

**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  
SUMMARY**

**MARCH 2009**

**JAPAN INTERNATIONAL COOPERATION AGENCY**

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**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.

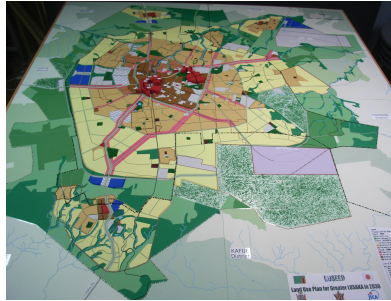
Yours very sincerely,

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



## PHOTO

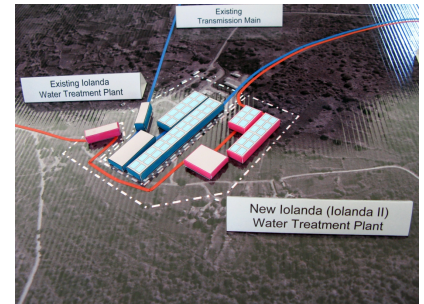
Land Use Plan of Lusaka City  
in 2030



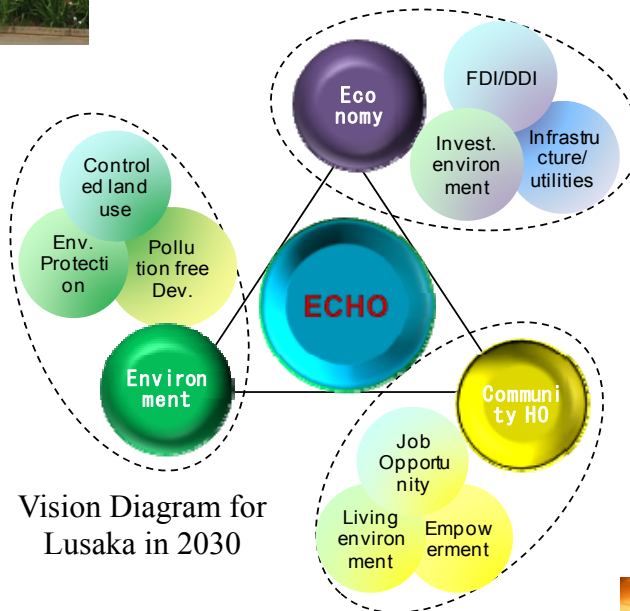
Industrial Development by FDI/DDI



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<sup>1</sup>. 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 enacted, 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.

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<sup>1</sup> Present water demand of 218,000 m<sup>3</sup>/day in Greater Lusaka will increase to 615,000 m<sup>3</sup>/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	Land management enhancement	a) land registration promotion		○	●	○	S/M
		b) promotion of public asset management		○	●	○	S/M
		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	Project Program Title	Cost
<b>Urban Transportation</b>	<b>108.6</b>	<b>Living Environment Improvement</b>	<b>15.5</b>
1) Inner Ring Road (Mumbwa-Kafue-Kasama, 12.7km)	29.4	1) Urgent Improvement of Living Environment (renovation of communal tap, drainage, sanitation, etc.)	3.0
2) Outer Ring Road (9.4km)+Lilay Road (7.6km)	31.8	2) CBE-led Living Environment Improvement/Public Service Operation	2.0
3) LS-MFEZ Access (10.4km)	21.7	3) Enhancement of Micro-finance for Housing Development, Upgrading of Substandard Housing in UUS	10.5
4) Airport Road Extension (LN-MFEZ, 6.4km)	4.9		
5) Mumbwa road/Los Angeles Road (4.0km)	12.8	<b>Social Service Improvement</b>	<b>47.2</b>
6) Kalambo Road/Benbella Road (1.6km)	0.7	1) Improvement of Education Service	32.2
7) Bus Institutional Reform	1.0	2) Improvement of Medical Care Service	15.0
8) Traffic Management in Town	2.5		
9) Intersection Improvement (10 intersections)	3.8		
<b>Water/Sewerage/Drainage</b>	<b>167.0</b>	<b>Legal/Institutional Enhancement (Capacity Development)</b>	<b>3.1</b>
1) Water Resources Management Program (Acquisition of Kafue River Water Right, Study on Comprehensive Groundwater, Ordinance on Registration of Industrial/Commercial Wells)	3.0	1) Least Cost Capacity Development (A feedback process installation, basic filing and data input and management, etc.)	0.0
2) Water Supply Sector	128.0	2) Basic Administrative Capacity Development (Strengthening data management, communication skill, etc., Promoting accreditation and increment of Qualified Planner by authorized organization)	0.5
a Improvement of UFW (Leakage)	3.0	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
b Water Supply and Sanitation Improvement Project (Kafue ...)	85.0	4) Capacity for Urban & Living Environment Improvement (Reinforcing Land Management, Empowerment of local communities for public services participation)	1.4
c Improvement and Expansion of Distribution System	40.0		
3) Sewerage Sector	24.0	<b>Industrial Development/Job Opportunity Expansion</b>	<b>80.0</b>
a Remaining Rehabilitation of Existing Facilities	24.0	1) Formal/Informal Micro, SME training	5.0
4) Drainage Sector	12.0	2) LS-MFEZ Development (Phase1)	75.0
a Provision of Mobile Pumping Station as urgent measure	4.0	<b>Total</b>	<b>421.4</b>
b Urgent Rehabilitation of Existing Facilities	4.0		
c Comprehensive Drainage Master Plan Study	4.0		
US\$1.00=ZMK3,582		(K' billion)	
		<b>1,510</b>	

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<sup>3</sup>/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**

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## **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

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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
WSSIP	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

## Summary

### 1. Development Issues of Lusaka

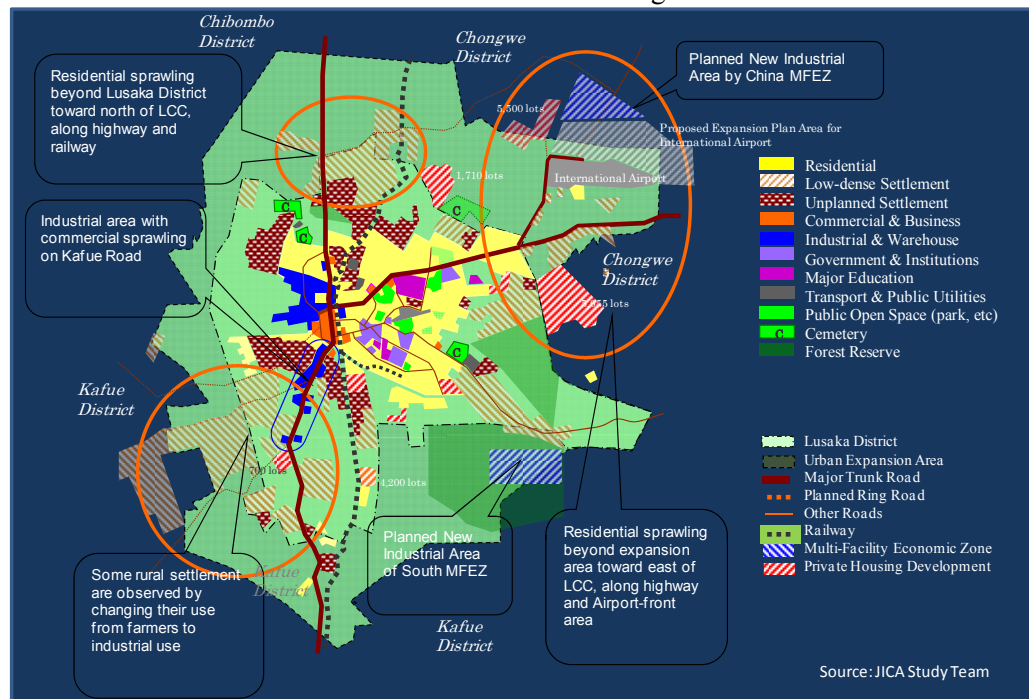
#### 1.1 Economic Problems

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 since their income level remains low. According to the household survey conducted by JICA Study Team (JST) in March 2008, the average household income in unplanned urban settlement (UUS) was ZMK 370,000 per month (USD100), which is less than one fifth of the ZMK 2 million (USD 560) in planned urban settlement (PUS).

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 association with the cooperation principles of Triangle of Hope (ToH) being conducted for strengthening of the society and economy in Zambian.

#### 1.2 Uncontrolled Urban Sprawl due to Population Increase

Lusaka population has increased from 761,000 in 1990 to 1,085,000 in 2000 and 1,385,000 in 2007. About 600,000 persons increased within 17 years and had sprawled in Lusaka urban area, expanding the UUS. Sprawling of UUS is seen in the north, east, and south direction of the Greater Lusaka as shown in Figure 1.



Source: JICA Study Team

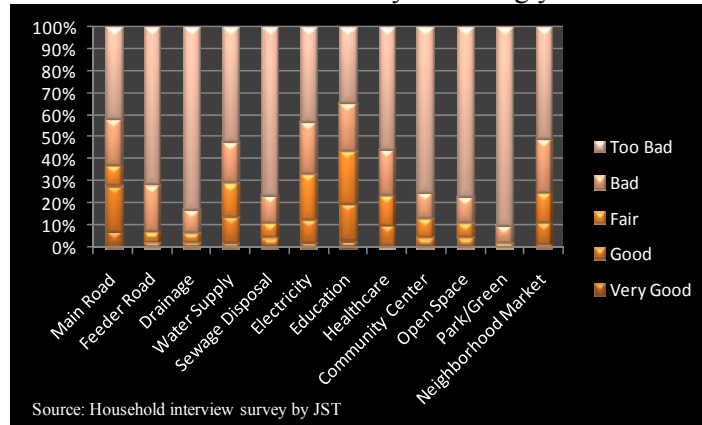
**Figure 1 Expansion of Built-up Area of Greater Lusaka (2000-2007)**



### 1.3 Unimproved Living Environment

i) Inadequate housing backlog, ii) insufficient infrastructure and social service, and iii) undeveloped green space and recreational facility are identified as the major issues concerning living environment.

Overall improvement of the living environment is still necessary for both UUS and PUS, even if their needs vary according to the development condition of ward as shown in Figure 2. Countermeasures to be taken will also vary accordingly.



Source: JICA Study Team

**Figure 2 Community's Evaluation on Infrastructure and Public Services in UUS**

### 1.4 Increasing Needs of Urban Infrastructure

In line with the economic growth, urban expansion and development of urban activity, demand for infrastructure is rapidly increasing.

#### Transportation

As the road congestion worsened seriously, necessity for arterial road network improvement is realized. Congestion on Kafue Road as well as Independence Avenue and Great East Road functioning as the city's spinal roads is worsening rapidly. Hence, implementation of corresponding countermeasures such as bypass road or ring roads are deemed expected. Introduction of new mass transit system in Lusaka, such as the scheduled bus and commuter train, was discussed to substitute for the inadequate and poor standards of the existing minibuses and facilities.

#### Water Supply

Water consumption demand is sharply increasing in accordance with the population increase and economic growth. The present water demand of 340,000 m<sup>3</sup>/day will increase to approximately 600,000 m<sup>3</sup>/day in 2030. Increase of industrial water demand is anticipated with the development of the Multi-Facility Economic Zone (MFEZ), in addition to domestic water use. Therefore supplement exploitation of water source and upgrading of water distribution facilities should be executed urgently.

### Inundation and Waste Water Disposal

Sewerage system is insufficient in Lusaka. Approximately 93 % of the population in UUS depends on pit latrine without any treatment. Provision of septic tank and/or sewage treatment system will be the fundamental solution. Fifteen serious flooding areas were observed in the rainy season as shown in Figure 3. The inundation problem of these flooding areas should be dealt with urgently.



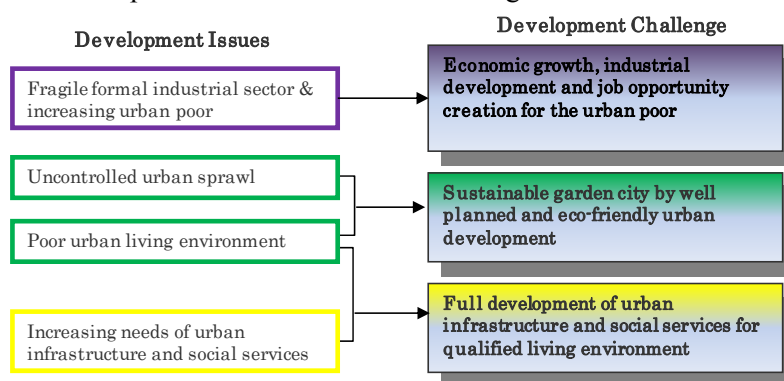
Source: JICA Study Team

**Figure 3 Serious Inundation Observed Area  
during Rainy Season in 2007/2008**

## 2. Development Vision, Approach and Framework

### 2.1 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. These considerations are expected to address essential issues on socio-economic development of Lusaka as shown in Figure 4.

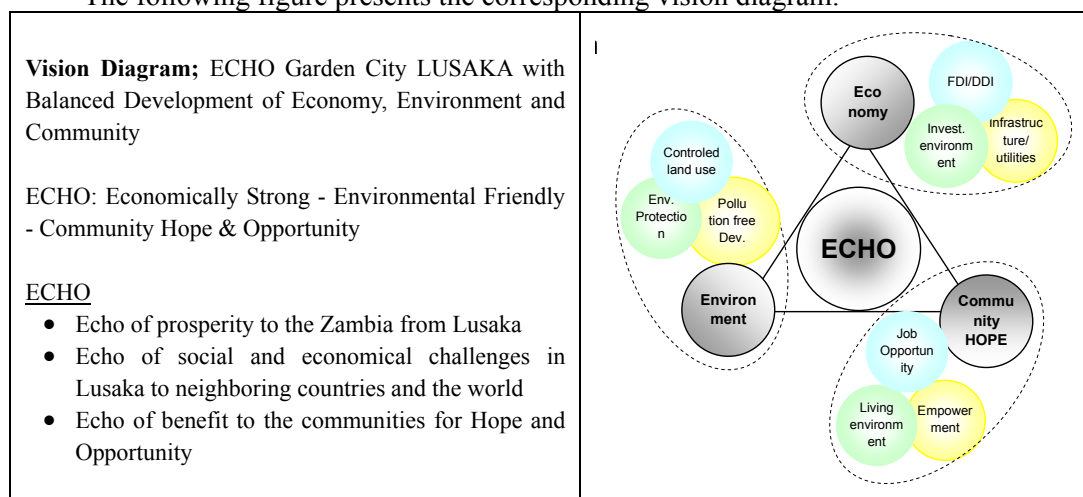


Source: JICA Study Team

**Figure 4 Development Challenge of Lusaka**

In case the challenges are achieved, the vision of Greater Lusaka development can be described as “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.

The vision set hereunder is defined by the acronym ECHO which stands for Economically Strong, Environmental Friendly and Community Hope and Opportunity. The following figure presents the corresponding vision diagram:

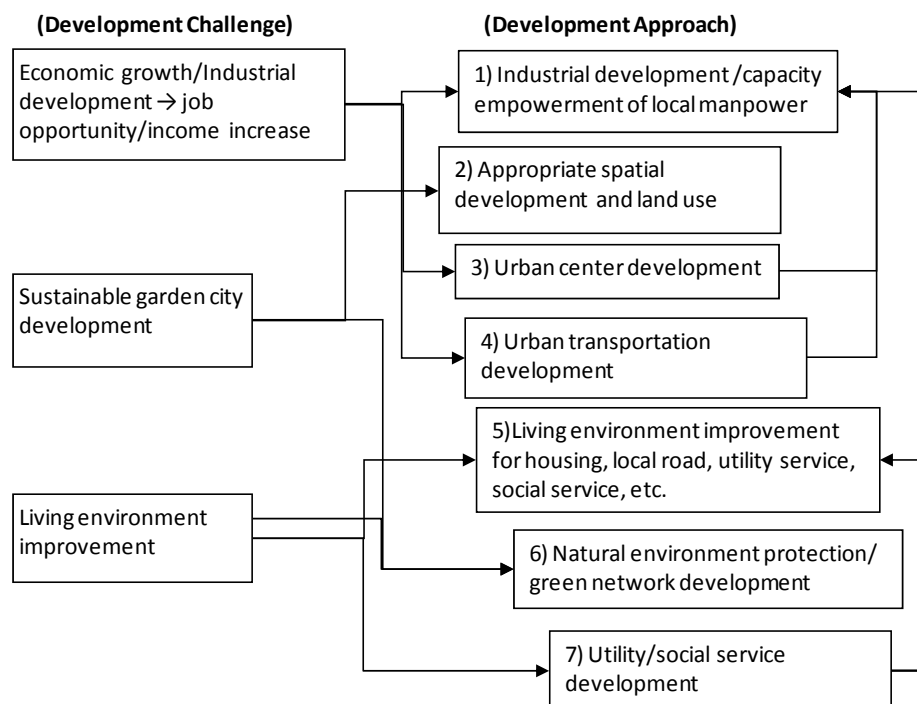


Source: JICA Study Team

**Figure 5 Vision Diagram for City of Lusaka in 2030**

## 2.2 Development Approach

Necessary development approach to realize the comprehensive urban development through the envisaged challenges is proposed as shown in Figure 6.



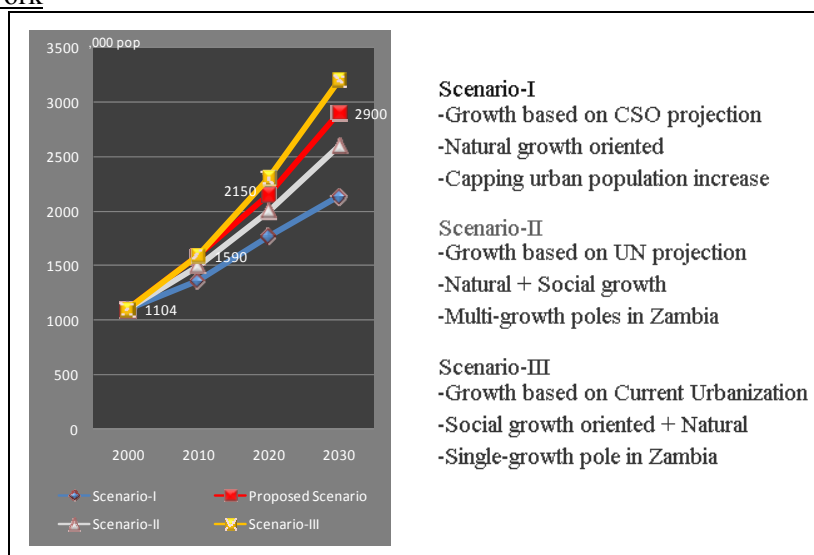
Source: JICA Study Team

**Figure 6 Approaches for Comprehensive Urban Development**

## 2.3 Development Framework

### Population Framework

Population of Greater Lusaka in the census year 2000 was approximately 1.10 million. Three scenarios are taken into account in order to project the future population in Greater Lusaka as shown in Figure 7.



Source: JICA Study Team

**Figure 7 Population Framework of Greater Lusaka**

Taking into consideration the missions of

Lusaka City as the capital of Zambia, its primacy rate in the country would be kept at a prevailing rate of at least 33% and become larger than the current rate. Thus, the anticipated future population would be between Scenarios 2 and 3 (2.6 million – 3.2 million with primacy rate of 33% and 43%), as shaded in the diagram shown.

Planned population in Lusaka City is set as 2.9 million for the year 2030, as shown in Table 1.

**Table 1 Population Framework of Lusaka City**

District		Population (1,000)				Increase (1,000)		
		2007*	2015	2020	2030	2007-2015	2007-2020	2007-2030
Lusaka		1,385	1,696	1,828	2,483	311	443	1,098
Lusaka Adjacent Area	Kafue**	34	42	69	183	8	35	149
	Chongwe*	21	39	68	160	18	47	139
	Chibombo**	13	23	35	74	10	22	61
	sub-total	68	104	172	417	36	104	349
Total (Greater Lusaka)		1,453	1,800	2,000	2,900	347	547	1,447

Note:

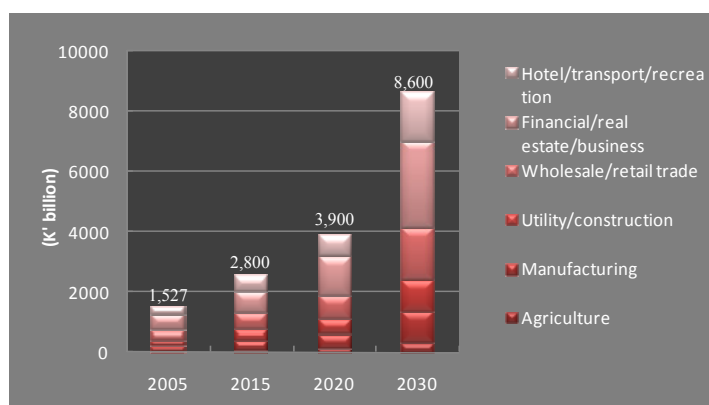
\* Population in 2007 is estimated by JICA Study Team. Available statistic is 1.09 million in 2000 by CSO.

\*\* Partial population of three districts of the greater Lusaka is figured.

Source: JICA Study Team

### Economic Framework

Lusaka GDP in 2005 is estimated to be about ZMK 1,527 billion in real term, which is approximately 53 % of national GDP before tax on products (ZMK 2,904 billion). Given the conservative national goal of economic growth, 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 as shown in Figure 8.

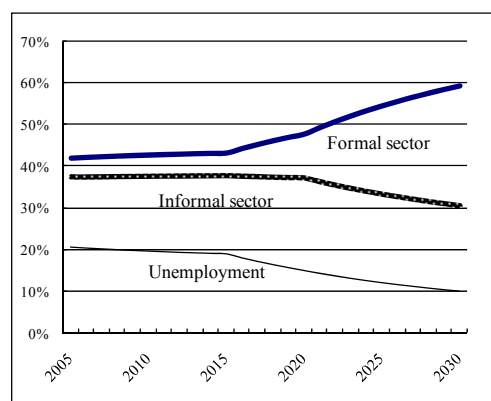


Note: at 1994 Price Source: JICA Study Team

**Figure 8 Estimation of Lusaka GDP**

### Employment Framework

In line with the economic growth, the employment structure will be improved accordingly. As shown in Figure 9, 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, considering the middle income country. However, it should be noted that 200,000 informal employments will increase due to the economical active population. Meanwhile, formal employment is expected to increase by more than 500,000.



Source: JICA Study Team

**Figure 9 Improvement of Employment Structure**

### 3. Development Strategy

#### 3.1 Strategy for Industrial Development of Lusaka

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.

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.

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

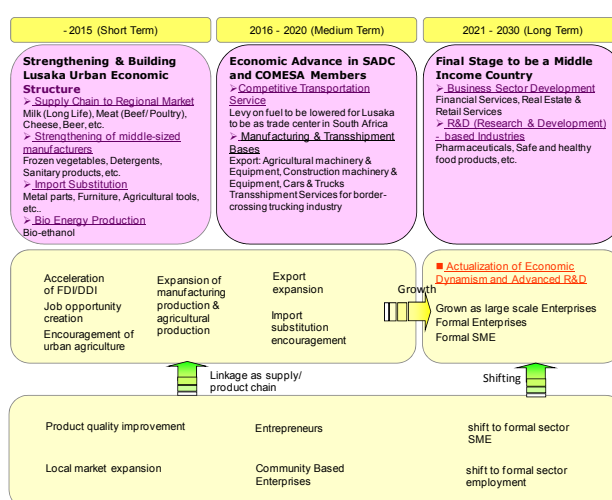
**Table 2 SWOT Analysis of Lusaka**

Strengths	Opportunities
<ol style="list-style-type: none"> <li>1. Capital city with good investment climate</li> <li>2. Lusaka being a regional hub in the southern African countries</li> <li>3. Upward trend of urban economy because of the latest surge of FDI in Lusaka</li> </ol>	<ol style="list-style-type: none"> <li>1. Leads to regional integration with SADC as a gateway Free Trade Area by 2008, Customs Union by 2010, Common Market by 2015</li> <li>2. Possibility of being a regional logistics hub for dry cargo</li> <li>3. Sustainable FDI flow and financial centre in the future</li> </ol>
Weaknesses	Threats
<ol style="list-style-type: none"> <li>1. High transport costs to major regional ports or capital cities in the southern African Countries</li> <li>2. Extensive area of UUS</li> <li>3. Dominance of urban poor below poverty threshold expenditure of ZMK 370,000 per month</li> <li>4. Heavy dependence of urban consumption on imported goods</li> <li>5. Dominance of informal sector employment</li> <li>6. Challenge for capacity building of the employed in industries</li> </ol>	<ol style="list-style-type: none"> <li>1. Economic value of UUS in almost nil. This could pose a burden to Lusaka’s economic development.</li> <li>2. Termination of Zambia Social Development Fund which used to finance the community development in Lusaka</li> <li>3. Upward trend of urban land price</li> </ol>

Source: JICA Study Team.

Analysis on strengths, weaknesses, opportunities, and threats (SWOT) would guide the needed stage-wise economic development of Lusaka. 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, and iii) international trade and distribution services, will



Source: JICA Study Team

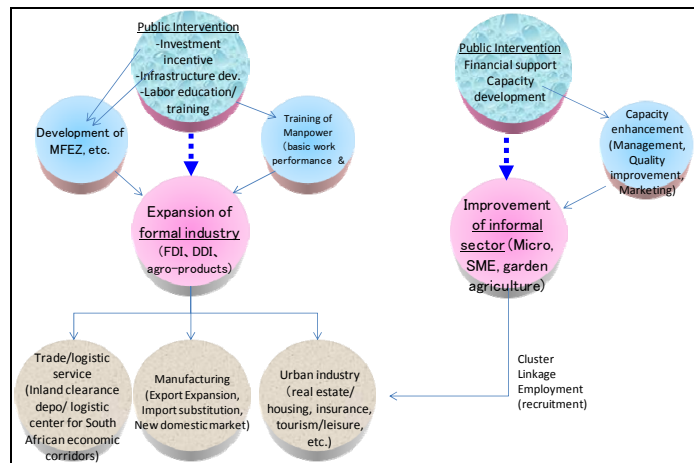
**Figure 10 Industrial Development Strategies for Lusaka**



contribute in strengthening the Zambian industry. Accordingly, Lusaka would play a significant role in the development of the new industrialization fields. Industrialization strategy for Lusaka is schematically summarized in Figure 10.

### Interventions for Industrial Development

Governmental intervention is necessary for the upgrading of investment environment and manpower empowerment for FDI promotion as well as support for nurturing Small and Medium-sized Enterprise (SME) and micro business. This motivation is expected to initiate the industrial development. 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 self-employed in the informal sector. Moreover, job recruitment system supported by the public will be effective for searching employment for the currently self-employed. Figure 11 presents the necessary public intervention for both formal and informal sector promotion.



Source: JICA Study Team

**Figure 11 Necessary Public Interventions for Formal and Informal Industry in Lusaka**

## 3.2 Strategy for Urban Development of Lusaka

### Spatial Development Concept Alternatives

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.

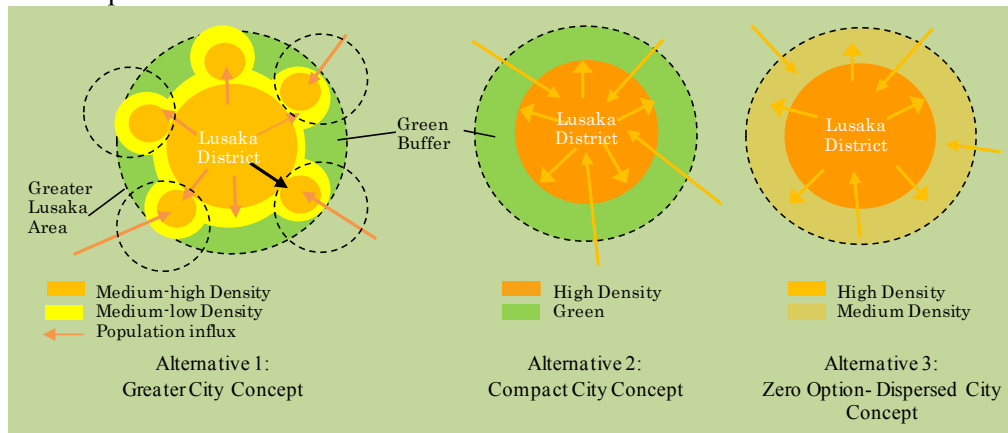
- New Urban Expansion: by satellite town formulation in urban fringe areas, in combination with linkage development with existing urban area
- Upgrading Existing City: by strong urban growth management for compact city formulation with intensive development in the interior area
- New Capital Development: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

For the discussion of spatial development alternatives, “new capital development” as an unsuitable and unfeasible development is excluded due to high development cost and anticipated environmental conflict.

Therefore, two urban structure alternatives are conceptualized, i.e., the new urban expansion concept and the upgrading of existing city concept, as interpretations for the development vision of Greater Lusaka are studied to accommodate the population and economic development framework. Additionally, a do-nothing case, which will not require strong government intervention, was also examined in terms of Strategic Environment Assessment (SEA). The diagram showing the three alternatives is shown in Figure 12.



On the basis of SEA result, JST concluded that the alternative, new urban expansion concept, was 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. Adverse environmental impact however is anticipated to a limited extent.



Source: JICA Study Team

**Figure 12 Alternatives for Spatial Development Concept**

### Spatial Distribution Principle

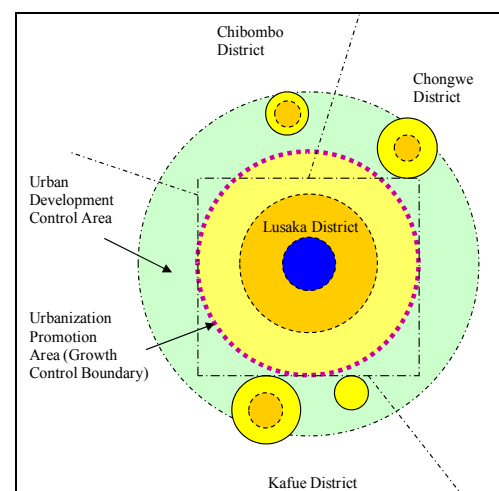
The following principle is proposed for Lusaka City and satellite city spatial development as schematically presented in Figure 13.

(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



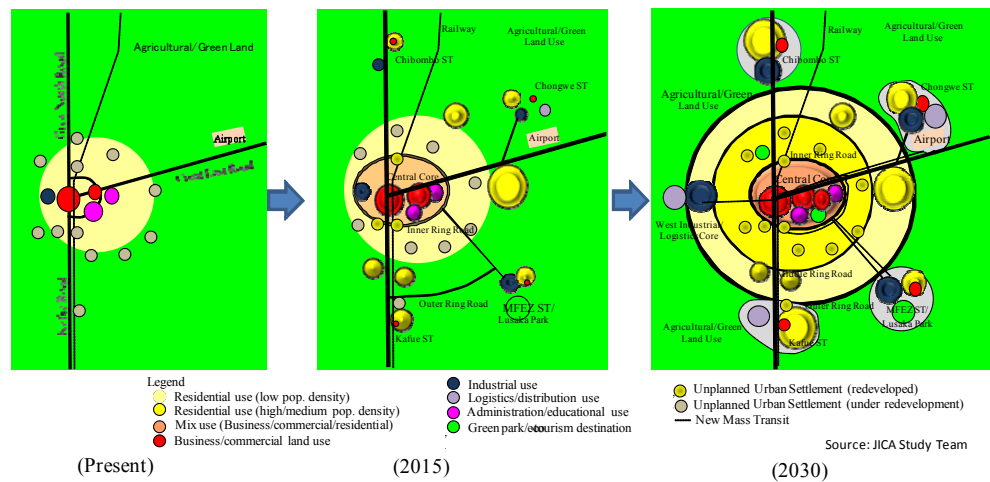
Source: JICA Study Team

**Figure 13 Spatial Distribution Principle**

### Land Use Trend Perspective

Land use of Lusaka will change with the expansion of the urban area. As shown in Figure 14, in 2015, the central business district (CBD) surrounded by the inner ring road will be developed in accordance with the economic growth. Satellite towns with industrial development and commercial/business functions will be also formulated. Low residential area will expand at some extent while some UUS will be upgraded.

In 2030, residential areas will expand to the outer ring road, and the middle density residential area will be formulated in the middle ring road. All UUS will be upgraded. Satellite town areas will be fully developed and linked to the ring roads which will eventually become a self-sustained urban function.

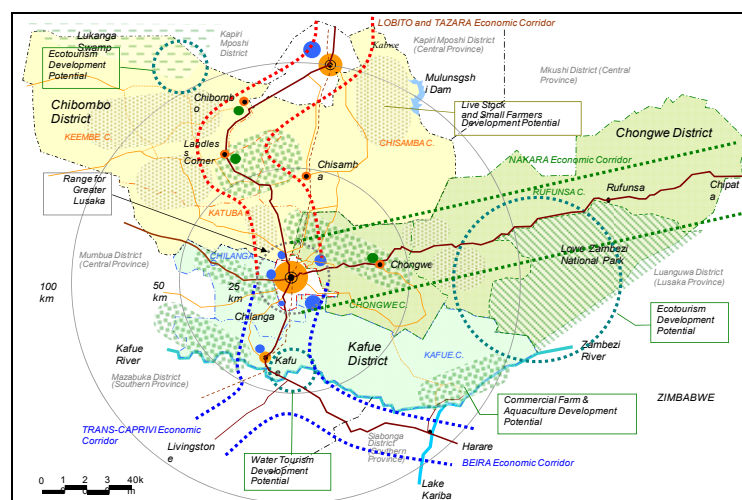


**Figure 14 Land Use Trend Perspective of Greater Lusaka**

### Regional Development Direction and Greater Lusaka

Greater Lusaka area 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. Adjacent Districts of Kafue and Chongwe in Lusaka Province and Chibombo in the Central Province will largely benefit from the socio-economic development by utilizing these economic corridors, natural resources and potential land for agriculture development spreading out in the districts.

Chibombo District will be developed through core developments on the Lobito-Tazara economic corridor linking with agriculture hinterlands and livestock development, while seeking eco-tourism development in the wetlands of the Ukanga swamp. Another tourism development will be in Chongwe District, utilizing potential resources of Lower Zambezi National Park together with the intensive farm land development along the Nakara economic corridor. This is expected to be achieved through the establishment of a tourist center and the development of agriculture processing industry along the corridor. Kafue town, where abundant water resources are fully utilized together with the agro-industry and tourism sector development, will lead to the district's progress through the promising economic corridors development of Beira and Trans-Capri.



Source: JICA Study Team

**Figure 15 Regional Spatial Development Directions**