pollution, soil contamination, waste, and noise and vibration would be worsened by industrialization and economic development. Second, impacts on the poor, mal-distribution of benefits and damages, and local conflicts of interest are expected. However, the extent of impacts is unknown.

7.7.4 Proposed Mitigation Measures for the Comprehensive Urban Development Master Plan

Potential mitigation measures for the Comprehensive Urban Development Master Plan are proposed in Table 7.7.2.

Table 7.7.2 Proposed Mitigation Measures for the Comprehensive Urban Development Master Plan

Impact No.	Significant/Remarkable Negative Impacts	Overall Mitigation Measures
1	Involuntary Resettlement	Public Consultation with the Project Affected Persons (PAPs) and an adequate Resettlement Action Plan shall be prepared. Special attention shall be made to the vulnerable sector, such as the lower-income residents, illegal occupants without Occupancy Licenses, the elderly, disabled, women and children.
3	Land Use & Utilization of Local Resources	Promote eco-friendly development and green preservation activities.
4	Social Institutions (Split of communities)	Minimize impacts of split of communities by considering alternative relocation sites, if necessary. Sufficient consultation on relocation with the PAPs shall be conducted as previously suggested for Involuntary Resettlement.
22/23/24/25/26	Overall Pollution (air pollution, water pollution, soil contamination, waste, and noise& vibration)	Promote adequate and appropriate pollution control equipment such as Cleaner Production. Strengthen ECZ's jurisdiction over pollution monitoring and environmental management system of industries.
6/7/9	Poor, indigenous & ethnic people, conflicts of interest, maldistribution of benefits & damages	Adequate public consultation and agreement between the government and residents are needed. Special attention shall be made to the vulnerable sector, such as the lower-income residents, the illegal occupants without Occupancy Licenses, the elderly, disabled, women and children.

Source: JICA Study Team