No.

THE MINISTRY OF COMMERCE, TRADE
AND INDUSTRY (MCTI)

THE STUDY
ON
MASTER PLAN
OF
LUSAKA SOUTH MULTI-FACILITY ECONOMIC ZONE
IN
THE REPUBLIC OF ZAMBIA

FINAL REPORT

MARCH, 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
YACHIYO ENGINEERING CO., LTD.

I D D
J R
09-019

THE MINISTRY OF COMMERCE, TRADE
AND INDUSTRY (MCTI)

THE STUDY
ON
MASTER PLAN
OF
LUSAKA SOUTH MULTI-FACILITY ECONOMIC ZONE
IN
THE REPUBLIC OF ZAMBIA

FINAL REPORT

MARCH, 2009

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
YACHIYO ENGINEERING CO., LTD.

NOTE

The following exchange rate was adopted throughout this report:
US$ 1.00 = ZMK 4,470 = Yen 98.4 (October, 2008)
ZMK 45.45 = Yen 1

Preface

In response to the request from the Government of the Republic of Zambia, the Government of Japan decided to conduct "the Study on Master Plan of Lusaka South Multi-Facility Economic Zone (LS-MFEZ)" and entrusted the study to Japan International Cooperation Agency (JICA).

JICA sent a study team led by Mr. Hisashi MATSUDA, Oriental Consultants co., Ltd. to Zambia several times since the commencement of the study in February 2009.

The team held discussions and conducted filed surveys with the officials concerned of the Government of Zambia. Upon returning to Japan, the team made further study of the findings and compiled this final report.

During the study, the team kept close relationship with the consultant team from the Kulim Technology Park Corporation BHD in Malaysia, who was entrusted to make whole concept of the LS-MFEZ, in order for the Government of Zambia to put the LS-MFEZ into practice.

I hope that this report will contribute and be fully utilized at the implementation stage of the development.

Finally, I wish to express my sincere appreciation to those who participated in and cooperated to the study.

March 2009

Seiichi NAGATSUKA
Vice President
Japan International Cooperation Agency

Letter of Transmittal

Mr. Seiichi NAGATSUKA
Vice President,
Japan International Cooperation Agency
Tokyo, JAPAN

Dear Mr. Nagatuska,

We are pleased to submit the Final Report on "The Study on Master Plan of Lusaka South Multi-Facility Economic Zone in the Republic of Zambia".

This Study was conducted by Oriental Consultants Co., Ltd., in association with Yachiyo Engineering Co., Ltd., under contract to JICA, during the period from February 2008 to March 2009. In conducting the Study, we have carefully examined the existing conditions and informed and coordinated with the Kulim Technology Park Corporation for their Master Planning based on the scheme of South-South Cooperation.

In addition, we would like to express our gratitude and appreciation to the people in charge of this Study of JICA, Ministry of Economy, Trade and Industry, Ministry of Foreign Affairs. And we are also deeply appreciative of close cooperation and assistance extended to the Study Team during the conduct of this Study in Zambia by the Ministry of Commerce, Trade and Industry, Ministry of Tourism, Environment and Natural Resources, Ministry of Land, Lusaka City Council, Zambia Electricity and Supply Company Limited, Zambia Telecommunications Company Limited, and Lusaka Water and Sewerage Company, and many more.

I hope that this Report will contribute to the promotion of the Lusaka South Multi-Facility Economic Zone Project and to the enhancement of friendships between our two countries.

Finally, we hope that this Study on Master Plan of Lusaka South Multi-Facility Economic Zone Report will contribute to further promotion of the Project.

Very truly yours,

March 2009

Hisashi MATSUDA
Team Leader,
The Study Team on the Project for
The Study on Master Plan of Lusaka South Multi-Facility Economic Zone
Oriental Consultants Co., Ltd.
in association with
Yachiyo Engineering Co., Ltd.

TABLE OF CONTENTS

APPENDIXES

LIST OF TABLES

Page

CHAPTER 2 ANALYSIS OF MACRO-ECONOMY IN ZAMBIA

CHAPTER 3 POSITION OF ZAMBIA IN SOUTHERN AFRICA

CHAPTER 4 EXISTING CONDITION OF LUSAKA CITY

CHAPTER 5 DEVELOPMENT CONCEPTS FOR LS-MFEZ

CHAPTER 6 INFRASTRUCTURE DEVELOPMENT PLAN FOR LS-MFEZ

CHAPTER 7 INSTITUTIONAL FRAMEWORK FOR THE LS-MFEZ

CHAPTER 8 HUMAN RESOURCES DEVELOPMENT

CHAPTER 9 FINANCIAL ASPECTS FOR THE LS-MFEZ

CHAPTER 10 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

CHAPTER 11 CONCLUSIONS AND RECOMMENDATIONS

LIST OF FIGURES

CHAPTER 4 EXISTING CONDITION OF LUSAKA CITY

CHAPTER 5 DEVELOPMENT CONCEPTS FOR LS-MFEZ

CHAPTER 6 INFRASTRUCTURE DEVELOPMENT PLAN FOR LS-MFEZ

CHAPTER 7 INSTITUTIONAL FRAMEWORK FOR THE LS-MFEZ

CHAPTER 8 HUMAN RESOURCES DEVELOPMENT

CHAPTER 10 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

LIST OF PHOTOGRAPHS

ABBREVIATIONS

AGOA: African Growth and Opportunity Act
BOT: Build, Operate and Transfer
BRICs: Brazil, Russia, India and China
CBD: Central Business District
CDC: Chongwe District Council
CEO: Chief Executive Officer
CIF: Cost, Insurance, and Freight
COL: Cost of Living
COMESA: Common Market for Eastern and Southern Africa.
CPI: Consumer's Price Index
DDI: Domestic Direct Investment
DEM: Digital Elevation Model
DG: Director General
DOF: Department of Forestry
DWA: Department of Water Affairs (MEWD)
ECZ: Environmental Council of Zambia
EIA: Environment Impact Assessment
EIS: Environment Impact Statement
EPZ: Export Processing Zone
FAO: Food and Agriculture Organization
FDI: Foreign Direct Investment
FOB: Free on Board
F/S: Feasibility Study
FTI: Federation of Thai Industries
FTZ: Free Trade Zone
GCEO: Group Chief Executive Officer
GDP: Gross Domestic Product
GOJ: Government of Japan
GRZ: The Government of the Republic of Zambia
ICT: Information and Communication Technology
IC/R: Inception Report
IDP: Integrated Development Plan
IE: Industrial Estate
IMF: International Monetary Fund
ISO: International Organisation for Standardisation
IT: Information Technology

IT/R: Interim Report
JICA: Japan International Cooperation Agency
JST: JICA Study Team
KDC: Kafue District Council
KHTP: Kulim High-Tech Park
KTPC: Kulim Technology Park Corporation
LCC: Lusaka City Council
LUSEED: Lusaka Sustainable Economic and Environmental Development
LS-MFEZ: Lusaka South Multi-Facility Economic Zone
LWSC: Lusaka Water and Sewerage Company
M & A: Mergers and Acquisitions
MCM: Million Cubic Meters
MCTI: Ministry of Commerce, Trade and Industry
MEWD: Ministry of Energy and Water Development
MFA: Multi-Fibre Arrangement
MFEZ: Multi-Facility Economic Zones
MIDA: Malaysian Industrial Development Authority
MLGH: Ministry of Local Government and Housing
MOCT: Ministry of Communications and Transport
MOL: Ministry of Land
M/P: Mater Plan
MTENR: Ministry of Tourism, Environment and Natural Resources
NACL: National Airport Corporation Limited
NCC: National Council for Construction
NGO: Non-Governmental Organization
PSDC: Penang Skills Development Centre
RAP: Resettlement Action Plan
RDA: Roads Development Agency
RM: Ringgit Malaysia
RSZ: Railway System of Zambia LTD
SADC: Southern African Development Community
SEA: Strategic Environment Assessment
SEZ: Special Economic Zone
SMEs: Small and Medium sized Enterprises
TEVET: Technical Education Vocational and Entrepreneurship Training
TEVETA: Technical Education Vocational and Entrepreneurship Training Authority
TF: Task Force
TICAD: Tokyo International Conference for African Development
TNC: Transnational Corporations

ToH: Triangle of Hope
TRC: Tourist / Recreational Centre
TZR: Tanzania Zambia Railways Authority
UFW: Unaccounted for Water
UN: United Nations
UNCTAD: United Nations Centre for Trade and Development
USAID: US Agency for International Development
USGS: United States Geological Survey
USTDA: US Trade and Development Agency
WMD: Waste Management District
WMU: Waste Management Unit
WTO: World Trade Organization
ZAF: Zambian Air Force
Zamtel: Zambian Telecommunications
ZAWA: Zambia Wildlife Authority
ZDA: Zambia Development Agency
ZESCO: Zambia Electricity and Supply Company Limited
ZMK: Zambian Kwacha
ZRA: Zambian Revenue Authority

EXECUTIVE SUMMARY

1. INTRODUCTION

1.1 BACKGROUND OF THE STUDY

The Government of the Republic of Zambia (GRZ), in an effort to minimise the risks faced by a mono-cultural economy that has mainly relied on copper, has embarked on a program of diversifying the economy and industry, aimed at economic development and poverty eradication.

For this purpose, various Task Forces (TF) under the direct control of the President of the Republic of Zambia have been put in place to promote and develop investments in Zambia. To this end, twelve (12) TF were established on the framework of south-south cooperation of GRZ and Malaysia.

This Master Plan Study relates to the establishment of the Lusaka South Multi-facility Economic Zones (LS-MFEZ) which is one of the 12 TF in the "Project of Development of the Environment for Investment Promotion through South-South Cooperation"

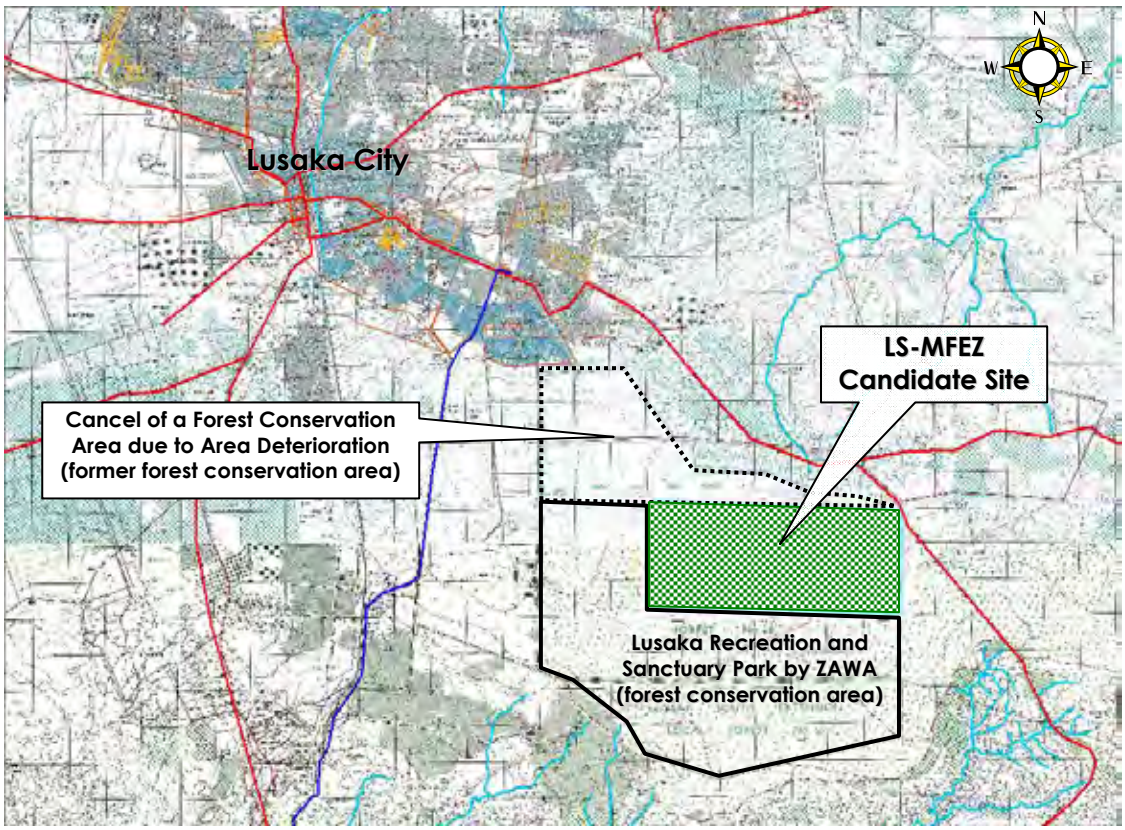
1.2 OBJECTIVES OF THE STUDY

The objectives of the Study are:

- To formulate a Master Plan (M/P) for establishing the LS-MFEZ in Lusaka City,
- To establish a Phasing Plan on M/P, and
- To support a Feasibility Study (F/S) of the first phase for the development of LS-MFEZ by Kulim Technology Park Corporation SDN BHD (KTPC).

1.3 STUDY AREA OF THE STUDY

The study will cover the proposed LS-MFEZ site in the southern part of Lusaka City and other related areas. The study area is shown in Figure E.1.1.



Source: JICA Study Team

Figure E.1.1 The Candidate Site of LS-MFEZ

2. MACRO-ECONOMY IN ZAMBIA

2.1 CURRENT CONDITION AND ISSUE

(1) The Zambian trade structure is a typical developing country model where natural resources are exported, and consumer and capital goods are imported resulting in the domestic manufacturing sector being less-developed. The economy is therefore a resource supplier to world markets; consequently the trend in international price fluctuations (external factor) always has an impact on the economy.

(2) Natural resources (copper and cobalt) development has played a leading role in Zambian industrial development. Following the completion of the privatization process in 2001, exploration of minerals and drilling development intensified and foreign investment also increased rapidly. The major exploration and drilling of minerals areas is concentrated in the Copper-belt Province in Zambia.

(3) Copper industry is a capital-intensive industry, and crude oil for energy for the copper industry is

imported mainly from the Middle East, and capital goods (reactor, transport machine, refinery plant, etc) are also imported. Consequently there is little ripple economic effect from copper. Active investment to copper industry triggers development of transport and industry infrastructure, promotes distributive trade industry and increases annual government revenue.

(4) The Zambian copper industry has less industrial relationship with the other domestic industry; consequently it does not exert production and employment expansion to a large extent. However Zambian copper exports greatly impacts trade balance in Zambia, which ultimately has an effect on the exchange rate especially that Zambia's foreign currency reserve is small. Stated another way, the Zambian copper industry has an indirect effect on consumption and capital goods inflow, and on the Zambian people's living conditions through the exchange rate.

(5) Zambia should establish a development scenario wherein the positive effect of Zambian mining resources would spill more and more onto other domestic industries, such as job creation, poverty reduction etc.

2.2 DIRECTION OF INDUSTRIAL DEVELOPMENT

A realistic strategy of Zambian industry development based on the analysis of the macro-economy in Zambia is as follows:

(1) To reduce the impact of international market prices of primary products, the copper and related industry should aim more at high-value production and diversification, and provide stimulus to other domestic industry..

(2) The industrial policy concerning copper and related industries aimed at external markets in terms of expansion of domestic market and employment and considering the limited domestic market size, existing industry should first aim at the domestic market in terms of import substitution, thereafter, as middle term target, expand the domestic market toward the neighbouring countries: Angola, Congo DR, Botswana, and Zimbabwe.

(3) As a realistic strategy the Zambian industry should co-operate with South Africa's industry in the field of extension of international manufacturing market aimed at export industry development in Zambia, and also, the Zambian industry should benchmark against developed industries in the far east and within the region.

3. CURRENT SITUATION OF INDUSTRY AND INVESTMENT

3.1 POSITION OF FDI IN ZAMBIA

While foreign direct investment (FDI) to Africa is very small portion in the world FDI, South Africa accounted for almost 60% of total FDI in Southern African countries in the past 5 years (2003-2007) (Refer to Table E.3.1). FDI to Zambia accounted for 10% of total FDI in Southern African countries. This ratio is less than FDI to Tanzania, but higher than Mozambique.

Table E.3.1 FDI to Southern African Countries (2003-2007)

	2003	2004	2005	2006	2007	Average from 2003-2007
World FDI inflows						
Inflows (US$ mil)	564,078	717,695	958,697	1,411,018	1,833,324	1,096,962
Rate of growth (%)	-	27%	34%	47%	30%	34%
% of GDP	1.8%	2.0%	2.2%	2.4%	2.3%	2.1%
Africa						
Inflows (US$ mil)	18,677	18,020	29,459	45,754	52,982	32,978
% of world total	3.3%	2.5%	3.1%	3.2%	2.9%	3.0%
Rate of growth (%)	-	-4%	63%	55%	16%	26%
Southern Africa						
Inflows (US$ mil)	5,307	3,715	6,571	1,278	7,063	4,787
% of Africa	28%	21%	22%	3%	13%	15%
Rate of growth (%)	-	-30%	77%	-81%	453%	84%
South Africa						
Inflows (US$ mil)	734	799	6,644	-527	5,692	2,668
% of Southern Africa	14%	22%	101%	-41%	81%	56%
Rate of growth (%)	-	9%	732%	-108%	1180%	363%
Zambia						
Inflows (US$ mil)	172	364	357	616	984	499
% of Southern Africa	3%	10%	5%	48%	14%	10%
Rate of growth (%)		112%	-2%	73%	60%	48%
Tanzania						
Inflows (US$ mil)	308	331	568	522	600	466
% of Southern Africa	6%	9%	9%	41%	8%	10%
Rate of growth (%)	-	7%	72%	-8%	15%	17%
Mozambique						
Inflows (US$ mil)	337	245	108	154	427	254
% of Southern Africa	6%	7%	2%	12%	6%	5%
Rate of growth (%)	-	-27%	-56%	43%	177%	27%

Source: JICA Study Team

3.2 INVESTMENT DEMAND SURVEY FOR SOUTHERN AFRICA

The study was undertaken in Malaysia, Thailand, Singapore and India. The Investment Demand Survey is also conducted in the Republic of South Africa. The market survey was conducted in four countries: namely Zambia, Tanzania, South Africa and Mozambique. Data from other neighbouring countries could not be obtained due to several constraints.

(1) Enterprise questionnaire survey result

Among the 151 companies with valid responses for this question, 113 (75%) companies indicated that they had investment plans for the next 3 to 5 years.

The possible investment destinations in Southern Africa were as shown in the table below. The respondents could select multiple answers. More than 50% of the answers were selected to South Africa. The ratios of South Africa in all the answers were relatively higher in Malaysia (72%) and India (61.5%) (refer to Table E.3.2).

Table E.3.2 Possible Investment Destinations in Southern Africa

Country	Malaysia	Thailand	Singapore	India	Total	%
South Africa	13	19	8	40	80	54.79
Zambia	1	2	8	4	15	10.27
Botswana	0	2	4	0	6	4.11
Mauritius	0	4	1	5	10	6.85
Mozambique	0	3	2	2	7	4.79
Tanzania	0	4	2	6	12	8.22
Other countries	1	1	1	3	6	4.11
Outside of Africa	0	0	1	1	2	1.37
Depends on various conditions	3	0	1	4	8	5.48
Total	18	35	28	65	146	100

Source: JICA Study Team

(2) Sector-based analysis

The possibility of the investment toward Southern Africa per category is shown in the Table E.3.3. Most of the companies hinted the possibility of the investment toward Southern Africa, but the majority was without an actual plan. The categories with relatively high number of companies with actual plans of investment toward Southern Africa were: agriculture and agro-resource based; textile and garment, machinery and equipment; metals; and other services, about the half of these companies named South Africa for their possible destination.

Table E.3.3 Plan of Investment in Southern Africa per Category

	Investment demand toward Southern Africa			Total
	Southern Africa is considered as investment desination with an actual plan	Possible to consider Southern Africa as investment destination, but no actual plan	Not possible to consider Southern Africa as an investment desitination	
Agriculture and Agro-resource based	4	13	4	21
Textile and Garments	1	4	0	5
Chemical	2	16	3	21
Rubber and plastics	0	4	3	7
Metals	2	2	5	9
Machinery and equipment	3	7	1	11
Building materials	0	2	3	5
Electric appliances and electronics	1	8	3	12
IT relate services	3	14	5	22
Construction Engineering, infrastructure and industrial estate	0	13	7	20
Other services	1	3	1	5
Other	1	7	6	14
	18	93	41	152

Source: JICA Study Team

3.3 PROPOSED TARGET INDUSTRY FOR THE LS-MFEZ

Selection of industries for the LS-MFEZ will proceed with the following steps.

a) Review of the priority sector proposed by the MFEZ Task Force

b) Limit the number of water consumming-type of industries

c) Recommend industries based on the extent of value-addition and employment creating industries.

d) Review the results of Investment demand survey

The selected type of industry is summarized as follows (See Table E.3.4):

Table E.3.4 Selected Type of Industry

Selected Steps	Selected Criteria	Number of Types of Industries Selected
	23 Priority sectors (19+4) proposed by GRZ	122
1st Selection	Water consumption: less than 500m^3/day/unit	82
2nd Selection	Value-added and Number of employees per business unit; more than US$30 million/year and 110 employees/unit	37
3rd Selection	Identified demand to invest to Southern Africa; 22 industries	44

Source: JICA Study Team

4. EXISTING CONDITION

4.1 NATURAL CONDITIONS

4.1.1 GEOGRAPHICAL CONDITION

Lusaka City is located on a plateau (Lusaka Plateau) which slopes gently in the northwest from the southeast at elevations from 1,250m to 1,300m. The LS-MFEZ occupies the highest area of the plateau. Micro topography map which was created by JICA Study Team (JST) shows many depressions in the LS-MFEZ which can be sinkholes.

4.1.2 CLIMATE CONDITION

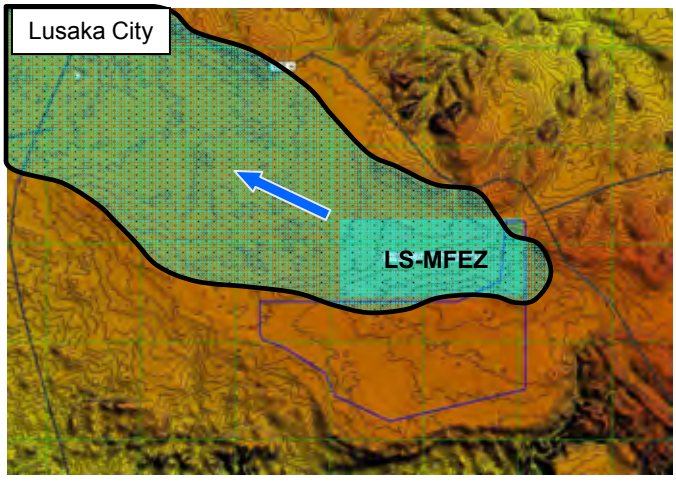
Lusaka's climate is characterised by three seasons: the cool dry season (April-August), hot dry season (August-November) and hot rainy season (November-April). Average annual rainfall is approximately 800mm. There is much rainfall from December to February, and no rain from May to September.

4.1.3 GEOLOGICAL CONDITION

The carbonate rock (dolomite) and schist are mainly distributed in Lusaka City. Karst exists in the carbonate rock and it is covered by surface soil. Construction in those areas underlain by carbonate rocks has sometimes proved environmentally risky and economically unviable.

4.1.4 GROUNDWATER CONDITION

Groundwater recharge area for Lusaka City, water supply is accordingly limited to the surface of Lusaka plateau. Candidate site of the LS-MFEZ is located in the most upstream of catchment, therefore the development of the LS-MFEZ would raise concerns of groundwater shortage and, groundwater contamination for Lusaka City (refer to Figure E.4.1).



Source: JICA Study Team

Figure E.4.1
Geographical Catchment Area Related with LS-MFEZ Site

According to the initial hydrological estimation, recharge water from rainfall is almost balancing with the consumption water in the Lusaka City.

4.1.5 OTHER NATURAL CONDITIONS

(1) Air

Air pollution is not as serious an issue in Lusaka City. The air quality survey results for the proposed LS-MFEZ have shown that all the concentration levels of pollutants were within the prescribed Zambian Guideline limits.

(2) Soil

Soil of hills and uplands are gravelly loam to skeltic soil overlying laterite on rocky outcrops. Observed concentration of arsenic in the LS-MFEZ area is within the natural background level (40~50 mg/kg), and is within the boundary level of critical soil concentration.

(3) Flora and Vegetation

Lusaka South Forest Reserve which consists of Forest No.26 and Extension No.55 were established to prevent soil erosion and to protect the groundwater in the Lusaka City. However, the site has been deforested and disturbed by human activities. One of 6 national tree species which the forest act protects, *Pterocarpus angolensis*, was found in the LS-MFEZ area.

(4) Fauna

Endangered and vulnerable animal species shown in the State of Environment in Zambia 2000 were not found in this survey.

4.2 SOCIAL CONDITIONS

Lusaka City has several problems, such as shortage of commercial land in the central part and traffic congestion. A great part of the population lives in informal compounds which only occupy 10% of area in Lusaka City. Moreover, enrolment ratio for school going children in Lusaka City is one of the lowest in the country at 47%. Formal employment represents 16.85% of the economically active (aged 15 to 65 years) population of Lusaka City.

The LS-MFEZ area is on government land. However because the LS-MFEZ area has not been sufficiently managed, informal farming, quarrying and sand mining have been carried out, which supports the life of people in informal employment.

4.3 PRESENT TRANSPORT CONDITIONS

Lusaka City has Road, Railway and Civil Aviation Networks. Because Lusaka is located at the centre of Zambia, those transport networks provide both intercity and international transport services.

4.3.1 ROAD

(1) National Road

The national roads are constructed, maintained and operated by Road Development Agency (RDA).

International roads of T2 and T4 have to pass in Lusaka City. Therefore, the LS-MFEZ should have access roads to the National Roads.

National road surface condition inside and on the outskirts of Lusaka is good. Most of the national 2- lane carriage way width is typically about 5.5m. Therefore Large vehicles such as truck and trailers have to slow down when passing each other on a 2-lane carriage way.

All the following routes can support international road traffic.

・Kafue – Livingstone (T1)
・Lusaka – Kafue – Chirundu (T2)
・Lusaka - Kapiri Mposhi - Nakonde (T2)
・Kapiri Mposhi - Chililabomwe (T3)
・Lusaka - Chipata (T4)

The traffic volume of Livingston and Chirundu are higher than others. Chirundu traffic volume drastically increased in 2007. One reason may be the road improvement (ref: World Bank).

The road improvement project has been completed and one-step customs clearance system will be introduced at Chirundu Border (Note: JICA is supporting the system introduction).

(2) Lusaka City Roads

Lusaka City Council (LCC) operates and maintains the roads in Lusaka City. Arterial road surface conditions are good in Lusaka, but some minor road conditions are not good. Sink holes are found in Lusaka.

(3) Heavy Loaded Vehicle Travel Allowed Route

The passing route for heavy loaded vehicle such as large trailer is regulated by LCC. Leopards Hill Road is not included in the network.

(4) Access Road to the LS-MFEZ

Leopards Hill Road is the only paved road (Bituminous Surface Treatment) going to the LS-MFEZ. Connection road between Leopards Hill Road and the LS-MFEZ is dirt road. The distance between Leopards Hill Road and the LS-MFEZ is about 1.8km.

Leopards Hill Road is a two-lane paved road, but the thickness of asphalt pavement near the LS-MFEZ is thin. If it is used by heavy loaded vehicles, it should be improved by overlay and widening.

4.3.2 RAILWAY

The railway line passes about 8 km from the west edge of the LS-MFEZ. There is no bayline toward the LS-MFEZ at present. The Ministry of Communication and Transport (MOCT) and Lusaka Sustainable Economic and Environmental Development JICA Study Team (LUSEED) have no extension plan to the LS-MFEZ.

Lusaka has north-south railway. Three passenger trains for each direction between Kitwe and Livingstone are operated per week. Two or three freight trains for each direction between Kitwe and Livingstone are operated per day. Railway System of Zambia Ltd (RSZ) as a private company operates these trains at present.

On the other hand, international train between Dar Es Salaam (Tanzania) and Kapiri Mposhi (Zambia) is operated by Tanzania Zambia Railway Authority (TAZARA). International train operation is also limited, and the trains do not come into Lusaka directly from Tanzania. The terminal station is in Kapiri Mposhi in Zambia.

4.3.3 AIRPORT AND CIVIL AVIATION

Lusaka International Airport is the only airport that is operated for regular civil aviation services in Lusaka. The airport is operated by National Airport Corporation Limited (NACL). NACL operates four International airports (Lusaka, Livingstone, Ndola and Mfuwa) in Zambia.

Lusaka International Airport is located in the north area of Lusaka. It takes about 40 minutes by car to travel between the airport and the LS-MFEZ.

From 2006, both the domestic and international passenger volumes have increased. International passenger volume growth is especially high, and growth rates exceeded 20% in 2006 and 2007.

Lusaka international airport has 9 direct flight routes to 9 nations (9 cities). Johannesburg (South Africa) and Nairobi (Kenya) have a higher frequency. For domestic, Ndola and Livingstone are higher frequencies.

According to NACL, an Airport Master Plan was developed by JICA in 1984 which unfortunately, was never implemented due to the downward trend in the country's economy during the 1980's stretching into the 1990's. With recent changes in aviation security and safety, there is a need to update these plans to conform to the new requirements. The US Trade and Development Agency (USTDA) plans to prepare a detailed plan for future development.

4.3.4 INTERNATIONAL SEA PORT

Zambia has no sea port since it is a landlocked country. Major international sea ports connecting with Zambia by road are in Table E.4.1.

According to MOCT, Dar Es Salaam, Durban and Walvis Bay are the main sea ports for Zambia. Zambia's trade volume at the Maputo Port is relatively small at the moment.

Walvis Bay is on the Atlantic Ocean (west side of Africa); the port may be suitable for trade to/from European and American countries. Other ports face the Indian Ocean (east side of Africa), and these ports namely, Dar Es Salaam, Nacala and Beira may be suitable for trade to/from Asian countries.

Table E.4.1 Distance between Lusaka and International Ports

International Sea Port	Distance (km)
Dar Es Salaam (Tanzania)	1,892
Nacala (Mozambique)	1,499
Beira (Mozambique)	983
Maputo (Mozambique)	1,984
Durban (South Africa) via Harare (Zimbabwe)	2,092
Walvis Bay (Namibia)	2,143

Source: JICA Study Team

4.3.5 PUBLIC TRANSPORTATION (BUS)

Intra-city Public Bus types operating in Lusaka are mini bus (12 seats) and medium size bus (24 seats). Large size buses are suitable for inter-city travel. Five bus terminals are located in Lusaka City centre. The bus routes are mainly radial to/from Lusaka City centre. Circular pattern routes are lacking. Therefore, if a passenger wishes to transit to another radial route, passenger must go to the central bus terminal for transfer. There is currently no public bus operation to the LS-MFEZ site.

4.4 WATER SUPPLY AND SEWERAGE MANAGEMENT CONDITIONS

Lusaka Water & Sewerage Company (LWSC) is responsible for water supply and sewerage management for the Lusaka City.

4.4.1 WATER SUPPLY

The water is supplied from two sources: water of 97,000 m^3/day is drawn from the Kafue River by pipeline and 110,000 m^3/day comes from groundwater through production wells. In total, approximately 210,000 m^3/day is currently supplied to Lusaka City. The estimated present demand

for water resources for the Lusaka City is 340,000 m^3/day (Source: Progress Report of "The Study on Comprehensive Urban Development Plan for the City of Lusaka in the Republic of Zambia" 2008), implying that there is therefore a shortfall of water supply system estimated at 130,000 m^3/day.

4.4.2 SEWERAGE MANAGEMENT

Existing wastewater management services in Lusaka City are carried out by an off-site system which transfers collected wastewater to a waste water treatment plant and an on-site system of treated wastewater mainly with septic tanks/soak ways at households.

There are six (6) wastewater treatment plants (WWTP) in Lusaka. These include Manchichi, Chunga, Matero, Ngwerere, K-Square, and Chelstone. Four (4) of them; Matero, Ngwerere, K-Square, and Chelstone utilize the stabilization pond system. The treatment system of the Manchinchi WWTP is a combination of a tricking filter and a stabilization pond, called Garden located away from the tricking filter treatment plant. The treatment system of the Chunga WWTP is a tricking filter.

It was observed that treatment is generally good as biochemical oxygen demand (BOD) of the treated wastewater is about less than 50 mg/L. Chunga WWTP receives waste water from the industrial area and the quality of the treated wastewater is bad at over 250 mg/L in BOD.

4.5 SOLID WASTE MANAGEMENT

Solid waste management in Lusaka, such as collecting and disposal, is carried out by West Management Unit (WMU) operating under the LCC. WMU carries out domestic solid waste collection, transfer and disposal.

LCC has a newly constructed landfill which was established in 2007 located in Chunga. It has a capacity of 4,224,000m^3 and is designed to operate until 2020.

4.6 POWER SUPPLY CONDITIONS

4.6.1 PRESENT STATE OF POWER SECTOR

Under the supervision of Ministry of Energy and Water Development (MEWD), the Zambia Electricity Supply Corporation (ZESCO) Limited is a vertically integrated public power utility, involved in generation, transmission, and distribution functions. The maximum power demand is estimated at 1,400MW in 2008, which already exceeds the present supply capacity of 1,008MW.

ZESCO owns three large hydropower stations, who conduct a Power Rehabilitation Project (PRP)

under the electricity supply system.

4.6.2 EXISTING SYSTEM

ZESCO's transmission system has 330kV, 220kV, 132kV, 88kV and 66kV. These voltage levels are stepped-down to 33kV and 11kV for distribution to substations. ZESCO's power system is interconnected to that of neighbouring countries as part of the Southern African Power Pool (SAPP).

4.7 TELECOMMUNICATIONS SYSTEM

The public telecommunication services in the republic of Zambia are provided by the Zamtel under the MOCT.

The following projects are carried out in the telecommunication sector.

- Lusaka New Generation Network (Metropolitan fibre Network) Project
- Optical fibre National Backbone Project

5. DEVELOPMENT CONCEPT FOR THE LS-MFEZ

(1) Development Phasing

Three phases development are planned for the Greater Lusaka Urban Development, namely Phase-1 (2015), Phase-2 (2020) and Phase-3 (2030). The LS-MFEZ project will also follow the same phasing plan.

(2) Industrial Zone

The land demand for an industrial zone was estimated at 1,350ha in 2007 and can be 3,530ha in 2030; an increase of 2,180ha or 4.27% annual growth. Each size of the five industrial zones has an average of 436ha (= 2,180 ha / 5). The LS-MFEZ is designed to be a government-supported economic zone. Accordingly, the size of the industrial zone in the LS-MFEZ is planned at 366 ha by 2030.

(3) Road Network

Land use and road network development are planned for the new satellite town developments based on the existing urban situation. Five satellite towns are considered for the Greater Lusaka City intersection of radial roads and ring roads.

1) Radial Road

- Great East Road (east)
- Great North Road (north)

- Kafue Road (south)
- Mwembishi Road (west)
- Leopard Hill Road (southeast)

2) Ring Road

- Inner Ring Road is 5km from the city centre.
- Outer Ring Road is 15km from the city centre.
- Mediator ring road is between inner and outer ring roads.

3) Urban Road in the LS-MFEZ

- Leopard Hill Road and Chifwema Road (necessity of widening of Chifwema Road) (See Figure E.5.1)
- Independence Avenue, Moshi-O-Tunya Road and Moshi-O-Tunya Road Extension (necessity of widening of Moshi-O-Tunya Road, and land acquisition and new road construction of Moshi-O-Tunya Road Extension)

4) Industrial Road of the LS-MFEZ

- West Industrial Road (land acquisition for the road alignment and connecting with Outer Ring Road; industrial road alignment along the railway is the alternative of industrial road.)
- North Industrial Road (Land acquisition for access road to Outer Ring Road from northeast the LS-MFEZ and using Outer Ring Road as an industrial road connection to Great East Road)

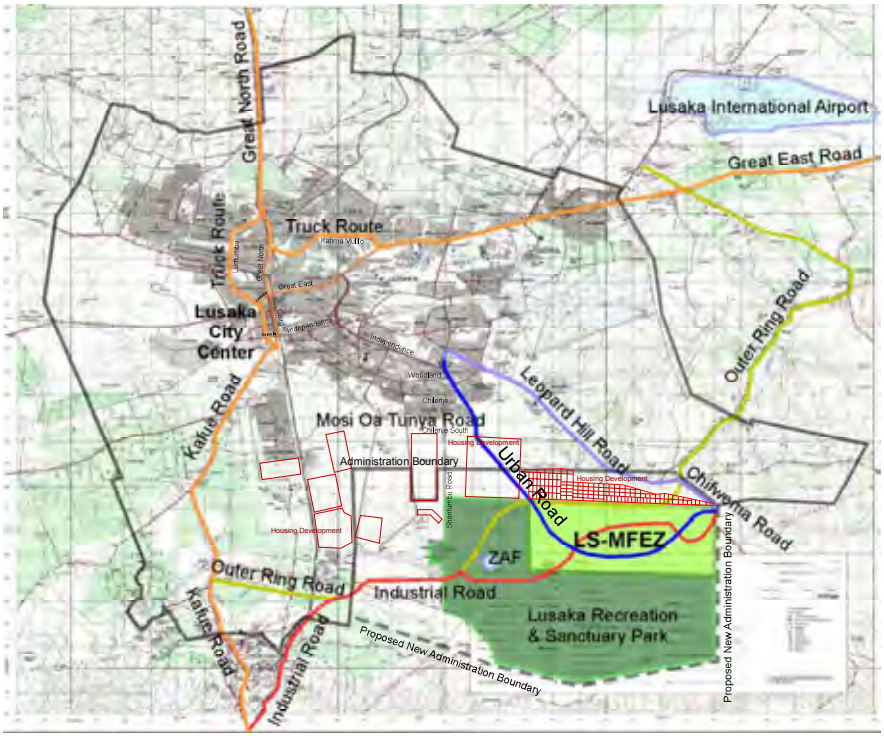


Figure E.5.1 Tentative Road Network for the LS-MFEZ

(4) Twin Growth Poles Concept

The LS-MFEZ is the vehicle for economic development of the Greater Lusaka City that will; (1) Introduce a diversity of industrial bases, (2) Reduce poverty by creating new jobs, and (3) Build up the economical centre of southern Africa and provide easy access to Lusaka (See Figure E.5.2).

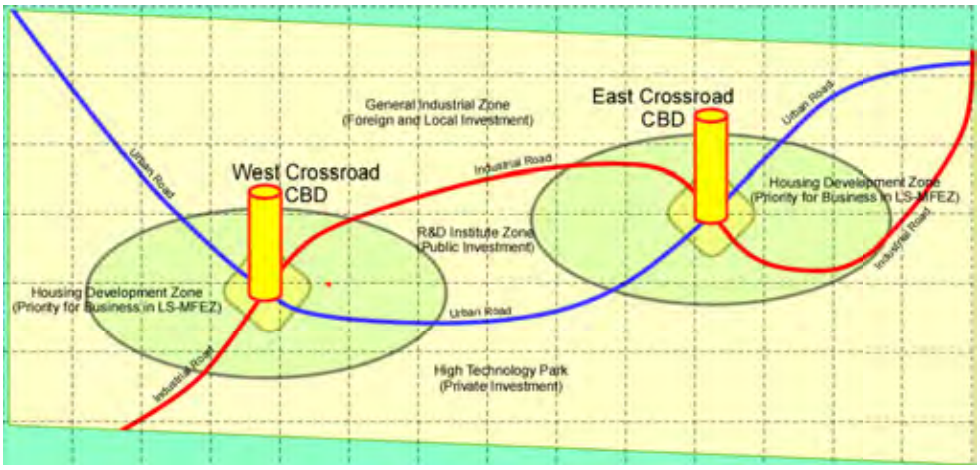


Figure E.5.2 Twin Growth Pole Concept

(5) Land Use Plan

Since the LS-MFEZ will introduce several functional zones such as the General Industrial Zone (GIZ), the High-Tech Park Zone (HTPZ), the Common Service Facility Zone (CSFZ), the Central Business

District (CBD) and Housing Zone (HZ), two growth poles with five functions shall be developed (See Figure E.5.3).

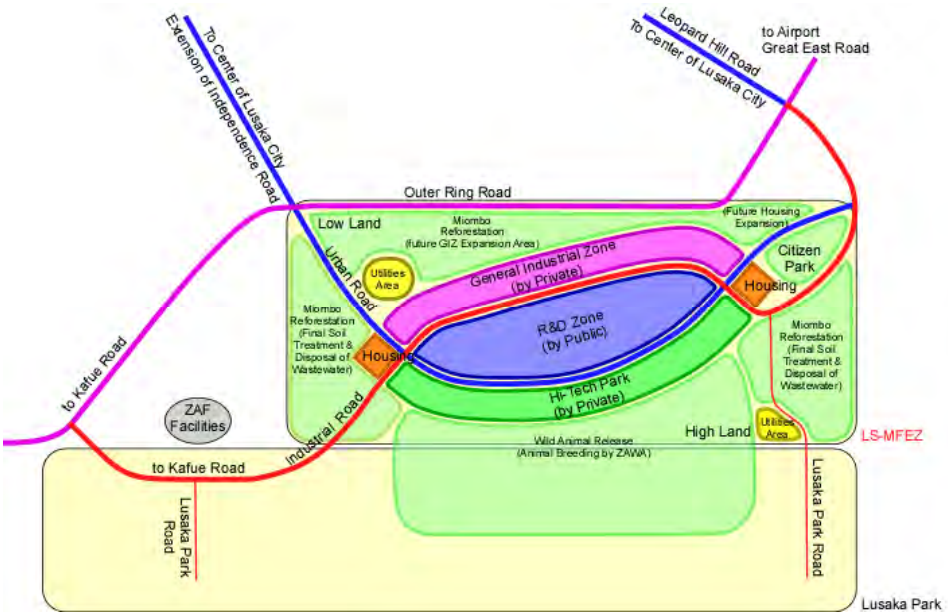


Figure E.5.3 The Land Use Plan

(6) Inducement of ToH Project

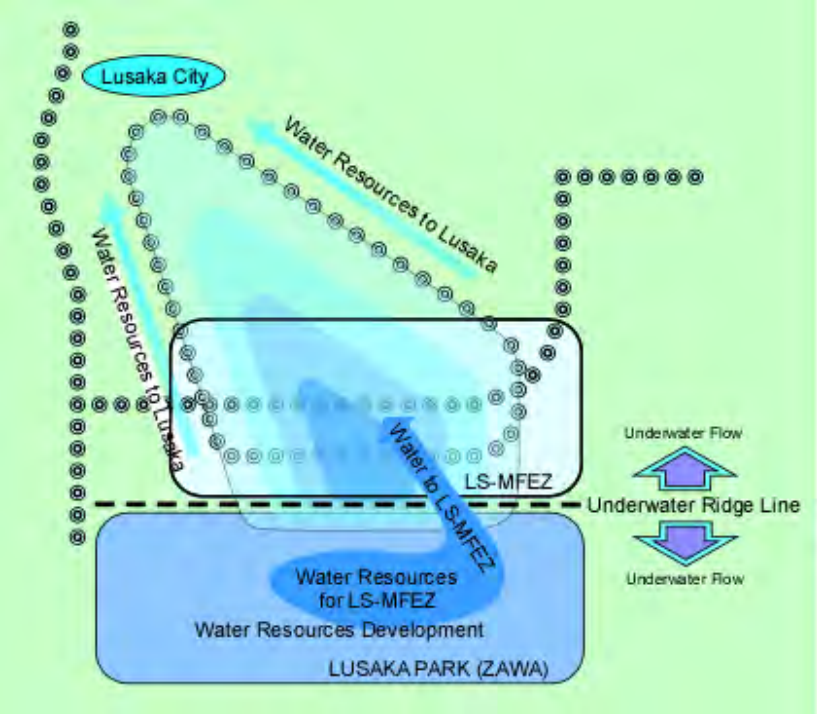
In the Common Service Facility Zone (CSFZ), government supported facilities will be located. This is the area where most ToH projects could be introduced in the LS-MFEZ.

- Air Cargo Hub, Inland Ports
- Agriculture
- Banking and Finance
- Cotton
- Education
- Government Streamlining
- Health
- Information Communication Technology
- Multi-Facility Economic Zone
- Mining
- Small and Medium Enterprises
- Tourism

(7) Water Management Concept

During the investigation of groundwater resources a groundwater ridge-line was found on the southern part of the LS-MFEZ in Lusaka Park (See Figure E.5.4). If the LS-MFEZ project could

cooperate with Lusaka Park which falls under the Zambia Wildlife Authority (ZAWA) in the Ministry of Tourism, Environment and Natural Resources (MTENR), the LS-MFEZ could use groundwater by end of first phase development in 2015. After 2015, the Government will expand the pipeline of Kafue Water Works and will, therefore, supply the LS-MFEZ.



Source: JICA Study Team

Figure E.5.4 Water Management Concept

(8) Greenery Management Concept

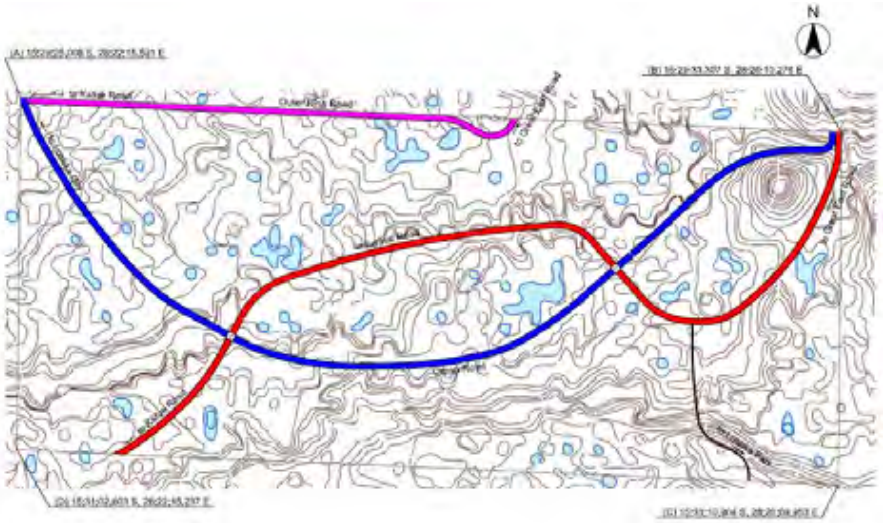
Since the LS-MFEZ is the vehicle for inviting state of the art development for a newly industrialized economy, the LS-MFEZ should be developed with a natural environmental friendly economic zone and symbiosis of Lusaka citizens. Zambia's natural beauty must revive Miombo Forests, together with the greenery management concept.

Source: JICA Study Team

Figure E.5.5 Greenery Management Concept

(9) Main Roads Concept in the LS-MFEZ

Lusaka City is mostly located on dolomite ground and the LS-MFEZ is therefore located on the dolomite terrace. The depression and/or sinkhole are observed in this area (see Figure E.5.6). In Lusaka City, there are numerous cases of road accidents by holes and imparity sinkage of the houses. The best choice of the LS-MFEZ design is to avoid depressions and sinkholes for main roads construction. Hilly areas should also be avoided for main roads construction. The slope design must be less than 1% for the heavy-duty trucks.

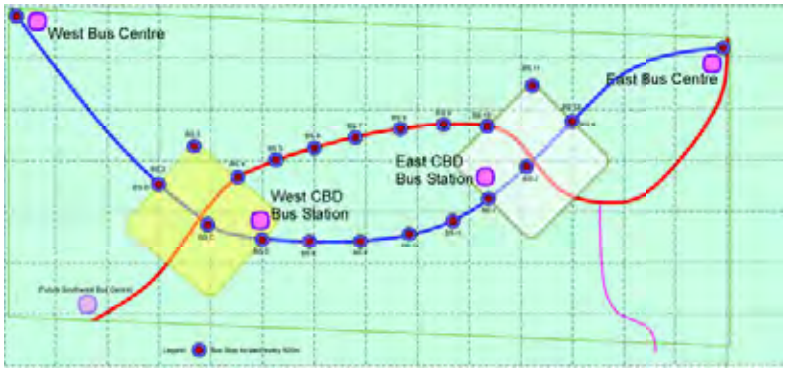


Source: JICA Study Team

Figure E.5.6 Main Road Network in the LS-MFEZ

(10) The Bus Mass Transportation System

The LS-MFEZ project expects to create 40,000 jobs by year 2030. At that time, 20,000 people are expected to commute by their own passenger vehicles, 10,000 people will walk or ride bicycles and 10,000 people by the mass transportation system of public buses. Since 10,000 people are expected to travel by twin-buses within one hour during rush hour, 1.3 twin-buses must run every minute (10,000 people / 130 person/bus / 60 minutes = 1.3 bus/minute) (see Figure E.5.7).

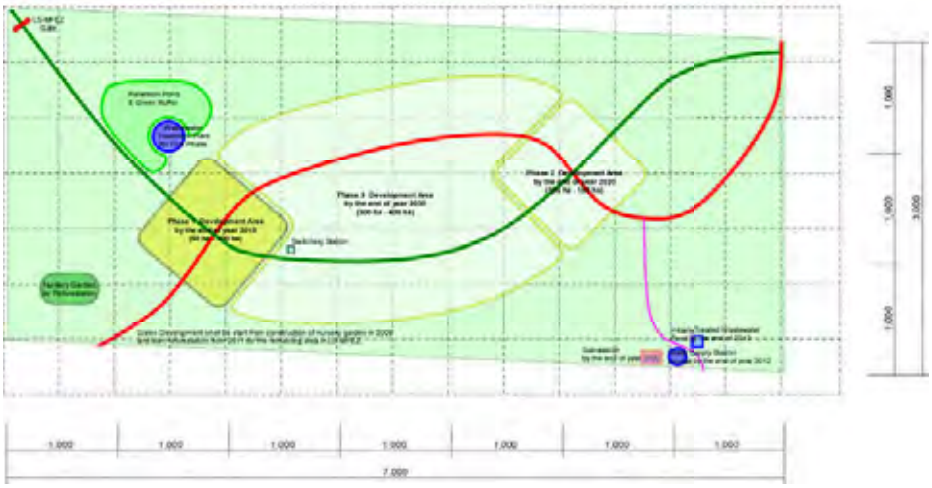


Source: JICA Study Team

Figure E.5.7 Bus Mass Transit System in the LS-MFEZ

(11) First Phase Development

Since Leopard Hill Road pass in the northeast corner of the LS-MFEZ, it is far from the city centre and there are a large city cemetery situated along Leopard Hill Road, this access route to the site is not attractive for the tenant investors. The first phase must take into account the business interest of tenant investors and make the LS-MFEZ attractiveness for the investors. In this regard, time saved, short distance and attractive access roads must be considered for the tenant investors (see Figure E.5.8).



Source: JICA Study Team

Figure E.5.8 Phasing Development

(12) Adjustment of the LS-MFEZ M/P Drawing

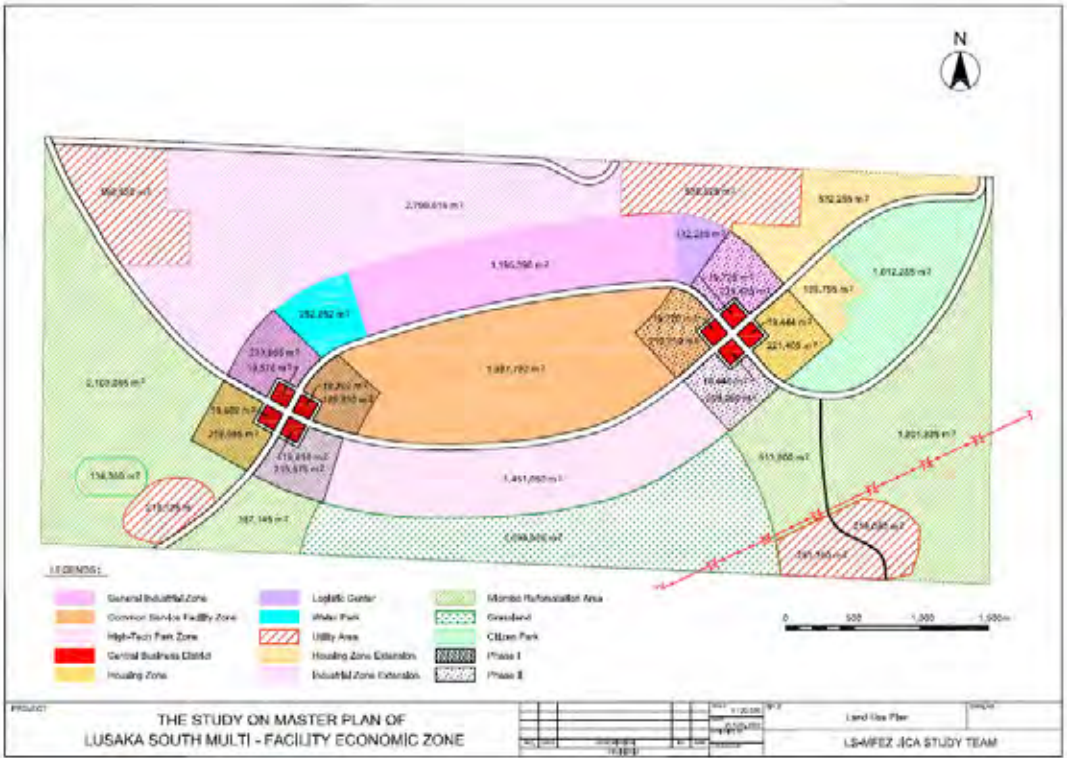
Through the discussion meeting between JICA Study Team and the Local Expert Team (LET) up on the basic concept of the LS-MFEZ, the existing conditions of the LS-MFEZ have been reviewed more clearly. On the based of the review study, main road network and land use plan were reviewed and the final master plan was reconstructed. Modified development plan are described in Table 5.1 and Figure 5.9 to 5.11;

Table E.5.1 Development Area by Year 2030

Plan of JST (Unit:ha)

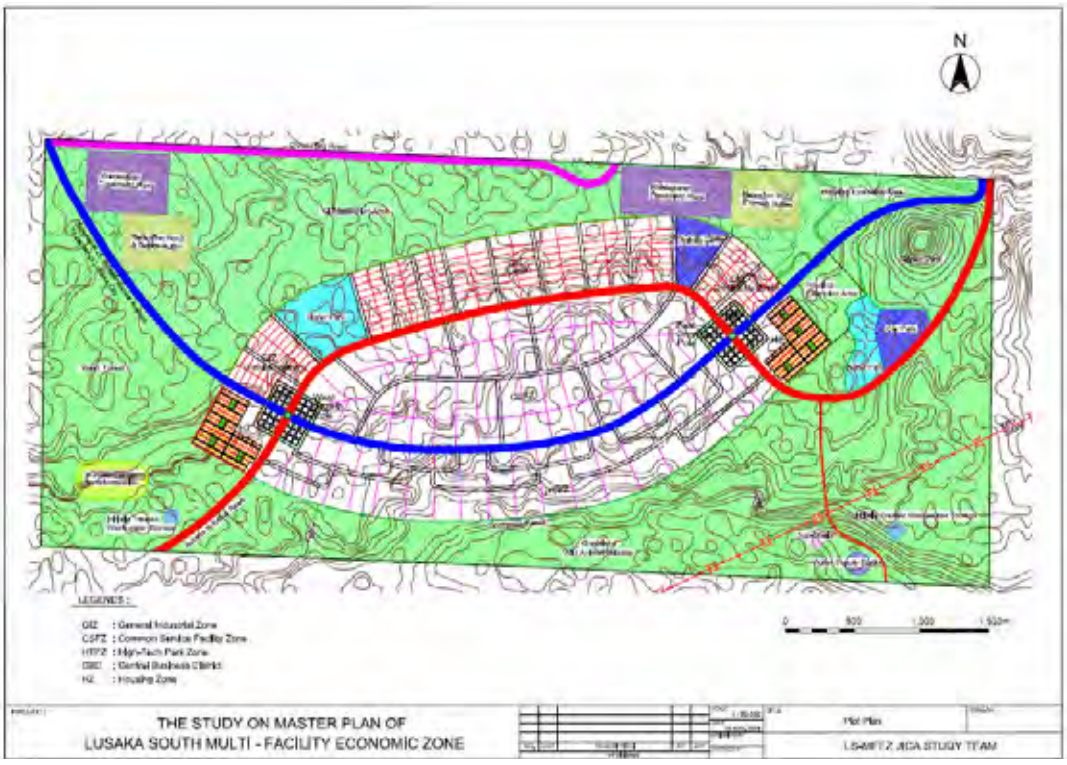
Target Year	2015	2020	2025	2030	-	-	After 2030	Final
Land use	Phase1	Phase2	-	Phase3	-	-	Expansion	Total
Central Business District (CBD)	10.88	10.88	-	0.00	-	-	0.00	21.76
Accumulation CBD	10.88	21.76	-	21.76	-	-	21.76	21.76
Housing (Residential)	21.86	22.14	-	0.00	-	-	71.91	115.91
Accumulation Housing Zone	21.86	44.00	-	44.00	-	-	115.91	115.91
General Industrial Zone (GIZ)	23.40	22.54	-	119.54	-	-	279.92	445.40
High-Tech Park (HTPZ)	21.56	20.90	-	145.11	-	-	0.00	187.57
Logistic Center (Industry)	0.00	0.00	-	13.23	-	-	0.00	13.23
Sub-total Industrial Zone (Logistic, GIZ and HTP)	44.96	43.44	-	277.88	-	-	279.92	646.20
Accumulation of Industry	44.96	88.40	-	366.28	-	-	646.20	646.20
CSF (R&D, Institution and Community Facility)	18.98	21.01	-	198.78	-	-	0.00	238.77
Accumulatoin CFS	18.98	39.99	-	238.77	-	-	238.77	238.77
Park (Open Space)	0.00	0.00	-	126.51	-	-	0.00	126.51
Greenery (Open Space: Forest)	260.48	209.08	-	169.46	-	-	0.00	639.02
Sub-total of Park and Greenery	260.48	209.08	-	295.97	-	-	0.00	765.53
Accumulation of Park and Greenery	260.48	469.56	-	765.53	-	-	765.53	765.53
Transmission Line	22.49	0.00	-	0.00	-	-	0.00	22.49
Utility Zone (Institution)	25.13	0.00	-	0.00	-	-	0.00	25.13
Waste etc (Institution)	81.67	75.47	-	0.00	-	-	0.00	157.14
Sub-total Utility Zone	129.29	75.47	-	0.00	-	-	0.00	182.27
Accumulation Utility Zone	129.29	204.76	-	204.76	-	-	204.76	182.27
Road	42.43	62.74	-	0.00	-	-	0.00	105.17
Accumulation Road	42.43	105.17	-	105.17			105.17	105.17
Total	**528.88**	**444.76**	**-**	**772.63**	**-**	**-**	**351.83**	**2098.10**
Total Accumulation	**528.88**	**973.64**	**-**	**1746.27**	**-**	**-**	**2098.10**	

Source: JICA Study Team



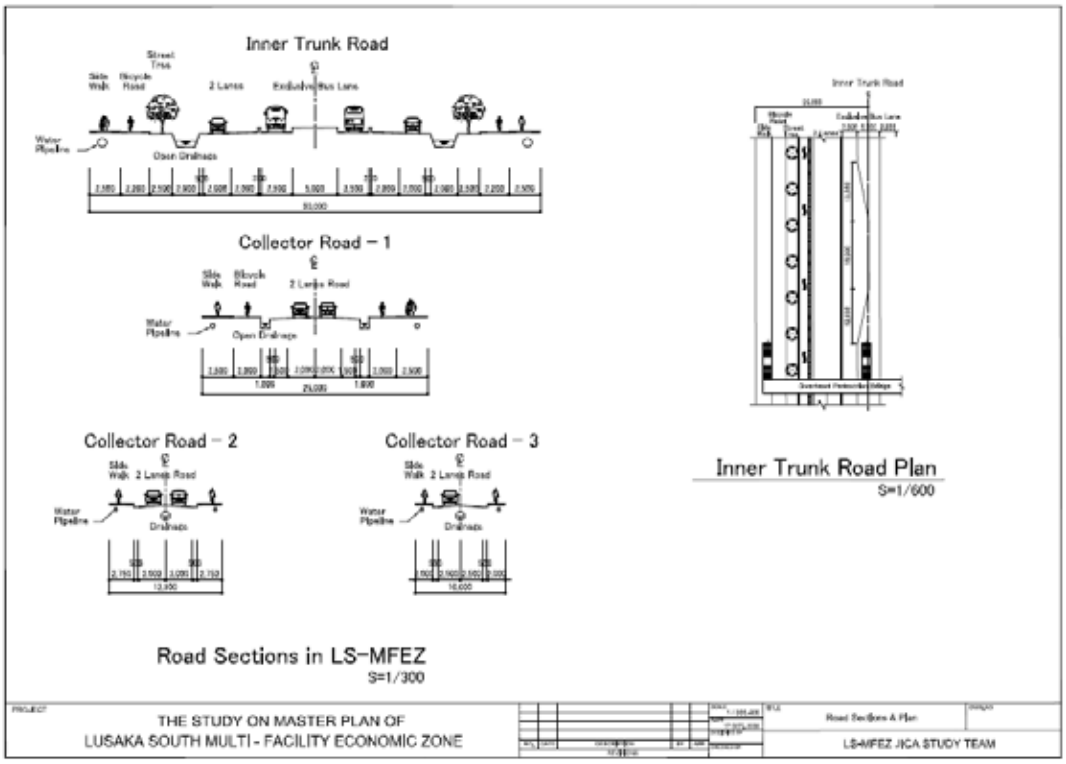
Source: JICA Study Team

Figure E.5.9 Land Use Plan



Source: JICA Study Team

Figure E.5.10 Plot Plan



Source: JICA Study Team

Figure E.5.11 Road Sections and Plan

6. INFRASTRUCTURE DEVELOPMENT PLAN FOR THE LS-MFEZ

6.1 TRANSPORTATION

6.1.1 ACCESS ROAD PLAN TO THE LS-MFEZ

The JICA Study Team proposes four (4) access roads with the follow functions.

(a) Access Road between Leopards Hill Road and the LS-MFEZ (short term project)

This access road will handle the main commuter and cargo traffic to/from Lusaka. The Lusaka international airport traffic will also use this route.

(b) Access Road between Lusaka City and the LS-MFEZ (short term project)

The main traffic of this access road will be commuter, business and cargo traffic to/from Lusaka. The Lusaka international airport traffic will also use this route.

(c) Access Road from/to Kafue Road (T2) (short term project)

The main traffic will be international and domestic cargo traffic.

(d) Outer Ring Road as Access Road among Kafue Road, the LS-MFEZ, Great East Road (T4) and

International Airport (short - medium term project)

Outer Ring Road with ramp in the LS-MFEZ is planned to pass near the Airport, and therefore, travellers to the LS-MFEZ could use this route to the airport. It will also connect LS-MFEZ with Kafue Road and Great East Road.

6.1.2 JICA LUSEED LUSAKA ROAD NETWORK PLAN INCLUDES THE ACCESS ROADS TO THE LS-MFEZ.

The study team held discussions with related organizations such as MCTI, ZDA, Lusaka City Council (LCC), KTPC and JICA LUSEED Study Team. All related organizations were in agreement with the transport concepts for the LS-MFEZ. LCC has since started to investigate land development conditions of an access road traversing the area.

6.1.3 TRANSPORT CONCEPT OF THE LS-MFEZ

The transport concept on the LS-MFEZ is proposed as follows:

1) Road design should consider sustainability and environment-friendliness. It would also consider various factors such as passenger/cargo vehicles, pedestrians, bicycles, public transportations and planting strip.
2) Bus terminals will be present for commuters between Lusaka and the LS-MFEZ, and within the LS-MFEZ.
3) Physical distribution centre (such as truck terminal) will be present.
4) Road alignment will be decided with consideration of geological conditions (to avoid sinkholes).
5) Arterial road alignment is basically loop line, with feeder roads and the 4 access roads (to Leopards Hill Road, Lusaka International Airport, independence Avenue and Kafue Road) connected to the arterial road.
6) Outer ring road will be located at the north edge of the area in the LS-MFEZ

6.2 WATER SUPPLY SYSTEM

6.2.1 WATER DEMAND OF THE LS-MFEZ

Water demand of the LS-MFEZ for each phase is estimated as Table E.6.1.

Table E.6.1 Water Demand (m^3/day)

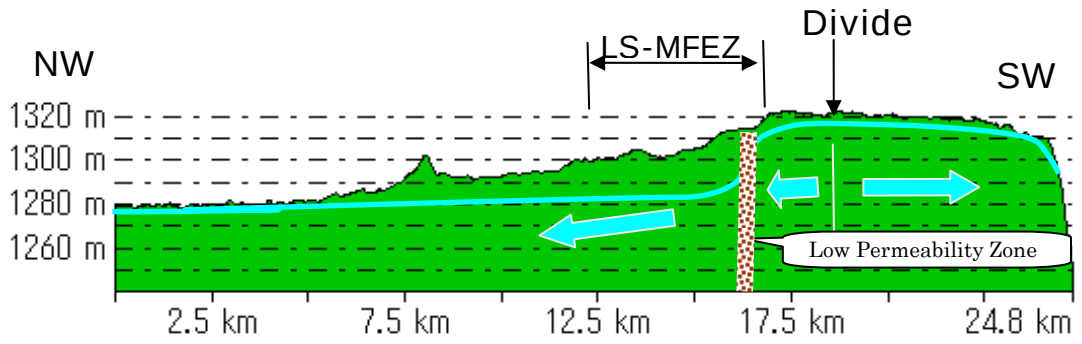
Item (Unit demand)		Unit	1st Phase	2nd Phase	3rd Phase	Total
Housing (0.28 m^3/cap/day)		cap.	5,000	5,000	0	10,000
Workers (0.10 m^3/workers/day)		cap.	3,500	3,500	23,000	30,000
Applied (m^3)	Housing	m^3/day	1,400	1,400	0	2,800
	Workers	m^3/day	350	350	2,300	3,000
	Industry and Others	m^3/day	1,250	1,250	1,700	4,200
	Total	m^3/day	3,000	3,000	4,000	10,000

Source: JICA Study Team

6.2.2 WATER SOURCE

An independent water supply system using groundwater should be provided for the 1st phase of the LS-MFEZ, and water supply system of Lusaka City can be introduced in the second phase.

Since groundwater of the southern area of the LS-MFEZ is dammed up by the low permeability zone, its level is kept shallow for the whole season (see Figure E.6.1). This means that the groundwater in the southern area of the LS-MFEZ has a high potential of being a water resource in the first phase of the project.



Source: JICA Study Team

Figure E.6.1 Conceptual Diagram of groundwater

1) Groundwater Volume

The groundwater volume in southern part of the LS-MFEZ is estimated as 96 MCM.

2) Recharge amount to the groundwater

The recharge amount to the groundwater of the southern part of the LS-MFEZ is estimated as 15.4 MCM/year.

3) Hydrological balance

The demand in the first phase of the LS-MFEZ of 3,000 m^3/day (1.095 MCM/year) is approximately 7% of the annual recharge amount in the southern part of the LS-MFEZ. It will probably not have a huge impact on the groundwater resources in that area.

4) Effect of groundwater level

If a production well was constructed in the centre of Lusaka Park, groundwater drawdown is estimated at less than 10cm around Shantumbu Road. It is therefore considered that the production of groundwater for first phase would not greatly affect the groundwater use in the Shantumbu area.

6.2.3 PROPOSED WATER SUPPLY SYSTEM FOR FIRST PHASE (3,000 m^3/DAY)

1) Discharge site: Southern part of groundwater divide (around BH-J3 test well)

2) Required Number of Deep Wells: 4 wells (20m interval)

3) Water Supply System: Gravity system with elevated storage tank.

4) Water Treatment: Only Chlorination

6.2.4 WATER SUPPLY SYSTEM FOR 2ND PHASE (6,000 m^3/DAY)

Connect to the LWSC supply network at Woodlands extension.

6.2.5 WATER SUPPLY SYSTEM FOR 3RD PHASE (10,000 m^3/DAY)

Direct connection from the Kafue River pipeline will be considered for 3rd phase.

6.3 SEWERAGE AND DRAINAGE SYSTEM

6.3.1 PROPOSED SEWERAGE SYSTEM IN THE LS-MFEZ

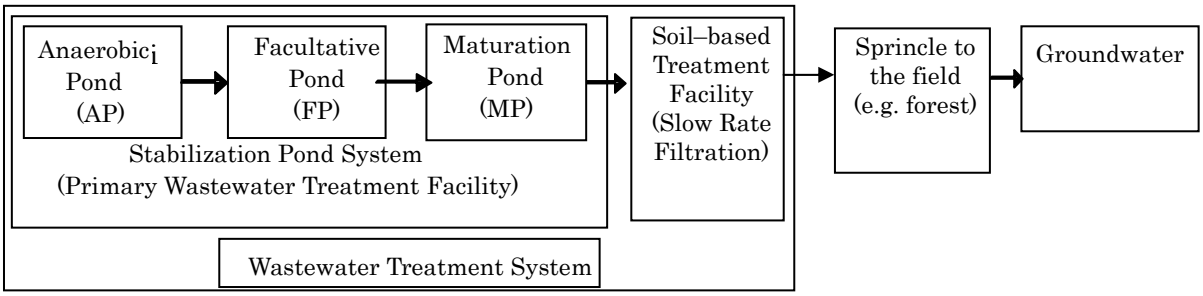
(1) Concept of the Proposed Sewerage System

1) A separate system is applied to wastewater and storm water management, so that wastewater and storm water are separately collected.

2) Treated wastewater is discharged onto the ground surface by watering, and that must not deteriorate the groundwater quality as it is used for portable water for the population of Lusaka.

3) The selected wastewater treatment system is composed of wastewater treatment facility (WWTF) and soil-based treatment facility, as shown in Figure E.6.2 below.

4) Pre-treatment must be undertaken by wastewater generators such as industries, R&D and others, if they discharge wastewater over the maximum limits defined in the LS-MFEZ.



Source: JICA Study Team

Figure E.6.2 Selected Wastewater Treatment System

(2) Conditions of Proposed Sewerage System

1) Wastewater discharge flow

Estimated wastewater generation is expected to be 3,000 m^3/day, 3,000m^3/day and 4,000m^3/day in phase 1, 2, and 3, respectively.

2) Wastewater Quality

Estimated water quality of BOD is as follows, raw wastewater: 250 mg/L, treated wastewater by WWTP: 30-50 mg/L, treated wastewater by soil-based treatment field: 2 mg/L, respectively. It is expected that the water quality will become good enough for drinking quality when it reaches the groundwater.

(3) General Components of the Sewerage System

The wastewater management system is composed of the sewers, wastewater treatment plants, soil-based treatment fields, treated wastewater storages, pumping stations, pressure pipes, and sprinkling system (include sprinkler trucks).

6.3.2 PROPOSED DRAINAGE SYSTEM IN THE LS-MFEZ

(1) Concept of the Proposed Drainage System

1) A separate system is applied to wastewater and storm water management, so that wastewater and storm water are separately collected as indicated above.

2) Run-off volume generated by development of the LS-MFEZ is infiltrated into the ground and recharges the groundwater thus making the site a groundwater source for Lusaka City.

(2) Condition of Proposed Drainage System

1) Design Daily Rainfall

Design daily rainfall is estimated 99 mm/day with a return period of 10 years.

2) Distribution of rainfall

It is estimated that the majority of the rainfall pattern is front shifted rainfall and continuous rainfall time is about 10 hours.

3) Run-off coefficient

The proposed run-off coefficient is 0.65 for this project. It is important that every land use plan and industrial institutes shall keep the run-off coefficient less than this figure.

4) Infiltration Rate

The design infiltration rate is determined by multiplying the minimum soil permeability rate by an application factor of 10%, as 13,594 mm/day x 10% = 1,359 mm/day.

(3) General Components of the Storm Water Management System

Storm water management system is composed of the drainage and retention/infiltration basins. The drainage is generally installed along roads. Culverts are applied at cross sections of roads. Collected storm water along the drainages is sent to the retention/infiltration basins. Storm water is disposed into the ground at the basins, but if it is over the capacity of the infiltration rate of the basins, it can not infiltrate the ground smoothly, so a retention pond is required to hold it. In the project, therefore, the function of the basins is to infiltrate the storm water and to retain the water.

6.4 SOLID WASTE MANAGEMENT

6.4.1 VOLUME OF SOLID WASTE IN THE LS-MFEZ

Volume of solid waste in LS-MFEZ is estimated as shown in Table E.6.2.

Table E.6.2 Amount of Solid Waste the LS-MFEZ (O/M stage)

Unit of Waste Generation		Phase 1	Phase 2	Phase 3	Total
Population	0.5 kg/cap../day	5,000 cap.	5,000 cap.	0	10,000 cap.
Industries	0.8 kg/worker/day	2,850*cap.	2,850*cap.	23,000 cap.	35,000 cap,.
Quantity of Waste (t/day)					
Domestic Waste (Residential)		2.5	2.5	0	5.0
Industrial Waste (Non-residential)		2.28	2.28	18.4	22.96
Hazardous Waste		-	-	-	Small Amount
Total		4.78	4.78	18.4	27.96
Accumulating total		4.78	9.56	27.96	

Source: JICA Study Team

6.4.2 SOLID WASTE MANAGEMENT FOR THE LS-MFEZ

(1) Domestic Waste

It is recommended that domestic solid waste collection, transport and disposal is carried out by WMU as a new Waste Management District (WMD) in phase one and two as long as Chunga landfill site is under operation. Before Chunga landfill closed, new waste disposal site will be considered by Lusaka City Council. If location of new landfill site is far from LS-MFEZ, it may need to consider new landfill site by LS-MFEZ itself as alternatives.

(2) Hazardous Waste

It is recommended that hazardous waste should be kept in hazardous waste storage or disposal facility which will be constructed by the project in Common Service Facility to prevent hazardous waste from exposure.

6.5 POWER SUPPLY SYSTEM

6.5.1 POWER DEMAND

The power demand for the LS-MFEZ estimated for basic design is as shown in Table E.6.3.

Table E.6.3 Power Demand Forecast by Phase

	Phase-1	Phase-2	Phase-3
General Industrial	4.20 MW	4.20 MW	16.80 MW
High-Tech Park	5.60 MW	5.60 MW	28.00 MW
Central Business District	0.04 MW	0.04 MW	-
Common Service Facility	0.12 MW	0.12 MW	0.61 MW
Residential Zone	0.74 MW	0.74 MW	-
Infrastructure	0.84 MW	0.84 MW	2.52 MW
Total	11.54 MW	11.54 MW	47.93 MW

Source: JICA Study Team

6.5.2 POWER SUPPLY SYSTEM

The nearest power tapping point from the ZESCO's power grid is Leopards Hill Substation which is located 7 km away from the LS-MFEZ sit. It has enough capacity for power supply to the LS-MFEZ.

Lusaka West Substation, which is the second nearest viable point in the ZESCO's power grid located approx. 41km away from the LS-MFEZ, is proposed to be interconnected with the LS-MFEZ

132/33kV Substation by the new 132kV transmission line.

Phase-1: In order to cope with the power demand of the LS-MFEZ, the power for the LS-MFEZ should be supplied from Woodlands Substation by construction of a new 33kV distribution line to the LS-MFEZ area.

Phase-2: In order to cope with power demand of the LS-MFEZ, a new 132/33 kV substation with capacity of 40MVA (132/33kV Tr. x 1) is planed to be constructed in the LS-MFEZ site.

Phase 3: In order to enhance the reliability of power supply, one more new 132kV transmission line should be constructed between Lusaka West Substation and the new substation. Estimated increase of 70MVA after Phase-2 is shared with three 40MVA transformers in the LS-MFEZ Substation.

6.6 TELECOMMUNICATIONS SYSTEM FOR THE LS-MFEZ

6.6.1 TELECOMMUNICATION DEMAND

The basic telephone demand in the LS-MFEZ is estimated at 19,875 subscriber lines in the LS-MFEZ as shown in Table E.6.4.

Table E.6.4 Telephone Demand Projection by Phase

Land Use Category		Phase-1			Phase-2			Phase-3		
		Net Area (ha)	Population (Total)	Demand	Net Area (ha)	Population (Total)	Demand	Net Area (ha)	Population (Total)	Demand
1	General Industrial Zone	25	2,500	1,250	25	2,500	1,250	100	10000	5,000
2	High-Tech Park	25	2,500	1,250	25	2,500	1,250	125	12500	6,250
3	Central Business District	5	150	75	5	150	75	0	0	0
4	Common Service Facility Zone	15	500	250	25	500	250	275	1950	975
5	Housing Area									
a	High Grade Residential Zone	15	1,500	300	15	1,500	300	0	0	0
b	Housing complex	10	3,500	700	10	3,500	700	0	0	0
6	Infrastructure	50			50			150		
Total		95	10,650	**3,825**	105	10,650	**3,825**	500	24,450	**12,225**

Source: JICA Study Team

6.6.2 TELECOMMUNICATIONS SYSTEM

The trunk lines of optical fibre cables are recommended to be laid as a network, which would interconnect the new switching station of the LS-MFEZ with Chalala Switching Station of Lusaka City. If Chalala S/S has not been built in time, Woodland S/S should be used.

The line should be installed along the Independence Avenue which will be extended. A new switching station is planed to be located in the centre of the LS-MFEZ.

7. INSTITUTIONAL FRAMEWORK FOR THE LS-MFEZ

7.1 LEGAL AND REGULATORY FRAMEWORK

The current legal and regulatory frameworks are the ZDA Act and related statutory instruments, Regulations and Orders. Within these frameworks, Chambishi MFEZ has been established. MFEZ is to be declared by Minister of Commerce, Trade and Industry (MCTI) after consultation with the Minister of Finance and National Planning (MFNP), the location for the MFEZ is an economic decision of the developer. There are no requirements to confine developers to specific locations except in the case of export trade MFEZ. Therefore, it does not necessarily reflect the Government strategy. The Government' strategic thinking should be reflected more and more in selecting the area and the industry. It is necessary to develop a national development plan for MFEZ. For this work, a Committee is created under "Order on the MFEZ Establishment". The Committee's role is to review economic, industrial and regional development, to formulate policies and strategies for MFEZ, to propose a new MFEZ and to review and assess existing MFEZ.

In addition to the proposed framework involving the committee, the current legal frameworks should be modified for the following areas and reasons

(1) Investment incentives

Current investment incentive is flat over industry, industrial activity and region. However, when considering the expected investors such as high tech industries to be attracted, the current incentives are not adequate enough because they do not take the industry's feature into consideration. When investment targets are set, it is necessary to prepare different incentives by these targets. The followings are such examples.

- Different incentives by type of activity of investors: export sector
- Different incentives by type of sector invested: high-tech sector
- Different incentives for local SME investors
- Different incentives by region
- Incentives for ICT introduction

(2) One stop service

As well as effective investment incentives, supply of "One Stop Service" is another source of competitiveness of MFEZ. Smooth streamlined procedure for investments is strongly recommended and expected by investors. In addition to the streamlined procedures, delegation of powers by relevant Ministries to the local office in the MFEZ is important.

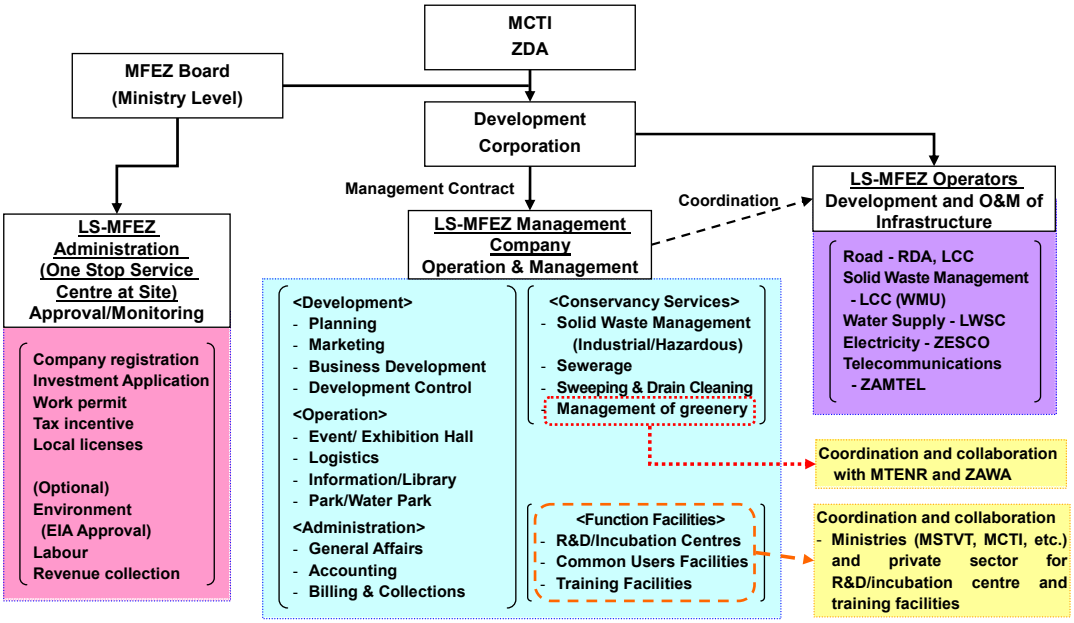
(3) Labor dispute

The LS-MFEZ will be an African model,and it is therefore necessary to show the world that steps towards settling labor disputes is well organized in a transparent and efficient way. Establishment of a trouble shooting agency is proposed

7.2 ORGANISATIONAL FRAMEWORK FOR IMPLEMENTATION OF THE LS-MFEZ DEVELOPMENT

In order to promote entry of private sector, it is necessary to reduce risks of entry/investment in development, operation and management of the LS-MFEZ, and utilise the public-private partnership framework. At least the risk on infrastructure development and construction of unprofitable facilities should be taken by the government by utilising the national budget and/or borrowing from the donors. Establishment of a new public corporation responsible for the development of MFEZ is a method to reduce the risk on infrastructure development and enhance involvement of private sector in operation and management based on fee collection from tenants. In this case, the development company becomes a LS-MFEZ Developer (see Figure E.7.1).

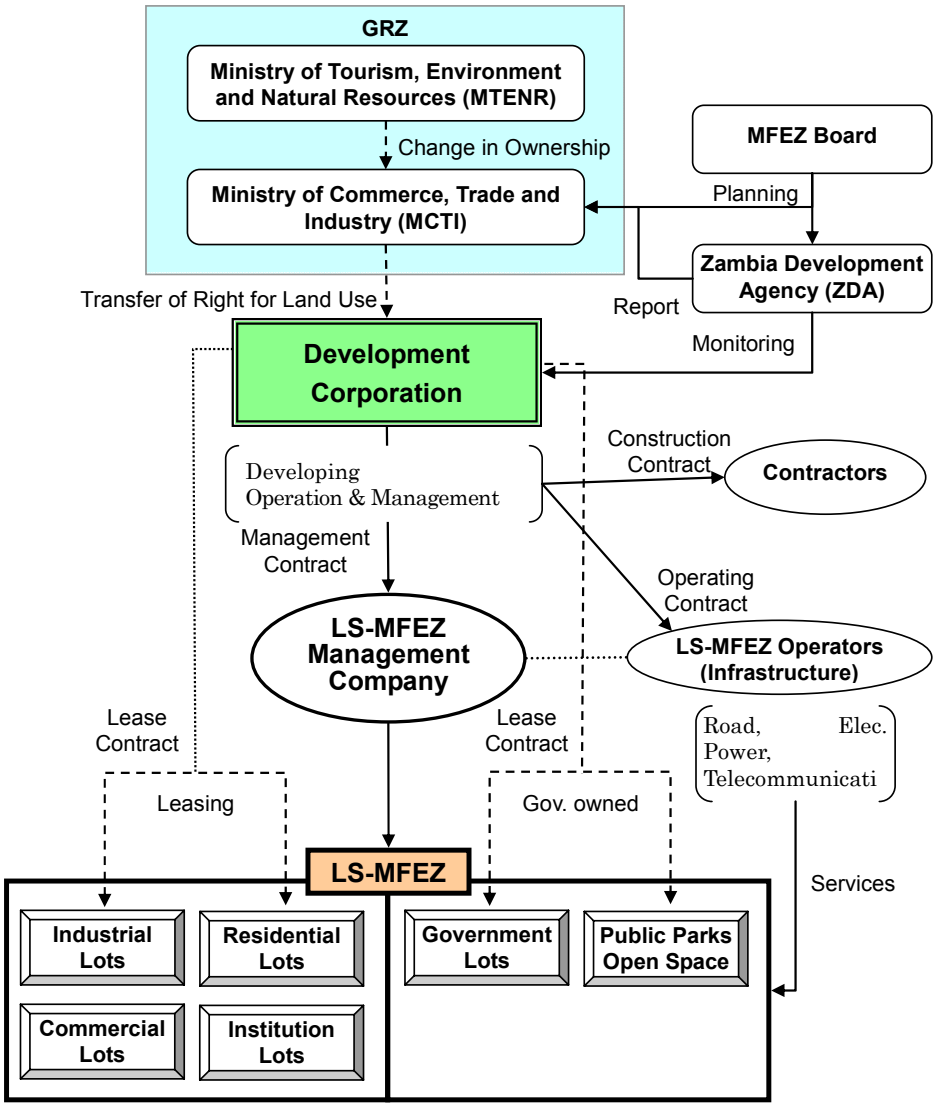
The development corporation will develop infrastructure in the LS-MFEZ in cooperation with the LS-MFEZ Operators such as RDA, LCC, LWSC, ZESCO and Zamtel. For the purpose of operation and management of the LS-MFEZ, a LS-MFEZ management company, which is privately owned and run on a commercial basis, should be established. The operation and management works will be contracted out to the company because operation and management services are one of the most important factors for the investors to decide an investment site and the services provided by the private sector is superior to those by the public sector.



Source: JICA Study Team

Figure E.7.1 Organizational Framework for Implementation of the LS-MFEZ Development

The ownership of the LS-MFEZ site was changed from the Ministry of Tourism, Environment and Natural Resources to the MCTI, based on the government decision on the LS-MFEZ development (see Figure E.7.2). When the development corporation is established, the land for the LS-MFEZ development will be conveyed to the development corporation. The corporation will enforce the right to use the land for the LS-MFEZ development in cooperation with the service agencies, make leasing contracts with tenants, and contract out the provision of operation and management services to the management company. Operation and maintenance of infrastructure will be outsourced to the service agencies through the management company. ZDA will monitor and evaluate the activities of tenants operating in the LS-MFEZ and performance of the development corporation and the management company. The monitoring results will be reported to MCTI.



Source: JICA Study Team

Figure E.7.2 Relation of Actors under the Proposed Framework

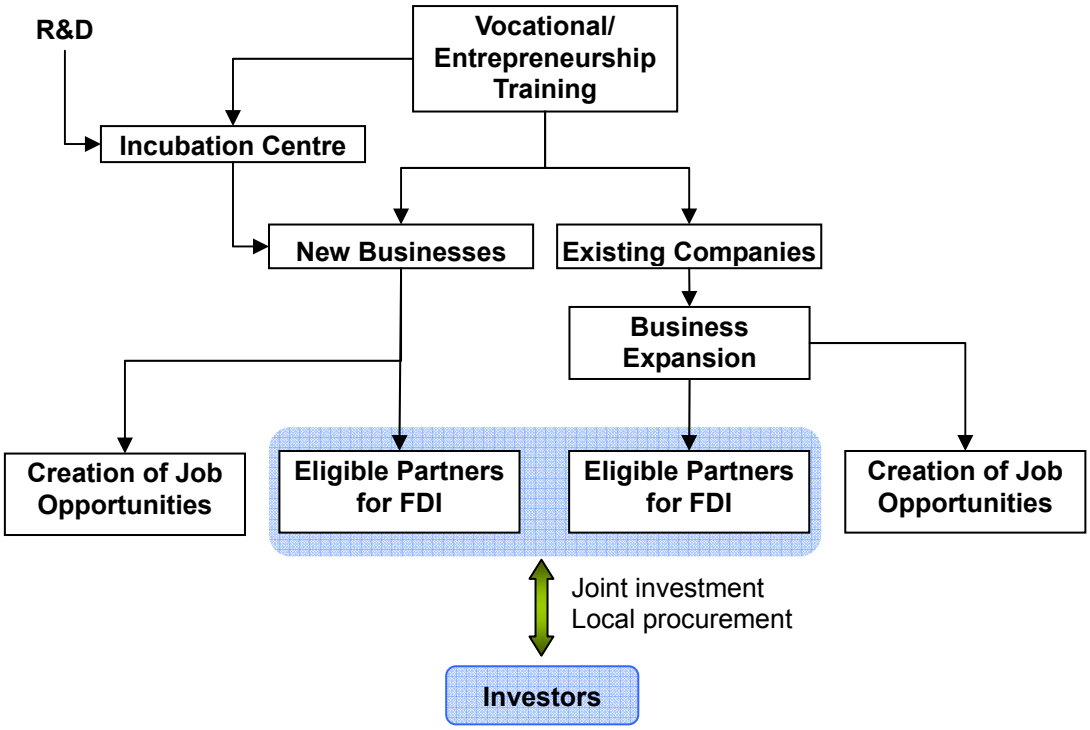
8. HUMAN RESOURCES DEVELOPMENT

The Strategic Plan for Ministry of Science, Technology and Vocational Training 2003 - 2007 indicates the following issues on human resources development.

- Inadequate Implementation of Inspectorate System
- Mismatch between Training provided and Informal Sector Needs
- Poor Commercialisation of R&D Products
- Low Priority accorded to Research and Development

In order to address the issues, the following strategies can be taken with the functions of the LS-MFEZ (see Figure E.8.1).

- Strengthening of Technical Education: Establishment of Polytechnic/ Technical Institute
- Provision of More Opportunities for Admission to Tertiary Education
- Establishment of Academic, Business and Governmental Circle
- Familiarisation of Science and Technology
- Vocational and Entrepreneurship Training



Source: JICA Study Team

Figure E.8.1 Schematic Diagram of Vocational and Entrepreneurship Training and SME Development

Proposed functions for R&D and human resources development in the LS-MFEZ are as follows:

<Ministry of Science, Technology and Vocational Training>

- Science Park: It includes R&D laboratories for research institutions and exhibitions where the students can learn practical science and technology directly and performing scientific experiments.
- Drug Research Centre: Research and Development on drugs for livestocks and human beings in collaboration with the Ministry of Health and the Ministry of Agriculture and Cooperatives

<Ministry of Education>

- Polytechnic Institute

<ZDA, MSE Division>

- Tradefair/exhibition for MSMEs' products

<Zambia Bureau of Standards (ZABS) >

- Engineering Laboratories for Construction Material Research

<National Science and Technology Council>

- E-library which is a one stop reference point on science and technology to assist research and development acitivties

9. PRELIMINARY ECONOMIC AND FINANCIAL ANALYSIS ASPECT

9.1 PRELIMINARY FINANCIAL ANALYSIS

9.1.1 PROJECT COST

Total project cost is preliminary estimated at US$ 341.8 million for the LS-MFEZ development. Financial evaluation is carried out for the first phase only. The project cost of first phase is US$ 71.5 million. The project costs by phasing are described in the Table E.9.1.

Table E.9.1 Preliminary Project Cost Estimation

(Unit: million US$)

No.	Project cost Items	Phase-1	Phase-2	Phase-3	Total
1	Site Preparation	20.1	17.7	23.7	61.5
2	Road Construction	14.1	18.6	29.5	62.2
3	Water Supply and Severage Construction	13.8	12.3	36.6	62.7
4	Power Supply construction	6.4	26.3	43.7	76.4
5	Telecomunication Sonstruction	2.1	1.2	4.1	7.4
6	Construction Cost	56.5	76.1	137.6	270.2
7	Administration Cost	2.8	3.8	6.9	13.5
8	Enginerring Service Fee	5.7	7.6	13.8	27.0
9	Physical Contingency	6.5	8.8	15.8	31.1
10	Project Cost	71.5	96.3	174.1	341.8

Source: JICA Study Team

9.1.2 CONSTRUCTION SCHEDULE

The project construction schedule is three years from 2009 to 2011. The investment amount is projected 40% for first year, 40% for second year and 20% for third year, respectively.

9.1.3 REVENUE PLAN

Item of revenues are the land lease fee and the administration fee from the tenants. Base of the land fee is at 50 USD/m^2 for 99 years; however the land lease fee is calculating one twentieth of land fee for every year for the LS-MFEZ project. Land lease area is deferent for the each land use because of

the density of roads and usage of the high stories buildings. Administration fee is estimated at 3% on the amount of land lease.

9.1.4 EXPENDITURE PLAN

The expenditure is considering only operation cost. The operation cost is estimated 1% on the total investment cost.

9.1.5 FINANCIAL SCHEME

Financial scheme is determined share capital by the Government of the Republic of Zambia at 30% of project cost and long term loan by international bank at 70% of project cost. For this financial analysis, JICA Study Team adapted Public Sector Sovereign Guaranteed Loans by African Development Bank (AfDB) as a long term loan.

9.1.6 FINANCIAL ANALYSIS

Based upon the pre-requisite set forth in the previous section, profitability has been calculative as shown in Table E.9.2.

Table E.9.2 Financial Internal Rate of Return

Financial Internal Rate of Return for LS-MFEZ (Base Case)

No.	Project Life / Year / Item			-2	-1	0	1	2	3	4	5	6	7	8	9	10
				2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
1	Investment (%)			40	40	20										
2	Project Cost (1,000 USD)	71,500.00		28,600	28,600	14,300										
3	Share Capital (%)	30.00		8,580	8,580	4,290										
4	Long Term Loan (%)	70.00		20,020	20,020	10,010										
5	Sales Plan (%)				5	15	35	65	85	95	95	95	95	95	95	95
6	Revenues (1,000 USD)				195	586	1,366	2,537	3,318	3,709	3,709	3,709	3,709	3,709	3,709	3,709
7	Unit Price (1,000 USD)	500.00	20.00													
8	GIZ (ha)	23.40	90.00		26	79	184	342	448	500	500	500	500	500	500	500
9	CSFZ (ha)	18.98	95.00		23	68	158	293	383	428	428	428	428	428	428	428
10	HTPZ (ha)	21.56	90.00		24	73	170	315	412	461	461	461	461	461	461	461
11	CBD (ha)	10.88	385.00		52	157	367	681	890	995	995	995	995	995	995	995
12	HSZ (ha)	21.87	255.00		70	209	488	906	1,185	1,325	1,325	1,325	1,325	1,325	1,325	1,325
15	Administration Fee (%)	3.00				18	41	76	100	111	111	111	111	111	111	111
16	Total Income (1,000 USD)					603	1,407	2,614	3,418	3,820	3,820	3,820	3,820	3,820	3,820	3,820
23	Total L/T Loan Repayment								1,335	2,669	3,337	3,337	3,337	3,337	3,337	3,337
27	Total Interest of L/T Loan			488	977	1,221	1,221	1,221	1,221	1,189	1,124	1,042	961	879	798	716
32	Operating Cost (%)	1.00					715	715	715	715	715	715	715	715	715	715
33	Total Expenditure (1,000 USD)			488	977	1,221	1,936	1,936	3,271	4,573	5,175	5,094	5,012	4,931	4,850	4,768
34	Cash Flow (1,000 USD)			-488	-977	-618	-529	677	147	-753	-1,355	-1,274	-1,193	-1,111	-1,030	-948
35	Cumulation			-488	-1,465	-2,084	-2,612	-1,935	-1,788	-2,541	-3,897	-5,171	-6,363	-7,474	-8,504	-9,452
36	Internal Rate of Return	6.10%														

Financial Internal Rate of Return for LS-MFEZ (Base Case)

11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	No.
2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	
																				1
																				2
																				3
																				4
95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	5
3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	3,709	6
																				7
500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	8
428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	428	9
461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	461	10
995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	995	11
1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	1,325	12
111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	15
3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	3,820	16
3,337	3,337	3,337	3,337	3,337	3,337	3,337	2,002	667	0											
635	554	472	391	309	228	147	65	16	0											
715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	715	32
4,687	4,605	4,524	4,442	4,361	4,280	4,198	2,782	1,399	715	715	715	715	715	715	715	715	715	715	715	33
-867	-785	-704	-623	-541	-460	-378	1,038	2,421	3,105	3,105	3,105	3,105	3,105	3,105	3,105	3,105	3,105	3,105	3,105	34
-10,319	-11,104	-11,808	-12,431	-12,972	-13,432	-13,810	-12,773	-10,351	-7,247	-4,142	-1,037	2,068	5,173	8,278	11,383	14,487	17,592	20,697	23,802	35

Source: JICA Study Team

Cut off rate of Consideration of the financial internal rate of return (FIRR) is considered interest rate

of banking loan generally 15% to 20%. If the FIRR is higher than interest rate of bank, the project is becoming feasible. In case of this project, FIRR is showing 6.19%. And payback period is also very long with 23 years.

9.1.7 SENSITIVITY ANALYSIS

The sensitivity analyses are carried out by the ratio for paid up capital versus long term loan and land lease fee for 2.0 US$.m^2 and 3.0 US$/m^2. Result is tabulated in Table E.9.3.

In the case of highest paid up capital at 40% and highest lease fee at 3.0 US$/m^2 is showing viable. However, the land lease fee is higher than the South Africa and 40% of paid up capital is quite expensive by the RGZ. Engineering works shall be reconsidered and development phasing by each engineering item shall be reconsidered.

Table E.9.3 Sensitivity Analysis

Ratio for Paied-up Capital/Long Term Loan (%)	Land Lease Cost (US$/m^2/year)		
	2.0 (40 US$/m^2 for sales)	2.5 (50 US$/m^2 for sales)	3.0 (60 US$/m^2 for sales)
40/60	-	11.28%	27.83%
30/70	-	6.10%	14.89%
20/80	-	-	8.81%

Source: JICA Study Team

9.2 PRELIMINARY ECONOMIC ANALYSIS

9.2.1 ECONOMIC COST

The following assumptions are applied to determine the overall economic cost.

1) Development Cost
2) Operation and Maintenance Cost (1% of the LS-MFEZ development cost)
3) Factory Construction and Machinery/Equipment Cost by Tenants (GIZ and HTPZ)
4) Replacement Cost (machinery and equipment that would be replaced)
5) Residue Value (at the 30th year)

9.2.2 BENEFIT

The project will induce directly and indirectly beneficial impacts as follows.

(1) Direct Beneficial Impacts

1) Industrial output creation
2) Value added creation
3) Job creation in the industries
4) Accumulated technical effect generated by hi-tech related industries
5) Interfacing private industries with government-run institutions such as R&D and Incubation Facilities

(2) Indirect Beneficial Impacts

1) Effect to other industries stimulated by the high technology and industrial promotion of the LS-MFEZ
2) Increase of employment during the construction period
3) Activation of regional economy
4) Alleviation of demographic centralization to metropolitan area of Lusaka

9.2.3 BASE CASE

The base case is defined as the same case applied in the financial analysis.

9.2.4 SENSITIVITY ANALYSIS

The sensitivity analysis is made based on the base case for two scenarios that are:

1) 10% increase of the development cost
2) 20% increase of the development cost

The EIRR of the base case shows 12.2% that exceeds the opportunity cost of capital at 10% in Table E.9.4. Sensitivity analyses on the development cost are also exceeding 10%. Accordingly, the project is judged to be viable.

Table E.9.4 Result of the Economic Analysis

Items	**EIRR**	NPV
1. Base Case	**12.2%**	31.1
2. Sensitivity Analysis		
1) 10% increase of Dev. Cost	**11.8%**	25.3
2) 20% increase of Dev. Cost	**11.3%**	19.5

Note: NPV = Net Present Value discounted by 10% (unit: US$ million)
Source: JICA Study Team

10. ENVIRONMENTAL AND SOCIAL CONSIDERATION

10.1 LEGAL PROCESSES OF ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

Zambian Laws and Regulations relating to Strategic Environmental Assessment (SEA) and Environmental Impact Statement (EIS), and JICA Guidelines for Environmental and Social Considerations that will be applied in this study are described in this Chapter.

Environmental Council of Zambia (ECZ) requires a Strategic Environmental Assessment (SEA) in the M/P and an Environmental Impact Statement (EIS) in each phase for this project. For each facility which will move in LS-MFEZ, a procedure of Environmental Impact Assessment (EIA) will be required based on impacts which the facility will induce.

The LS-MFEZ area is located in the area extending outside of Lusaka City. LS-MFEZ Project is categorized as "A" in JICA Guidelines for Environmental and Social Considerations. Category A is considered to be significant adverse impacts. The reasons are as follows:

(1) The LS-MFEZ area is a groundwater recharge area for its surrounding areas.

(2) The LS-MFEZ area will be developed as a Special Economic Zone on the large scale, and it is estimated that the land, surface water and groundwater around the area will be contaminated.

(3) People who illegally cultivate maize in the LS-MFEZ area will be socio-economically affected.

10.2 ALTERNATIVES FOR LOCATION

Four satellite towns; namely North Core, West Core, South Core, and South-East Core including the LS-MFEZ area are selected as alternative sites of LS-MFEZ from the five satellite towns in Great Lusaka City formulated in the study on Comprehensive Urban Development Plan for the City of Lusaka. Remaining one satellite town, East Core, will be used as the Chinese MFEZ and air cargo.

The LS-MFEZ area is chosen as the area for the M/P from the following points of view:

(1) The GRZ shows the plan which will change the industry into a diversified structure from monoculture as soon as possible. The LS-MFEZ is the land controlled by the government. Therefore, the land acquisition is much less difficult than those of other Candidate Sites which are utilized privately from the view point of time and cost, and the LS-MFEZ area is suitable for a LS-MFEZ led by the government.

(2) Since the LS-MFEZ area is a larger land than other Candidate Sites, it is suitable for a LS-MFEZ including various functions, especially Common Service Facility Zone (CSFZ) managed by Public Sectors.

(3) Since there are various populous settlements whose average income levels differ around the LS-MFEZ area, it is possible to obtain various types of labour force if vocational training is added as a programme.

(4) For the wastewater treatment and drainage of storm water, the LS-MFEZ area can prepare land more enough than other Candidate Sites to select one from a variety of methods.

10.3 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN THE BEGINNING OF THE SECOND FIELD STAGE

Basic principles for environmental and social considerations in the preparation stage of the M/P are summarised:

(1) Since the bedrock is dolomite (carbonate rock) in LS-MFEZ area, response to problems on the stability of the ground such as uneven subsidence and on the water permeability is clarified.

(2) Since the LS-MFEZ area is the recharge area of groundwater for Lusaka City, water supply, water use, sewerage system, wastewater treatment and disposal of treated wastewater are clarified.

(3) Since the LS-MFEZ area is a degazetted forest reserve, preservation and use of residual forest resources are clarified.

(4) If illegal farmers who utilize LS-MFEZ area are removed from LS-MFEZ, support methods for maintaining a life level of an affected illegal farmer are clarified.

10.4 ALTERNATIVES FOR CONCEPTUAL PLAN

There are two conceptual plans, one of which is developed by the JICA study team and the other is developed by KTPC. These two conceptual plans and the case without the LS-MFEZ Project are compared.

KTPC revised the conceptual plan and the following points were corrected:

(1) On the boundary with the Lusaka Park, the east side will be used as Miombo woodland and open space instead of a housing zone and a general industrial zone.

(2) On the boundary with the Lusaka Park, the west side will be used as a high-tech industrial zone instead of general industrial zone.

(3) Although there is correction that reflected topographical feature partially, geographical feature is not reflected in the plan as a whole.

(4) Connection with external roads is corrected.

10.5 LEGAL FRAMEWORK

Laws and regulations of Zambia and guidelines of donors on environment relating to this project are listed below:

(1) Environmental Laws in Zambia

Natural Resources Conservation Act, Forest Act, The local government Act, Land Act, Land Acquisition Act, Pollution Control Regulations, etc.

(2) Regulations and Guidelines of Donors

JICA for Environmental and Social Considerations, World Bank Operational Policies Involuntary Resettlement, WHO Guideline for Drinking Water, Restrictions on Permeation of Specified Percolated Water in Japan, etc .

10.6 PRINCIPLES OF LOCAL EXPERT TEAM ON SOCIAL ENVIRONMENTAL ISSUES

Principles of LET are shown below:

(1) A local stakeholder meeting with residents in Mahopo village and residents and seasonal farmers in the Lusaka South Forest Reserve No.26 (before October 2007) including LS-MFEZ area was held in Mahopo village on 11th December in 2008 by LET.

(2) LET is preparing the lists of Mahopo residents and residents and seasonal farmers in the Lusaka South Forest Reserve No.26 (before October 2007). LET is classifying the illegal farmers into the following three groups and will set the support programme to each group:

   a. Mahopo residents: a place of residence and a job will be offered as support.

   b. Poor illegal farmers who farm in the Lusaka South Forest Reserve No.26 (before October 2007): a job will be offered as support.

   c. Rich employers of seasonal illegal farmers: no support.

(3) Local stakeholder meetings with residents of the Shantumbu villages, with Chalimbana River Conservation Committee and with people in the smallholding area will be held. A stakeholder meeting with all the stakeholders would be held.

(4) MTENR will deal with the seasonal cultivators until at the time when the LS-MFEZ area is officially handed over to MCTI. At the moment, it is prohibited in the area, therefore, that the

seasonal cultivators are illegally undertaking farming activities. In this regard, the seasonal cultivators will be evicted in accordance with the laws of Zambia.

(5) Regular patrols would undertaken by the Forest Department in conjunction with the Zambia Police to prevent illegal seasonal cultivators from having access to the LS-MFEZ area; and

(6) To consolidate the above action, MCTI will have the LS-MFEZ area fenced.

10.7 MITIGATION MEASURES FOR THE MASTER PLAN

Mitigation measures are prepared, focusing on a role of recharge area of groundwater for Lusaka City.

(1) Water will be supplied from the outside of LS-MFEZ. The impacts will be observed with an observation well network. Based on the results, the environmental management function will correspond to the impacts with the Department of Water Affairs (DWA).

(2) A facility in which toxic substances will be used or generated cannot move into LS-MFEZ area in principle. If such a facility will be permitted in LS-MFEZ area, the industrial wastewater of the facility will be separately treated in a closed system of the facility.

(3) The wastewater treatment system of LS-MFEZ consists of a wastewater treatment plant with the stability pond methods and a soil based treatment facility with slow rate infiltration system. The final treated wastewater will be supplied to Miombo woodland and the green area of factories and research institutions in LS-MFEZ and to the Lusaka Park and will be infiltrated in the wide area.

(4) Since the base rock in LS-MFEZ area is made of carbonate rocks, it is possible that channels of groundwater may be changed. So it is necessary to make storm water dispersedly permeate into soil.

(5) The facility asks a permitted contractor in order to treat and to dispose the hazardous wastes. Hazardous wastes that cannot be treated and disposed by a permitted contractor shall be kept in a hazardous waste storage place installed in the CSFZ.

JST recommends to the Local Expert Team (LET) the following mitigation measures for the displacement of the illegal farmers from LS-MFEZ area:

(1) An action plan for supporting the affected people shall be prepared.

(2) Local stakeholder meetings with the illegal farmers shall be continuously carried out in order to determine the details of action plan for supporting the affected people.

(3) LET has explained that there are 15 to 20 families who live in the LS-MFEZ area during all the year round. They are categorized in the poor seasonal illegal farmers and also shall be supported on the residence.

(4) The list of each group shall be checked for no omission.

(5) A sector treating the opinions and complaint of those who are affected will be prepared.

(6) A sector monitoring and revising the supporting programme will be prepared.

10.8 ENVIRONMENTAL MONITORING PROGRAMME INCLUDING OPERATION PROCEDURES OF ENVIRONMENTAL MANAGEMENT FACILITIES

Environmental monitoring programme are prepared, focusing on a role of recharge area of groundwater for Lusaka City.

The management function of LS-MFEZ will update the list of the affected persons and grasp their present condition, offer jobs and suitable vocational training and enable them to live independently.

10.9 ENVIRONMENTAL MANAGEMENT PLAN

The environmental management function that will manage the environment of the LS-MFEZ area will carry out the following activities:

(3) Planning the environmental monitoring programme for groundwater, surface water including storm water, air, soil and noise collaborated with ECZ and DWA.

(4) Putting monitoring results in data bases

(5) Deciding and carrying out the environmental management plan on natural environment, water supply, treatment of wastewater, drainage, wastes, air and noise in the LS-MFEZ area.

(6) Deciding and carrying out environmental guidelines in cooperation with ECZ.

(7) Examining the environmental management plan of the facility which wants to move into LS-MFEZ area.

10.10 PREPARATION OF STRATEGIC ENVIRONMENTAL ASSESSMENT (SEA)

SEA shall be prepared in the following procedures:

a. LET shall include the following items in SEA:
   a1. A plan reflecting topographical and geological conditions (the topographical map and the geological map of LS-MFEZ have not been made completely by LET)
   a2. An action plan for the displacement of illegal farmers and for support toward affected people
   a3. Meeting memo and conclusions of the stakeholder meetings
b. LET shall prepare a draft of SEA based on the Master Plan.

10.11 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS IN FINAL REPORT PREPARED BY KTPC

There is no specialist who takes care of the environmental and social considerations in the KTPC study team. Therefore, JST's environmental specialist prepared the Chapter of the Environmental and Social Considerations for KTPC and it shall be inserted in the Final Report of KTPC.

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 GENERAL

JICA Study Team for "the Study on Master Plan of Lusaka South Multi-facility Economic Zone" is a supporting team for construct Master Plan and Feasibility Study coordinated with Kulim Technology Park Corporation (KTPC).

However due to the difference contract base and the coordination work between Zambia and Malaysia, we also construct our JST master plan and cost estimation coordinate with local expert team for the detailed exchange of the design data.

JST is expecting to construct an international standard of Lusaka South Multi-facility Economic Zone, so JST compile conclusion and recommendation upon our best practice hereinafter:

11.2 CONCLUSIONS

(1) Construction Site

The LS-MFEZ site which is located between Lusaka City centre and Lusaka Park, was selected for MFEZ site from a comprehensive viewpoint, such as the land ownership, land size and geographical condition, and so on.

(2) Target Industry for Enticement

JST selected several target industries from the view point of water consumption, value added of manufactured goods considering the result of Industrial Demand Survey in trial.

(3) Function of LS-MFEZ

The LS-MFEZ should be introduce five main functional zones, namely General Industrial Zone, Common Service Facility Zone, Central Business District, High-Tech Park Zone and Housing Zone.

(4) Access Road Network

Four main access roads are considering which are shown in below.

1) Moshi-O-Tunya Extent ion Road (connect to the Lusaka City centre),
2) West Industrial Road or West Outer Ring Road, (connect with the Kafue Road to Zimbabwe, South Africa, DR Congo and Tanzania),
3) Chifwema Road (connect to the Leopard Hill Road)
4) North Industrial Road or Outer Ring Road (connect with the Great East Road to Malawi, Mozambique and Tanzania).

(5) Water Resources for First Phase

The Lusaka Park has a good and enough groundwater in their site, so the site was selected to construct the production wells for LS-MFEZ.

(6) Wastewater Treatment System

The LS-MFEZ wastewater treatment plant is introducing stabilization pond system with its huge land.

(7) Wastewater Management

From the environmental viewpoint, industrial wastewater must be treated within the level of WHO's Drinking Water Guideline on toxic substance before discharge to the public sewerage system.

(8) Drainage System

All drainage must be connected to the infiltration pond in LS-MFEZ, because Lusaka City could not accept discharge rain water for its shortage of the drainage system capacity.

(9) Power and Telecommunication System

Power line will be extended from Woodland Sub-station. On the other hand, telecommunication line will be connected with Chalala Switching Station.

(10) Financial Aspects

Based on the initial consideration, FIRR and EIRR were calculated 6.10% and 12.2% respectively.

(11) Items should be included into the LS-MFEZ Regulation for Tenant from a viewpoint of Environmental Aspects

The following items shall be added into the LS-MFEZ regulation of facilities.

1) A facility where small amount of water will be used will be permitted to move into the LS-MFEZ.
2) As a principle, a facility where toxic substances will be used will not be permitted to move into the LS-MFEZ. However, if the facility itself will have an acceptable recycling system for water and materials, it can be introduced into the LS-MFEZ.
3) Discharge from a facility where toxic substances will be used cannot connect to the public sewer system of the LS-MFEZ.

4) Wastewater of a facility where toxic substances will not be used should fulfil the proposed wastewater discharge standard to sewers of the LS-MFEZ.
5) Water supply is completed in the LS-MFEZ area, so the tenants cannot install the self pumping station.

(12) Environmental Monitoring for Environmental Management

- Environmental monitoring will be carried out are shown in Table E.11.1.

(13) System for Making Tenants Keep Environmental Standards in Zambia and Additional Standards in the LS-MFEZ

The following measures for making tenants keep environmental standards in Zambia and additional standards in the LS-MFEZ should be carried out and a corresponding legal system should be established:

1) Verification of meeting all the required standards for the investment application procedure with the EIA;
2) Verification of meeting all the monitoring standards during the tenants' operation;
3) Implementation of the supporting programme for the improvement of operation system with the environmental management support function in order to meet all the standards.
4) Penalty, levy, or shutdown of utility supply at the time of violation of standards;

(14) REVIEWING THE PLAN

M/P should be reviewed and reconsidered every few years according to the investment demand, social situation, and issues of environmental impact.

Table E.11.1 Recommended Monitoring Program

Target	Observation Point	Analysis Item	Interval (timing)	Purpose (Organization in charge)
Groundwater	Observation wells selected by DWA	Water level Water quality	Daily for one well for each drainage basin Monthly for others	Groundwater Balance (*3 DWA with ECZ LCC and LS-MFEZ-MC)
		Water quality	4 times a year	Groundwater Contamination (DWA with ECZ, LCC and LS-MFEZ MC)
	Observation well*1	Water quality	4 times a year	Groundwater Contamination (LS-MFEZ MC with ECZ)
Wastewater	Intake of the Stabilization Pond System	Wastewater Quality	Daily for parameters in Table 10.7.1	System Operation (LS-MFEZ MC with ECZ)
			Weekly for parameters in Table N.1	System Operation (LS-MFEZ MC with ECZ)
	Outlet of Tennant	Wastewater Quality	Once a year	Declaration and approval (LS-MFEZ MC with ECZ)
			Accordingly	Inspection (LS-MFEZ MC with ECZ)
	Outlet of the Stabilization Pond System	Wastewater Quality	Daily for parameters in Table 10.7.1	Management of Stabilization Pond and Soil-based treatment facility (LS-MFEZ MC with ECZ)
	Outlet of Soil-based Treatment Facility	Sprinkler water quality	Daily for parameters in Table 10.7.1 Weekly for parameters in Table N.1	Management of Sprinkler water and soil-based treatment facility (LS-MFEZ MC with ECZ)
Storm water	Infiltration ponds	Water quality	At a heavy rain	Management of non-point pollution (LS-MFEZ MC with ECZ)
Soil	Stabilization Pond	Soil quality	At a heavy rain	Management of non-point pollution (LS-MFEZ MC with ECZ)
	Yard of the Tenant	Soil quality	Once a year	Management of non-point pollution (LS-MFEZ MC with ECZ)
Air	Stack	Air quality of emission	Once a year	Management of air pollution (LS-MFEZ MC with ECZ)
	Border of lot*2	Air quality	Once a year	Management of air pollution (LS-MFEZ MC with ECZ)
	One place in each zone	Air quality	Two times (once a dry season and once a rainy season) a year	Management of air pollution (LS-MFEZ MC with ECZ)
Noise	Border of lot	Noise level (dB)	Once a year	Management of noise (LS-MFEZ MC with ECZ)
	One place in each zone	Noise level (dB)	Once a year	Management of noise (LS-MFEZ MC with ECZ)

*1 The monitoring wells will be placed around facilities where toxic substances are used and wastewater treatment plant.
*2 This monitoring will be carried out in lots with facilities which has stack and/or in which toxic subatances are used.
*3 DWA: Department of Water Affairs, ECZ: Environmental Council of Zambia,
LCC: Lusaka City Council LS-MFEZ-MC: LS-MFEZ Management Corporation
Source: JICA Study Team

-

11.3 RECOMMENDATIONS

During the establishment of the concept plan and master plan, JST considered the basic conditions for the LS-MFEZ.

11.3.1 TRANSPORTATION

(1) International Access

International direct flights are the key point for inviting Foreign Direct Investments (FDI). The Government of the Republic of Zambia (GRZ) should negotiate with international airline for direct flight carriers to Lusaka.

(2) International Road Network

- Construction of wide paved carriageways met with international and/or African standards, at least 3.0 m + 3.0 m = 6.0 m for safer driving
- Reduction of police check-points along international roads for smooth cargo transportation
- Adaptation of weighing facilities to be used for trucks at outskirts of major cities only
- Application of divided lanes at checking-points for passenger cars and trucks
- Provision of milestones

(3) International Railway Network

- Strengthening of management system both RSZ and TAZARA railways
- Additional locomotives and goods wagons/vans for up-grading international standards of cargo transportation
- Improvement of direct cargo transportation connections between TAZARA (Dar Es Salaam-Kapiri Mposhi) and Zambia Railway (Kapiri Mposhi-Lusaka)

(4) City Road System

- Maintenance for the road pavements in existing industrial zones for good impression to the tenant investors.
- Keeping a clean environment for existing industrial zones for maintaining good impressions with tenants or investors
- Maintenance of the pavement for small roads in nearby towns for maintaining the tenants' impressions and amenities

11.3.2 INDUSTRY

(1) Investment Related Agency

- Provision of easy access to investment related agencies, namely MCTI, ZDA, etc.
- Provision of One Stop Service Centres as international standards for investors and tenants
- Concentration of public industrial service agencies, all in one area (CSFZ), especially for the small and medium scale industries

- Provide the related documents such as brochures, pamphlets and application forms

(2) Improve Industrial Power

- Improvement of the entrepreneurial knowledge and intelligence for industries
- Improvement of the production of technical skills in the factories
- Establishment of vocational and technical training centres

(3) Provide Database and Supply Data

- Provision of libraries and internet libraries
- Provision of exhibition centres for introducing new technologies, products and presenting the existing products of tenants
- Information services for tenants namely, raw materials, labour force, production technology, production machinery, logistics, markets, new products, etc.

(4) Up-grading of Utilities

- Information for introducing the utilities' conditions to the investors and tenants
- Providing steady electricity supply step by step
- Providing industrial water for industries and citizens
- Up-grading internet technology

11.3.3 LIVING CONDITIONS

(1) Provide Good Amenity

- Improvement of living environments such as security, safe, infrastructure etc.
- Aiming for an affordable international living cost in town
- Establishment of city hotels and accommodations with reasonable prices
- Provision of international schools, shopping centres and restaurants, Concert halls, Museums, Hospitals, Churches and Mosques, Fire stations, Police departments / stations, etc.

(2) Provide Good Environment

- New regulation for green covered ratio in each of the functional areas
- Reforestation of typical Miombo Forests
- Creation of green belts along main roads and collector roads by typical trees (ex. red flamboyant, yellow Acacia, purple Jacaranda, white Namamina, etc)
- Provision of citizen parks, Pedestrian walks, Bicycle roads, etc.

(3) Children Amenities

- Provision of schools, day nurseries, libraries, etc.
- Provision of ausement parks, science parks, aquariums, zoos (Lusaka Park), cinemas, etc.

11.3.4 REVIEW OF THE WATER SUPPLY AND WASTE WATER DISCHARGE SYSTEM

(1) Water Supply System

Groundwater and river water are the source of city water for the Lusaka City. In the initial stage of this study, river water was considered for the water resources. One is Chalimbana River in north-east area and the other is Kanyanja River in the south.

On the other hand, result of the hydrological survey in Lusaka Park shows good enough for groundwater resources for LS-MFEZ. In addition, groundwater in the Lusaka Park is separated from groundwater in the LS-MFEZ by the geological characteristic. Therefore, JST recommended that groundwater in the Lusaka Park is useful as water resources for first phase of the LS-MFEZ development.

(2) Waste Water Management

Nearest river which suitable for waste water discharge is located more than 20km from the LS-MFEZ. Since the LS-MFEZ is in the hilly area, pumping system is required for discharging wastewater. Based on this information, JST selected an on-site discharge system for treated water.

(3) Further Recommendation for Water Resources and Sewerage System

At the F/S stage with EIA process, it is recommendable that the alternatives should be studies in detail.

11.3.5 FUTURE FINANCIAL CONSIDERATION

FIRR 6.10% is calculated by using 2.5 US$/m^2/year of land lease cost and 30% of paid-up capital. Land lease cost of 2.5 US$/m^2/year is quite expensive compare with the cost of South Africa (Table 9.2.1). It should be lower than the cost of South Africa. So, engineering design and development phasing should be reconsidered for meet with viability of this LS-MFEZ project.

11.4 PRE-CONDITIONS OF IMPLEMENTATION OF THE LS-MFEZ PROJECT

The LS-MFEZ is a one of a kind international and/or world class Special Economic Zone, so international organizations, including international donor governments and/or international non-governmental organizations are closely watching this project.

Moreover, the conditions of the LS-MFEZ are the huge developments with 2,100ha land, water resources and natural environment for Lusaka citizens. So, the access road alignments to the LS-MFEZ must be designed at the first stage and the land for access road construction must be obtained.

Theses preconditions or arrangements have to be provided before implementation of the LS-MFEZ.

(1) The SEA for the M/P and EIA for the F/S shall be carried out under the governmental designation and governmental law and also JICA Category-A.

- Stakeholder Meeting
- Social survey for illegal farmer
- Prepare a resettlement action plan for illegal farmer
- SEA for the Master Plan
- Establishment of the pollution monitoring network and base line survey
- EIA for the Feasibility Study

- Enhancement of the Laboratory

(2) The LS-MFEZ is located in the Kafue District and very close to Lusaka City while as the centre of Kafue is far from Lusaka. The LS-MFEZ must be coordinate under Lusaka City.

- The LS-MFEZ shall include the greater Lusaka enhancement administration boundary
- The LS-MFEZ shall be managed under the Central Government and the Lusaka City Council
- The LS-MFEZ shall be establish several management bodies

(3) Land acquisition for the main access roads is the first priority of preconditions.

- Expansion of Moshi-O-Tunya Road by ZESCO,
- Extension of Moshi-O-Tunya Road,
- West Industrial Road or West Outer Ring Road,
- Expansion of Chifwema Road and
- North Industrial Road or North Outer Ring Road.

(4) Water usage of this area is very sensitive issue because of the LS-MFEZ is located in upstream of the Lusaka City. These subjects should be carried out before construction.

- Build consensus between MTENR and Developer (MCTI) about construction of production wells in Lusaka Park for first phase of 3,000 m^3/day,
- Establishment of the monitoring network of groundwater level and quality under the initiative of the DWA,
- Pilot plant construction of waste water treatment plant to consider final design of the treatment method and scale,
- Set up new WMD for LS-MFEZ solid waste management based on the consideration with LCC,
- Various types of the regulation for discharge;
  - > Discharge regulation for industrial waste water
  - > Discharge regulation for treated water spray to the ground

- Definition of the Specified Facility using hazardous / harmful substances which is not able to install in LS-MFEZ if the company itself can't treat waste water to the acceptable level for public sewerage treatment system.

(5) Legal and Regulatory shown in below is necessary to prepare.

- Establishment of the Committee for preparation of LS-MFEZ Act./Order and LS-MFEZ Development Plan.
- LS-MFEZ Act and Order
- Preparation of Legal and Regulatory Framework
- Modification and arrangement of investment Incentives
- Construct of Guideline on Area Development Agreement and Building Standards

(6) Organizations

- MFEZ Board
  - > LS-MFEZ Administration (one stop service centre)
- LS-MFEZ Development Corporation (Public Enterprise)
  - > Development of infrastructure in the LS-MFEZ site
- LS-MFEZ Management Company
  - > Operation (Marketing)
  - > Development
  - > Conservancy Service
  - > Mass Transit / Commuter System

(7) Selection of CSF

- Provision of university, vocational training centre, research institute, science park, exhibition hall, etc.

Estimated implementation schedule is shown in Table below. According to the table, it will take at least two years for precondition preparation including F/S, EIA, Establishment of the LS-MFEZ Board and Managing Company, set up legal and regulations, initial training, land acquisition, budgeting, construction and marketing.

Table E.11.1 Implementation Schedule

Item		2009												2010												2011												2012											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Review and Approval of M/P by the Zambian Cabinet					●																																										
Conduct Detailed Feasibility Study and Approval by the Zambian Cabinet						●							●																																		
Budgeting of International Fund	Preparation of Apprication of International Loan																																														
	Apprizal by International Bank																																														
Envilonmental and Social Consideration	Stakeholder Meeting																																													
	Social Survey for Illegal Famers																																													
	Prepare a Resettlement Action Plan																																													
	SEA for Master Plan																																													
	Establish of the Pollution Monitoring Network																																													
	EIA for the Feasibility Study																																													
	Enhancement of the Laboratory (Private or Government)																																													
Groundwater Development, Water Usage and Solid Waste Management	Agreement between MTENR & MCTI about Well Construction																																													
	Water Quality Reguration for Treated Water																																													
	Definition of the Specified Facility																																													
	Pilot Plant Construction of Wastewater Treatment Plant																																													
	Establish of the Groundwater Monitoring Network																																													
	Set up New Waste Management District for LS-MFEZ																																													
Leagal Framework	Establishment of the LS-MFEZ Committee																																													
	LS-MFEZ Act. And Order																																													
	Regulations（LS-MFEZ, Land use, Building Agreement, Discharge water, etc)																																													
	Preparation of Special Investment Incentives for LS-MFEZ																																													
Administration	Hand over the Legal Status of Land Ownership																																													
	MTENR → MCTI → Development Corporation																																													
	Legal Status of the Land of Power Supply Lines (ZESCO)																																													
	Legal Status of Main Roads (RDA/LA)																																													
	Management of Water Supply and Wastewater (ZAWA)																																													
	Consideration of the District Boundary between Kafue and Lusaka																																													
Organaization	Establishment of the LS-MFEZ Borad																																													
	Statutory Instrument																																													
	LS-MFEZ Board Establishment																																													
	One-Stop Service																																													
	Initial Training																																													
	Establishment of the LS-MFEZ Development Corporation (Public Enterprise)																																													
	Establishment of the LS-MFEZ Management Company																																													
	Statutory Instrument																																													
	Budgetting																																													
	Office Set-up																																													
	Assignment of the Key Stuff, Work Plan, Budget Plan																																													
	Initial Training																																													
	Capacity Building																																													
Land Acquisition	Expansion of Moshi-O-Tunya Road																																													
	Extension of Moshi-O-Tunya Road																																													
	West Industrial Road or West Outer Ring Road																																													
	Expansion of Chifwema Road																																													
	North Industrial Road or Outer Ring Road.																																													
Construction	Budgeting (Governmental)																																													
	Tender preparation (including approval by the GRZ)																																													
	Contract (Outer Ring Road, Inner Trunk Road and Utilities)																																													
	Construction (Outer Ring Road, Inner Trunk Road and Utilities)																																													
Marketing	Promotion of Zambia & LS-MFEZ																																													
	Starting of Marketing																																													
	Inducement of Tenant Investors																																													

CHAPTER 1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Since independence in 1964, the Republic of Zambia has had a mono-cultural economic structure which has mainly relied on copper with the nation's economy significantly being affected by the fluctuation of international copper prices. In recent years, with the rise in metal prices like copper, the economy has become buoyant and has recorded some success. In order to reduce the risk of a mono-cultural economy, the Government of Republic of Zambia (GRZ) embarked on a diversification programme in the early 1990s aimed at economic growth and poverty eradication.

For this purpose, the President of the Republic of Zambia appointed a Task Force (TF) for the development of 12 identified public and private sectors (education, health and welfare, agriculture, cotton, tourism, information communications, development of small- and midium-scale enterprises (SMEs), air cargo hub construction, development of more efficient administrative procedures, mining, and financial service) to promote and develop the investment environment in Zambia based on the framework of South-South Cooperation of Japan and Malaysia (Triangle of Hope (ToH)). Under the TF, the political will to address concrete problems in various fields has been accomplished.

The TF has recommended the establishment of the Lusaka South Multi-Facility Economic Zone (LS-MFEZ) as an important industrial development initiative which aims at diversifying the domestic industry and attraction of foreign direct investment (FDI). Based on this recommendation, the GRZ requested the Government of Japan (GOJ) to assist in carrying out a study for the LS-MFEZ development.

The Study will result in a Master Plan being developed on the basis of the Kulim Hi-Tech Park (KHTP) of Malaysia being a successful case and to propose it for the GRZ through assistance of Kulim Technology Park Corporation (KTPC) and JICA Study Team (JST).

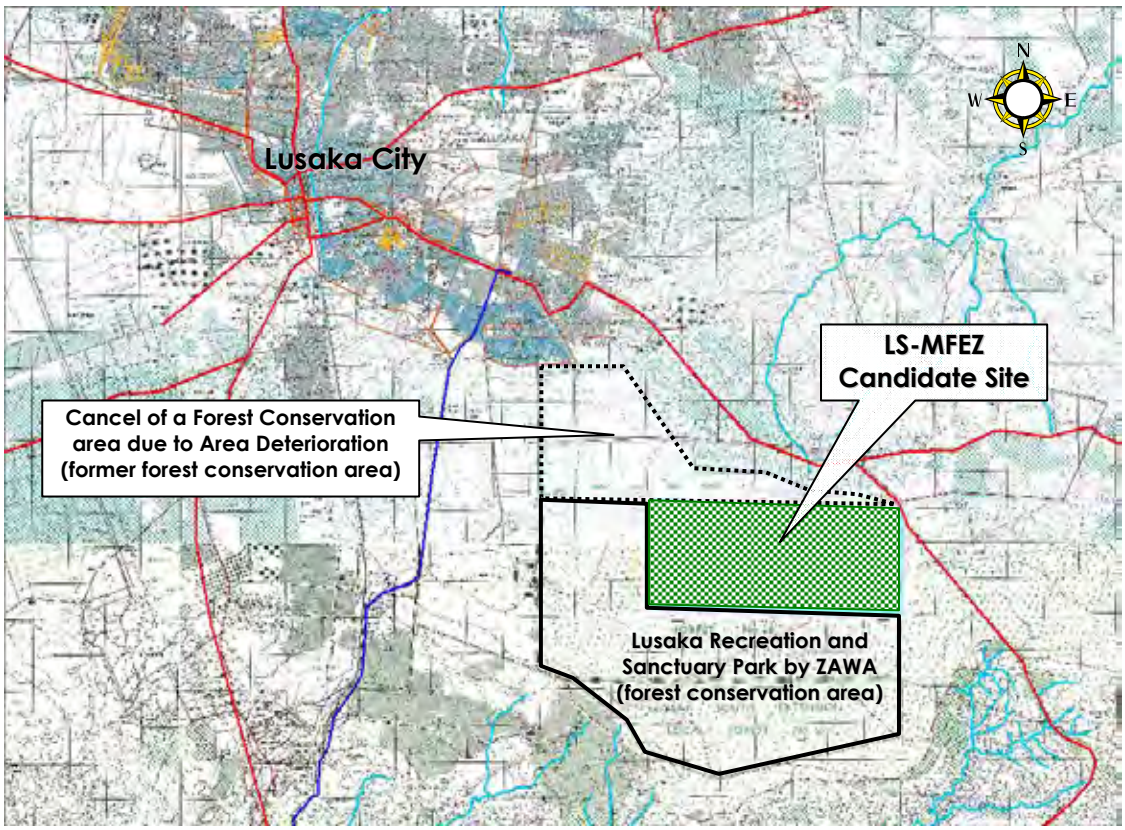
1.2 OBJECTIVES OF THE STUDY

The objectives of the Study are:

1. To formulate the Master Plan (M/P) for establishing the LS-MFEZ in Lusaka City;
2. To establish a Phasing Plan on M/P, and
3. To support a Feasibility Study (F/S) of the first phase for development of the LS-MFEZ by Kulim Technology Park Corporation SDN BHD (KTPC).

1.3 STUDY AREA

The study will cover the proposed LS-MFEZ site in southern part of Lusaka City and other related areas. The proposed site is shown in Figure 1.3.1.



Source: JICA Study Team

Figure 1.3.1 The Candidate Site of the LS-MFEZ

CHAPTER 2 ANALYSIS OF MACRO ECONOMY IN ZAMBIA

2.1 OVERVIEW

In the past, resource-rich countries in Africa focused on economic growth based on the resource development in association with enhancement of foreign direct investment (FDI) and progress of financial reform under International Monetary Fund (IMF) and World Bank (WB) administration.

These countries have encouraged investment based on establishment of development policy and legal system for the resource development sector. In addition, foreign investors from developed countries have accelerated resource development investment as a new frontier on the back of soaring oil and metal prices in international markets.

Zambia has traditionally been famous for copper production; however the production volume peaked in 1969 and the output of copper production was reduced to one third (249,000 ton/year) comparing the peak in 1969 at present time.

In the early 21st Century, the Government of Republic of Zambia (GRZ) has initiated some important new economic policies. The privatization in 2000 was one of the important new policies that have promoted economic activities, and the profitability of copper companies recovered from their money-losing condition.

In addition the reactivation of copper industry has triggered an upturn in the whole Zambian economy.

Since 2004, the copper output in Zambia is increasing steadily boosted by the high level of copper prices in the international market. The economic growth rate has kept at around 5% annually based on the copper boom in recent years.

2.2 GENERAL

2.2.1 POPULATION

According to population census in 2000 conducted by the Central Statistics Office, the population in Zambia was over 10 million. The growth rate of population is over 2%; after 2000, the growth rate gradually declined. The growth rate of population is forecast to be 1.1% in 2030.

Meanwhile, according to the United Nations (UN), the Zambian population is forecasted to exceed 15 million in 2030.

According to the UN statistics, ratio of urban-rural population was 39.8 versus 60.1 in 1980. Although urban population declined until 2005, it is forecast to exceed rural population by 2030.

The urbanization trend is towards industrial and commercial population; consequently a policy issue is to ensure future employment in the urban area.

Table 2.2.1 Population, Past and Forecast

(Unit: 1,000)

Item	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
Urban	2,380	2,788	3,231	3,492	3,660	4,031	4,526	5,169	5,902	6,719	7,638
Rural	3,598	4,243	4,968	5,879	6,760	7,013	7,242	7,500	7,656	7,681	7,586
Total	5,978	7,031	8,199	9,371	10,420	11,044	11,768	12,669	13,558	14,400	15,224

Footnote: The data after 2005 in above table are projected by United Nations
Source: UN database

Table 2.2.2 Split between Urban and Rural Population

(Unit: %)

Item	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
Urban	39.8	39.7	39.4	37.3	35.1	36.5	38.5	40.8	43.5	46.7	50.2
Rural	60.2	60.3	60.6	62.7	64.9	63.5	61.5	59.2	56.5	53.3	49.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Footnote: The data after 2005 in above table are projected by United Nations
Source: UN database

Table 2.2.3 Population Growth Rate per Year

(Unit: %)

Item	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030
Urban	-	3.2	3.0	1.6	0.9	1.9	2.3	2.7	2.7	2.6	2.6
Rural	-	3.4	3.2	3.4	2.8	0.7	0.6	0.7	0.4	0.1	-0.2
Total	-	3.3	3.1	2.7	2.1	1.2	1.3	1.5	1.4	1.2	1.1

Footnote: The data after 2005 in above table are projected by United Nations
Source: UN database

Table 2.2.4 Number of Households by Stratum in 2006

Item		Number of households (Unit: 1,000)		Share (%)	
Rural	Small Scale Households	1,344	1,476	59.2%	65.0%
	Medium Scale Households	36		1.6%	
	Large Scale Households	1		0.0%	
	Non-agricultural Households	95		4.2%	
Urban	Low Income Households	645	794	28.4%	35.0%
	Medium Income Households	85		3.7%	
	High Income Households	64		2.8%	
Total			2,270		100.0%

Source: Ministry of Finance

Table 2.2.5 Population Split between Rural and Urban in 2004

Item		Number of People (Unit: 1,000)		Share (%)	
Rural	Small Scale Farms	5,958	6,619	54.6%	60.7%
	Medium Scale Farms	330		3.0%	
	Large Scale Farms	27		0.2%	
	Non-farm Households	304		2.8%	
Urban			4,292		39.3%
Total Population			10,911		100.0%

Source: Ministry of Finance

2.2.2 CURRENT ECONOMY

(1) GDP

According to time-series data of current Gross Domestic Product (GDP) in Zambia, the average annual rate of GDP from 2000 through 2007 was 5.1% as shown in Table 2.2.7. The average annual growth rate of the primary industry was 3.5%, secondary industry was 8.9%, and tertiary industry was 5.3%. The highest average annual growth rate was in construction, 17.0%.

Agricultural remained stagnant at around 1.2% due to poor weather conditions, poor market-access from the lack of transportation infrastructure, unstable international markets.

Stability in Zambian economy growth in recent years is related to soaring raw material prices in international markets due to economic boom condition in China and India requiring many raw materials for industrial activities, meanwhile the privatization of copper industry in Zambia that also promoted economic growth in Zambia.

In 2007, the mining industry output including copper declined due to the replacement of production facilities, labour disturbance, and so on.

Table 2.2.6 GDP at Constant Price in 1994

(Unit: billion ZMK)

Sector	2000	2001	2002	2003	2004	2005	2006	2007
Agricultures, Forestry and Fishing	429.8	418.9	411.7	432.4	450.9	448.4	458.2	467.0
Mining and Quarrying	160.4	182.9	212.9	220.2	250.9	270.7	290.7	284.3
Primary Sector Total	590.2	601.8	624.6	652.6	701.8	719.1	748.9	751.3
Manufacturing	262.6	273.7	289.4	311.5	326.0	335.3	354.5	372.2
Electricity, Gas and Water	72.9	82.1	77.8	78.1	76.8	81.0	89.5	90.4
Construction	123.6	137.8	161.8	196.8	237.1	287.3	328.7	369.6
Secondary Sector Total	459.1	493.6	529.0	586.4	639.9	703.6	772.7	832.2
Wholesale and Retail Trade	456.6	481.2	505.4	536.4	563.1	576.7	588.1	610.0
Restaurants, Bars and Hotels	48.2	60.0	62.9	67.2	71.5	79.9	92.8	106.0
Transport, Storage and Communication	157.6	162.1	165.1	173.0	184.1	204.3	249.5	301.4
Financial Institutions and Insurance	205.4	205.6	212.7	220.0	227.7	235.1	244.6	254.6
Real Estate and Business service	238.2	246.6	257.4	267.6	278.2	287.1	296.2	305.7
Community, Social and Personal Services	192.8	204.0	207.3	210.5	211.7	235.8	257.0	290.2
Tertiary Sector Total	1,298.8	1,359.5	1,410.8	1,474.7	1,536.3	1,618.9	1,728.2	1,867.9
(Less: imputed banking service)	121.8	124.9	128.1	131.3	134.6	138.0	141.6	145.1
Total Gross Value Added	2,226.3	2,330.0	2,436.3	2,582.4	2,743.4	2,903.6	3,108.2	3,306.3
(Taxes on Products)	272.4	291.4	271.6	264.1	256.0	252.2	243.5	237.2
GDP	2,498.7	2,621.4	2,707.9	2,846.5	2,999.4	3,155.8	3,351.7	3,543.5

Source: Bank of Zambia

Table 2.2.7 GDP Annual Growth Rate

(Unit: %)

Sector	2001	2002	2003	2004	2005	2006	2007	Avg.
Agricultures, Forestry and Fishing	-2.5	-1.7	5.0	4.3	-0.6	2.2	1.9	**1.2**
Mining and Quarrying	14.0	16.4	3.4	13.9	7.9	7.4	-2.2	8.7
Primary Sector Total	2.0	3.8	4.5	7.5	2.5	4.1	0.3	3.5
Manufacturing	4.2	5.7	7.6	4.7	2.9	5.7	5.0	5.1
Electricity, Gas and Water	12.6	-5.2	0.4	-1.7	5.5	10.5	1.0	3.3
Construction	11.5	17.4	21.6	20.5	21.2	14.4	12.4	**17.0**
Secondary Sector Total	7.5	7.2	10.9	9.1	10.0	9.8	7.7	8.9
Wholesale and Retail Trade	5.4	5.0	6.1	5.0	2.4	2.0	3.7	4.2
Restaurants, Bars and Hotels	24.5	4.8	6.8	6.4	11.7	16.1	14.2	12.1
Transport, Storage and Communication	2.9	1.9	4.8	6.4	11.0	22.1	20.8	10.0
Financial Institutions and Insurance	0.1	3.5	3.4	3.5	3.2	4.0	4.1	3.1
Real Estate and Business service	3.5	4.4	4.0	4.0	3.2	3.2	3.2	3.6
Community, Social and Personal Services	5.8	1.6	1.5	0.6	11.4	9.0	12.9	6.1
Tertiary Sector Total	4.7	3.8	4.5	4.2	5.4	6.8	8.1	5.3
(Less: imputed banking service)	2.5	2.6	2.5	2.5	2.5	2.6	2.5	2.5
Total Gross Value Added	4.7	4.6	6.0	6.2	5.8	7.0	6.4	5.8
Taxes on Products	7.0	-6.8	-2.8	-3.1	-1.5	-3.4	-2.6	-1.9
GDP	4.9	3.3	5.1	5.4	5.2	6.2	5.7	5.1

Source: Bank of Zambia

(2) Industrial Structure

In terms of industrial structure, the share of primary industry is declining, while the share of secondary and tertiary industry is rising. Accordingly the industrial structure in Zambia gradually shifting from agriculture to manufacturing and service industry (refer to Table 2.2.8).

The share of primary industry narrowed 9.8% from 31% in 1995 to 21.2% in 2007. The trend of agriculture and mining industry showed the same tendency.

The share of secondary industry increased 18.3% in 1995 to 23.5% in 2007. Construction industry doubled its share for 5% to 10.4%.

The share of tertiary industry grew 8.2% from 44.5% in 1995 to 52.7% in 2007. The "Wholesale and Retail Trade" industry expanded its share from 13.6% in 1995 to 17.2% in 2007, but the "Financial Institute and Insurance" industry declined.

Table 2.2.8 Industrial Structure

(Unit: %)

Sector	1995		2000		2005	2006	2007
Agricultures, Forestry and Fishing	18.5	-	17.2	-	14.2	13.7	13.2
Mining and Quarrying	12.4	-	6.4	-	8.6	8.7	8.0
Primary Sector Total	31.0	-	23.6	-	22.8	22.3	21.2
Manufacturing	10.0	-	10.5	-	10.6	10.6	10.5
Electricity, Gas and water	3.3	-	2.9	-	2.6	2.7	2.6
Construction	5.0	-	4.9	-	9.1	9.8	10.4
Secondary Sector Total	18.3	-	18.4	-	22.3	23.1	23.5
Wholesale and Retail trade	13.6	-	18.3	-	18.3	17.5	17.2
Restaurants, Bars and Hotels	1.7	-	1.9	-	2.5	2.8	3.0
Transport, Storage and Communication	5.7	-	6.3	-	6.5	7.4	8.5
Financial Institutions and Insurance	10.0	-	8.2	-	7.4	7.3	7.2
Real Estate and Business service	5.3	-	9.5	-	9.1	8.8	8.6
Community, Social and Personal Services	8.1	-	7.7	-	7.5	7.7	8.2
Tertiary Sector Total	44.5	-	52.0	-	51.3	51.6	52.7
(Less: imputed banking service)	5.8	-	4.9	-	4.4	4.2	4.1
Total Gross Value Added	88.0	-	89.1	-	92.0	92.7	93.3
(Taxes on Products)	12.0	-	10.9	-	8.0	7.3	6.7
GDP	100.0	-	100.0	-	100.0	100.0	100.0

Source: Bank of Zambia

(3) Manufacturing Sector

"Food, Beverages and Tobacco" industry in manufacturing sector is the largest sector since its share is more than 2/3 of whole secondary sector and products are exported to neighbouring countries (refer to Table 2.2.9). "Textile and leather" industry is reducing production volume because of substantial import competition from Chinese products in recent years. In fact, the domestic "Textile and leather" industry was devastated from Chinese products.

In addition, the African Growth and Opportunity Act (AGOA), that gives duty exemption for imported goods from African nations, was established in the USA in 2000; since then many Asian textile industries moved into Zambia as well as other African nations, and increased textile exports to USA. However World Trade Organization (WTO) discontinued Multi-Fibber Arrangement (MFA) in 2005 and since then Zambian textile exports are declining.

Textile production reached its peak in 51.3 million Kwacha in 2003 and then gradually declined to 40.5million Kwacha in 2007. The production value declined more than 20% which is equivalent to reduction of 1,500-2,000 workers in the textile industry.

Zambian industrial sector is a very fragile structure because domestic production is subject to the huge influence of foreign favourable treatment; accordingly the domestic employment lacks stability.

Table 2.2.9 Domestic Products of Secondary Sector at Constant Price in 1994

(Unit: billion ZMK)

Sector	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing	262.6	273.7	289.4	311.5	326.0	335.3	354.5	372.2
Food, Beverages and Tobacco	155.7	164.0	172.8	187.7	198.6	205.7	224.0	244.9
Textile and Leather Industries	45.8	46.8	49.7	51.3	50.3	48.9	48.2	40.5
Wood and Wood Products	19.2	20.3	21.9	24.4	25.4	26.3	26.5	27.9
Paper and Paper Products	7.5	7.8	8.0	8.6	8.9	9.8	9.8	9.7
Chemicals, Rubber and Plastic Products	21.9	22.8	25.1	26.4	28.6	29.5	30.9	33.8
Non-metallic Mineral Products	4.6	4.8	4.9	5.6	6.4	6.9	6.5	6.6
Basic Metal Products	1.4	1.2	1.2	1.4	1.4	1.4	1.4	1.4
Fabric Metal Products	6.5	6.0	5.8	6.1	6.4	6.8	7.2	7.4
Electricity, Gas and Water	72.9	82.1	77.8	78.1	76.8	81.0	89.5	90.4
Construction	123.6	137.8	161.8	196.8	237.1	287.3	328.7	369.6
Secondary Sector	459.1	493.6	529.0	586.4	639.9	703.6	772.7	832.2

Source: Bank of Zambia

Manufacturing and construction sector are accounted for 45% and 44% of whole secondary industry in 2007 (refer to Table 2.2.10). Although manufacturing sector is the largest sector in secondary industry, this sector was recorded to decline comparing with 57% in 2000 due to textile and leather industries sub-sector declined by minus 16.0% compared 6.2% in 2002 (refer to Table 2.2.10 & 2.2.11). Construction sector is the second largest sector in secondary industry, this sector showed the most positive growth from 27% share in 2000 (refer to Table 2.2.10), which grew by 10-20% per annum (refer to Table 2.2.11).

Table 2.2.10 Industrial Share in Secondary Industry

(Unit: %)

Sector	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing	57	55	55	53	51	48	46	45
Food, Beverages and Tobacco	34	33	33	32	31	29	29	29
Textile and Leather Industries	10	9	9	9	8	7	6	5
Wood and Wood Products	4	4	4	4	4	4	3	3
Paper and Paper Products	2	2	2	1	1	1	1	1
Chemicals, Rubber and Plastic Products	5	5	5	5	4	4	4	4
Non-metallic Mineral Products	1	1	1	1	1	1	1	1
Basic Metal Products	0	0	0	0	0	0	0	0
Fabric Metal Products	1	1	1	1	1	1	1	1
Electricity, Gas and Water	16	17	15	13	12	12	12	11
Construction	27	28	31	34	37	41	43	44
Secondary Sector	100	100	100	100	100	100	100	100

Source: Bank of Zambia

Table 2.2.11 Growth Rate of Secondary Industry

(Unit: %)

Sector	2000	2001	2002	2003	2004	2005	2006	2007
Manufacturing	-	4.2	5.7	7.6	4.7	2.9	5.7	5.0
Food, Beverages and Tobacco	-	5.3	5.4	8.6	5.8	3.6	8.9	9.3
Textile and leather industries	-	2.2	6.2	3.2	-1.9	-2.8	-1.4	-16.0
Wood and wood products	-	5.7	7.9	11.4	4.1	3.5	0.8	5.3
Paper and paper products	-	4.0	2.6	7.5	3.5	10.1	0.0	-1.0
Chemicals, Rubber and Plastic products	-	4.1	10.1	5.2	8.3	3.1	4.7	9.4
Non-metallic mineral products	-	4.3	2.1	14.3	14.3	7.8	-5.8	1.5
Basic metal products	-	-14.3	0.0	16.7	0.0	0.0	0.0	0.0
Fabric metal products	-	-7.7	-3.3	5.2	4.9	6.3	5.9	2.8
Electricity, Gas and water	-	12.6	-5.2	0.4	-1.7	5.5	10.5	1.0
Construction	-	11.5	17.4	21.6	20.5	21.2	14.4	12.4
Secondary Sector	-	7.5	7.2	10.9	9.1	10.0	9.8	7.7

Source: Bank of Zambia

(4) Labour Force

Workforce in Zambia was around 5 million[1] in 2006. According to statistical data from Central Statistical Office, the formally employed workforce was 479,300 which was equivalent to 9% of Zambian whole workforce population in 2006. The share of public administration was the largest category, 37% (refer to Table 2.2.12).

According to the employment structure including informal employment in 2006 as arranged by Central Statistical Office, 64% of the total workforce was active, and 36% was inactive. 67.1% of active group ware employed, 12% are unpaid family workers, and 9% ware unemployed. According to interviews with civil officials concerned, the employed 67.1% of active group was almost all in personal businesses in poorly-managed companies, and revenue and wage rate was also low level (refer to Table 2.2.13).

Table 2.2.12 Labor in Formal Employment

Sector	2002		2004		2006	
Agriculture, Forestry and Fisheries	43,819	10%	65,136	16%	56,139	12%
Mining and Quarrying	37,245	9%	46,078	11%	26,253	5%
Manufacturing	67,752	16%	45,340	11%	55,709	12%
Electricity and Water	7,316	2%	12,346	3%	12,399	3%
Construction	2,406	1%	5,787	1%	14,343	3%
Transport and Communication	21,566	5%	26,510	6%	19,378	4%
Distribution and Trade	50,812	12%	44,460	11%	65,012	14%
Finance and Insurance	52,727	12%	31,880	8%	54,032	11%
Public Administration	145,763	34%	138,691	33%	176,062	37%
Total	429,406	100%	416,228	100%	479,327	100%

Source: Central Statistics Office

[1] CIA, FACTBOOK

Table 2.2.13 Percentage Distribution of the Population aged 12 years and above by Main Economic Activity in 2006

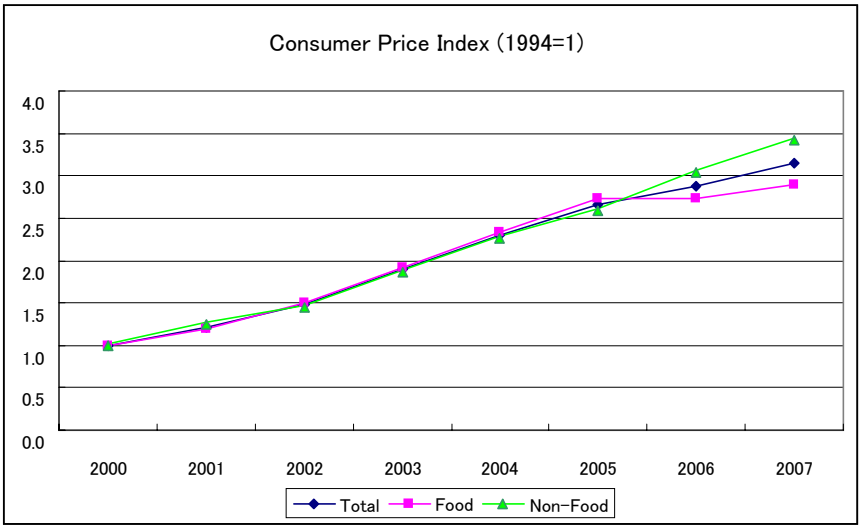
(Unit: %)

Active	Employed	43	64
	Unpaid family work	12	
	Unemployed	9	
Inactive	Full time student	27	35
	Home maker	6	
	Retired/ too old	2	
Other			1
Total			100

Source: Central Statistics Office

(5) Commodity Prices

Using the Consumer's Price Index (CPI) in 2000 as the base year, the CPI rose 3.1 times in the next 7 years. However, in 2006 and 2007, the CPI stabilized at below 10%.



Source: Central Statistical Office

Figure 2.2.1 Consumer Price Index

Table 2.2.14 Consumer Price Index by Food and Non-Food Items (1994=100)

Year	Total	Growth Rate	Food	Growth Rate	Non-Food	Growth Rate
2000	477.7	—	438	—	530.2	—
2001	579.9	121%	520.7	119%	658.4	124%
2002	708.8	122%	661.6	127%	771.3	117%
2003	903.9	128%	841.65	127%	986.4	128%
2004	1099	122%	1021.7	121%	1201.5	122%
2005	1273.2	116%	1200.9	118%	1369.3	114%
2006	1378.1	108%	1198.1	100%	1616.9	118%
2007	1501.2	109%	1268.6	106%	1809.8	112%

Source: Central Statistical Office

In general, the labour cost is deeply connected with living expense, and consequently JICA study team examined "Cost of Living" (COL) of Zambia as compared with the neighbouring countries of

Republic of Tanzania, South Africa and Mozambique, which JICA study team also studied in "Investment Demand Survey".

Comparing the COL among 4 countries including Zambia, COL of Tanzania is the most expensive, 18% more than Zambia, and COL of South Africa also is 9% more expensive than Zambia.

The huge gap of COL between urban and rural areas was observed in both Tanzania and South Africa.

Generally industries located in the land-locked country have a disadvantage because they have to add the cost of land transport cost on top of production cost. Accordingly the production price in Zambia tends to be more expensive than that of Tanzania, South Africa, and Mozambique. Especially in the case of export goods of Zambia, as land-locked country for international market, exporters located in Zambia have a disadvantage in terms of price competitiveness vis-a-vis Tanzania, South Africa, Mozambique, and so on.

Table 2.2.15 Cost of Living

(Unit: US$)

Country & City	(a) Zambia Lusaka	(b) Tanzania Dar Es Salaam		(c) South Africa Pretoria		(d) Mozambique Maputo	
Date of Survey	Oct, 2007	Jul, 2007	(b)/(a)	Aug, 2007	(c)/(a)	Dec, 2007	(d)/(a)
Total In-area	4,048.24	4,775.67	1.18	4,430.77	1.09	3,627.91	0.90
Total In-area excluding Housing	2,123.95	2,642.21	1.24	2,536.00	1.19	1,700.23	0.80
Food and Non-alcoholic Beverages	794.66	950.37	1.20	746.80	0.94	560.57	0.71
Alcoholic Beverages and Tobacco	83.56	126.54	1.51	88.43	1.06	66.44	0.80
Clothing and Footwear	4.01	3.68	0.92	125.39	31.27	34.23	8.54
Housing, Water, Electricity, Gas and Fuels	1,924.29	2,133.46	1.11	1,894.78	0.98	1,927.68	1.00
- Rental for Housing	1,586.53	1,906.30	1.20	1,671.96	1.05	1,425.60	0.90
- Other Housing Costs	38.88	16.44	0.42	4.59	0.12	49.12	1.26
- Utilities	116.69	118.19	1.01	158.98	1.36	206.99	1.77
- Facilities	21.62	8.23	0.38	21.35	0.99	14.40	0.67
- Domestic Service	160.57	84.30	0.53	37.90	0.24	204.56	1.27
Furniture, Household Equipment and Tontine Maintenance of the House	95.66	104.93	1.10	93.77	0.98	62.36	0.65
Health	121.73	149.09	1.22	235.31	1.93	84.55	0.69
Transport	348.47	442.60	1.27	380.73	1.09	273.63	0.79
Communication	155.30	198.95	1.28	154.96	1.00	134.80	0.87
Recreation and Culture	251.97	214.56	0.85	276.31	1.10	165.66	0.66
Education	0.00	63.41	-	64.15	-	37.58	-
Restaurants and Hotels	166.19	227.49	1.37	191.26	1.15	162.48	0.98
Miscellaneous Goods and Service	102.40	160.60	1.57	178.89	1.75	117.91	1.15
Pension Contribution	918.95	918.95	1.00	899.71	0.98	899.71	0.98
Medical Insurance	348.46	352.36	1.01	337.20	0.97	344.48	0.99
Out of Area	3,543.77	2,591.56	0.73	2,429.01	0.69	3,248.06	0.92
Out of Area/ in-area	0.88	0.54	-	0.55	-	0.90	-

Source: International Civil Service Commission, United Nation

(6) I-S Balance

In recent years, gross fixed capital formation expanded, while gross domestic savings remained at about the same level as 2000 or slightly later. Since gross fixed capital formation exceeded gross domestic savings, Investment-Saving (I-S) imbalance occurred. Generally many developing countries have I-S imbalance condition; however the lack of capital has to be compensated from capital inflow somewhere, and as a general rule foreign donors or the international aid community lend support to compensate for the lack of capital based on I-S imbalance. In case of Zambia, public investment supported by donors and international aid community covered most of the lack of capital.

In 2000 or slightly later, gross governmental fixed capital formation remained flat, while private sector fixed capital formation showed expansion. In 2000, the gross governmental fixed capital formation was at a lower level than the private sector fixed capital formation, but the ratio was reversed in 2003. This condition mentioned above correlated with booming economies in China and India that caused a tight market for raw materials, and as a consequence, the international market price of raw materials like copper soared rapidly. The soaring copper price stimulated private investment in Zambia for increased copper production. Consequently the I-S balance is positive in recent years based on export value expanding according to soaring material price in international market.

Table 2.2.16 I-S Balance Share of GDP

(Unit: %)

Year	2000	2001	2002	2003	2004	2005
Gross Domestic Saving	8.3	17.3	17.7	18.7	18.2	17.7
Gross Fixed Capital Formation	18.7	20.0	23.0	26.1	26.0	25.8
Reference:						
<Gross Government Fixed Capital Formation>	10.0	11.9	11.8	11.5	9.2	8.9
<Private Sector Fixed Capital Formation>	7.2	6.8	9.8	13.3	15.4	15.8
Total	17.2	18.7	21.6	24.8	24.6	24.7

Source: Africa Development Indicator 2007, World Bank

(7) Trade

1) Trade Balance

In 1999, Zambia could not make import payments because a part of the supporting money in the capital account balance stopped coming from donors; the Zambian economy has lack of external reserves; Consequently the Zambian economy that depends a lot on imports of consumption and capital goods was faced with an economic crisis.

The following table indicates that the trade volume in Zambia reflects expansion trends.

In 2006, the trade balance turned positive, as an after-effect of soaring copper prices in international markets. This situation is however subject to change.

Table 2.2.17 Trade Balance in Zambia at Current Price

(Unit: million US$)

Year	2003	2004	2005	2006
Total Export, fob	1,090.4	1,846.9	2,210.4	3,819.2
Total Import, cif	1,572.4	2,149.6	2,576.6	3,022.3
Trade Balance	-482.0	-302.7	-366.2	796.9

Source: Central Statistics Office

According to trade statistics in recent years (2005 to first semester 2007), the trade balance turned positive in the first semester of 2006. Copper exports rose 1.65 times in the intervening short period from second semester 2005 to first semester 2006, and lasted until first semester 2007.

The export value of Copper Wire and Electric Cable increased rapidly corresponding copper export value increase whereas other export values declined.

Table 2.2.18 Trade Data in CIF Value

(Unit: million US$)

Description		July-Dec, 2005	Jan-June, 2006	July-Dec, 2006	Jan-June, 2007
Trade Balance		-102.5	521.9	376.2	179.3
Exports, CIF		1,260.3	1,869.6	1,957.1	1,884.5
Metals		957.5	1,534.7	1,549.4	1,454.4
	Copper	888.4	1,470.4	1,467.6	1,344.7
	Cobalt	69.1	64.3	81.8	109.8
Non Metals		302.8	334.9	407.7	109.8
Export Audit Adjustment		0.0	0.5	0.5	0.6
Total		302.8	334.2	407.3	429.7
	Copper Wire	57.0	84.4	90.2	90.5
	White Spoon Sugar	22.9	22.5	31.8	25.9
	Burley Tobacco	40.4	26.1	44.5	24.9
	Cotton Lint	41.7	20.1	42.2	15.5
	Electric Cables	25.8	43.3	60.4	76.5
	Fresh Flower	16.5	15.9	18.8	18.6
	Cotton Yarn	11.3	9.5	9.5	8.2
	Fresh Fruit/Vegetables	10.8	12.5	12.7	11.0
	Gemstones	11.9	8.8	9.3	19.0
	Gas Oil	2.6	3.3	7.0	11.6
	Electricity	1.9	3.8	3.3	3.7
	Others	60.0	84.0	77.6	124.3
Imports CIF		-1,362.7	1,347.7	1,580.9	1,705.2

Source: Bank of Zambia

2) Exchange Rate

After year 2000, Zambian Kwacha exchange rate (ZMK/US$) depreciated until 2003 Q2, and then remained flat until 2005 Q2. Thereafter from 2005 Q3 through 2006 Q2 the rate declined, and then recovered partially by the end of 2006.

The copper industry has a large effect on commodity prices, interest rates, business climate of other industries, etc. by affecting exchange rates; this is a risk to the domestic economy. Thus diversification is needed to alter the country's dependence on copper exports.

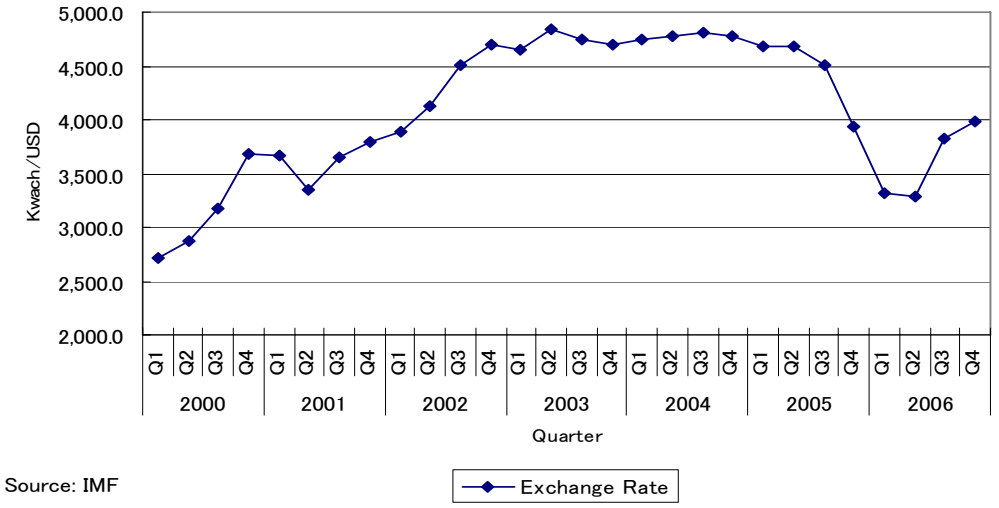


Figure 2.2.2 Exchange Rate Trend

3) Exports

Over 70% of Zambian export commodities are "manufactured goods classified chiefly by material", and a lot of it comes from mining: copper, cobalt, etc.

Table 2.2.19 Export Value by Commodity at Current Price

(Unit: million US$)

Sector	2002	2003	2004	2005	2006
Total Export, FOB	**944.3**	**1,090.4**	**1,846.9**	**2,210.4**	**3,819.2**
Food and Live Animals	69.6	75.0	152.1	172.9	139.4
Beverages and Tobacco	16.3	22.3	61.1	74.1	74.9
Crude Materials(excl)	72.9	91.5	237.6	258.4	536.8
Mineral Fuels, Lubricants and related Materials	7.8	13.7	27.8	13.9	22.6
Animal and Vegetable Oils, Fats and Waxes	0.3	0.5	0.5	0.4	0.8
Chemicals	11.7	9.5	41.6	15.7	23.2
Manufactured Goods classified chiefly by Material	715.3	741.6	1,016.0	1,558.0	2,772.1
Machinery and Transport Equipment	8.0	8.1	17.5	23.4	101.5
Miscellaneous Manufactured Articles	18.5	10.8	22.2	59.3	10.0
Other	24.0	117.4	270.4	34.2	138.0

Source: Central Statistics Office

Table 2.2.20 Export Share by Commodity

(Unit: %)

Sector	2002	2003	2004	2005	2006
Export, FOB	**100**	**100**	**100**	**100**	**100**
Food and Live Animals	7	7	8	8	4
Beverages and Tobacco	2	2	3	3	2
Crude Materials(excl)	8	8	13	12	14
Mineral Fuels, Lubricants and related Materials	1	1	2	1	1
Animal and Vegetable Oils, Fats and Waxes	0	0	0	0	0
Chemicals	1	1	2	1	1
Manufactured Goods classified chiefly Material	76	68	55	70	73
Machinery and Transport Equipment	1	1	1	1	3
Miscellaneous anufactured Articles	2	1	1	3	0
Other	3	11	15	2	4

Source: Central Statistics Office

Most domestic production of mining (copper, cobalt) is exported. Copper production has led the way based on soaring copper prices in international markets.

Table 2.2.21 Copper and Cobalt Export Value

(Unit: million US$)

Sector	2002	2003	2004	2005	2006
Total Exports, FOB	944	1,090	1,847	2,210	3,819
Metal Exports, FOB	560	669	1,359	1,644	3,084
Copper					
Value	510	607	1,075	1,486	2,938
Volume (Unit: 1,000 metric tons)	330	353	411	439	476
Unit Value 1/	1.5	1.7	3	3	6
Cobalt					
Value	50	62	284	158	146
Volume (Unit: 1,000 metric tons)	4	3	6	5	5
Unit Value 1/	11.9	18.4	47	29	31
Nontraditional Exports, FOB	360.7	399.6	468.3	534.3	701.5

Table 2.2.22 Domestic Production Volume

(Unit: 1,000 of metric tons)

Item	2002	2003	2004	2005	2006
Copper	338	353	420	459	498
Cobalt	4	3	6	6	5

Source: Ministry of Finance

In 2006, over 40% of Zambian exports went to European countries, while the share to Southern African Development Community (SADC) declined.

In 2006, the largest trade partner of merchandise by export value was Switzerland, 85%, followed by United Kingdom and Netherlands.

It is noteworthy that exports to Thailand and especially China have been increasing rapidly in recent years but so far they are below European and SADC countries.

Table 2.2.23 Export by Group at Current Price

(Unit: million US$)

Item	2002	2003	2004	2005	2006
European Countries	513.6	414.7	663.9	975.1	1675.1
	54%	38%	36%	44%	44%
SADC Members	348.2	430.3	766.7	510	684.3
	37%	39%	42%	23%	18%
Others	82.5	245.4	416.3	725.3	1459.8
	9%	23%	23%	33%	38%
Total	944.3	1090.4	1846.9	2210.4	3819.2
	100%	100%	100%	100%	100%

Source: Central Statistics Office

Table 2.2.24 Export by Country at Current Price

(Unit: million US$)

Country	2002	2003	2004	2005	2006
Total Exports, FOB	**944.3**	**1,090.40**	**1,846.90**	**2,210.40**	**3,022.40**
European	**513.6**	**414.7**	**663.9**	**975.1**	**1,675.10**
Belgium	17.5	28	36.6	31.4	9
Finland	5.7	11.9	11.4	0	8.3
France	2.9	5.1	16.7	13.1	16.7
Germany	9	7.4	10.8	14.6	11.1
Italy	2.5	1.6	3.1	7.9	3.4
Netherlands	20.9	27.5	47.8	46	44.3
Switzerland	57.4	76.8	255.5	754.1	1,462.6
United Kingdom	393.6	253.5	275.1	74.5	99.4
Other European Countries	4	2.9	6.8	33.5	20.1
SADC members	**348.2**	**430.3**	**766.7**	**510**	**684.3**
Democratic Republic of Congo	38.9	41.6	106	102	128.4
Angola	0.4	1.1	0.4	0.6	0.4
Botswana	2.7	3.6	2.9	40.4	6
Lesotho	0.1	0.1	2.5	0.7	4.5
Madagascar	0	0	0	0	0
Malawi	15.4	24.4	48.1	70.8	57.6
Mauritius	6.2	3.9	3.8	1.3	0.7
Mozambique	0.1	1.2	1.5	0.7	1.3
Namibia	1.8	1.3	4.3	8.7	17.6
South African	211.8	211.2	386.4	195.9	401.4
Swaziland	0.6	0.2	0.5	0.9	0.9
Tanzania	54.1	122.9	120.9	11.5	13.8
Zimbabwe	16	18.9	89.4	76.4	51.7
Other Trading Partners	**82.5**	**245.4**	**416.3**	**725.3**	**1,459.80**
China	3.3	16.5	33.9	192.1	257.7
Egypt	0.9	1	0.7	79.5	151.1
India	29	34.2	16.8	32.8	133.3
Japan	7.7	16.2	7	29.8	3.7
Kenya	4.3	5.8	9.1	13.8	30.7
South Korea	0.3	0.1	0	65.1	44.4
Malaysia	0	0	0	52.7	77.2
Pakistan	0	0	0	24.6	49.2
Thailand	1.8	6.2	1.1	98.9	284.7
Saudi Arabia	0.1	0	0	60.2	84.3
Taiwan	0	2.1	6.9	17.7	14.2
United States of America	9.7	6.9	17.7	14.2	2.2
Other	25.3	156.4	285.2	58.8	269.9

Source: Central Statistic Office

4) Imports

In recent years “machinery and transport equipments” accounted for 40% of whole merchandised import value; it consisted mainly of machinery for copper industry (such as generator, boiler, etc.) and transport machines.

The next two largest categories were "chemicals" and "mineral fuels, lubricants and related materials"; the share of each was 15%. The import duty of "chemical" products became 0% when the Zambian trading law was changed in 1996. At the same time, domestic medical industry also was impacted with the changed trading law which released foreign medical products into the market.

Mineral fuels, lubricants and related materials are imported through a public pipeline owned by both Zambia and Tanzania connected between Dar Es Salaam in Tanzania and Copper belt in Zambia, and mostly of it imported from United Arab Emirates in the Middle East.

Table 2.2.25 Import Value by Commodity at Current Price

(Unit: million US$)

Sector	2003	2004	2005	2006
Total Import, CIF	**1,572.4**	**2,149.6**	**2,576.6**	**3,022.3**
Food and Live Animals	160.7	98.2	113.1	175.1
Beverage and Tobacco	2.1	2.3	3.2	10.3
Crude materials (excl. Fuels)	59.0	68.9	89.6	83.1
Mineral Fuels, Lubricants and related Materials	128.8	244.1	279.1	453.2
Animals and Vegetable Oils, Fats and Oils	33.2	41.2	41.7	48.9
Chemicals	291.5	345.3	457.5	446.1
Manufactures Goods and classified chiefly Materials	249.7	314.2	405.8	429.1
Machinery and Transport Equipments	504.4	670.6	814.2	1,207.2
Miscellaneous manufactured Articles	143.0	364.8	372.4	169.3
Other	0.1	0.1	0.0	0.1

Source: Central Statistics Office

Table 2.2.26 Import Share by Commodity

(Unit: %)

Sector	2003	2004	2005	2006
Total Import, CIF	**100**	**100**	**100**	**100**
Food and Live Animals	10	5	4	6
Beverages and Tobacco	0	0	0	0
Crude Materials (excl. Fuels)	4	3	3	3
Mineral Fuels, Lubricants and related Materials	8	11	11	15
Animals and Vegetable Oils, Fats and Oils	2	2	2	2
Chemicals	19	16	18	15
manufactures Goods and classified chiefly Materials	16	15	16	14
Machinery and Transport Equipments	32	31	32	40
Miscellaneous manufactured Articles	9	17	14	6
Other	0	0	0	0

Source: Central Statistics Office

Almost 60% share of merchandise imports come from SADC countries.

In 2006, the largest share of merchandise imports from SADC countries came from South Africa, over 80%; the in ranks were Zimbabwe and Tanzania.

Table 2.2.27 Import by Group at Current Price

(Unit: million US$)

Country	2002	2003	2004	2005	2006
European Countries	-	208.8	476.9	518.4	289.7
		13%	22%	20%	10%
SADC Members	-	1,040.90	1,195.80	1,479.00	1,750.50
		66%	56%	57%	58%
Others	-	323	476.9	579.1	982.2
		21%	22%	22%	32%
Total	-	1,572.7	2,149.6	2,576.5	3,022.4
		100%	100%	100%	100%

Source: Central Statistics Office

Table 2.2.28 Import by Country at Current Price

(Unit: million US$)

Country	2003	2004	2005	2006
Total imports, FOB	**1,572.70**	**2,149.60**	**2,576.60**	**3,022.40**
European	**208.8**	**476.9**	**518.4**	**289.7**
Belgium	6.6	8	7.7	14.1
Finland	27	22.7	12.1	12.9
France	30.2	72.2	93.6	22.1
Germany	24	22.1	35.8	44.1
Italy	5.6	4.8	9.8	16.4
Netherlands	10.9	11.2	30.6	45.5
Switzerland	11.2	18.1	16.1	23.2
United Kingdom	93.3	317.8	312.7	111.4
Other European Countries	25.3	39.3	67.2	213.9
SADC members	**1,040.90**	**1,195.80**	**1,479.00**	**1,750.50**
Democratic Republic of Congo	12.1	14.1	23.3	30.5
Angola	0	0.1	0	0
Botswana	6.5	9.4	11.9	18.5
Lesotho	0	0	0	0
Madagascar	0	0	0	0
Malawi	9.4	7.8	14	12.9
Mauritius	2.4	2.8	2	2.4
Namibia	10.6	2.3	10.5	16.4
South Africa	765.4	993.5	1,228.50	1,430.60
Swaziland	4.3	5.4	3.7	5.2
Tanzania	23.6	30.1	68.5	54.1
Zimbabwe	202.9	124.6	110.2	171.5
Other Trading Partners	**323**	**476.9**	**579.1**	**982.2**
China	44.3	46.1	83.8	81.4
Egypt	2	3.8	6.3	6.6
India	35.3	50.6	80.6	85.2
Japan	23.3	28.8	41.9	47.6
Kenya	24	34.1	38	55.3
South Korea	8.2	12.4	15.3	8.5
Malaysia	2.8	1.9	1.9	3.2
Pakistan	2.5	2.5	2	1.4
Thailand	1.5	3	5.4	5.2
Saudi Arabia	1.6	4.8	0.3	1.7
Taiwan	6.9	10.1	10.2	11
United Arab Emirates	66.9	145.1	96.1	313
United States of America	32.3	34.9	41.9	57.2
Other	71.6	98.7	155.5	304.8

Source: Central Statistics Office

5) Imprecation based on Current Trade Condition

The copper industry is Zambia's main export driving force. A Zambian law obligates the copper industry to utilize Zambian workers; however the copper industry itself is very exclusive and less integrated (backwards and forwards) to the other domestic industries in Zambia.

Around 80% of total merchandise export value is from copper and related products, and almost all production is exported to foreign countries, especially European countries. On the other hand, almost all crude oil needed for energy for copper refining and production is imported from the Middle East, mainly United Arab Emirates.

The Zambian trade structure is typical of a developing country, the same as the neighbouring countries which export mining products and import consumption and capital goods. Consequently Zambian macro economy is very dependent on the other countries deeply.

This situation is similar to South Africa after 1990; however, South Africa has transformed its economic and trade structure to become a self-directed economy based on the export expansion mainly of manufactured goods with a focus on southern African markets.

In the second semester 2006, Zambian trade balance turned positive due to soaring copper prices. However, the Multilateral Debt Relief Initiative (MDRI) conducted by IMF cut the Zambian external debt burden in 2005; thus it was a factor in producing a positive trade balance too.

Zambian imports have being increasing rapidly, especially of manufactured (capital goods), home electric goods and used automobiles (consumption goods).

This import trend is expected to become stronger due to increasing corporate and personal income in the future unless Zambia can develop and enhance its manufacturing capacity to meet local demand. Accordingly it is important issue in Zambia to develop the import substitution industry for sound and self-directed economic growth.

There are many possible import substitution goods except for crude oil and related products in current import mix. It is a recommended strategy for Zambia to develop an import substitution industry targeting the neighbouring countries of Congo, Zimbabwe, Angora, etc. as promising markets for Zambian export goods.

2.3 COMPARISON OF INDUSTRIAL STRENGTH AGAINST NEIGHBORING COUNTRIES

The share of secondary industry in Zambia is high compared to neighbouring countries in recent years.

The rate of primary industry in the neighbouring countries except South Africa and Tanzania are high; basically these countries depend heavily on mining (e.g. diamond, gold, cobalt, etc.), and consequently they depend on unstable international market prices.

The economy of relatively high-income countries, Botswana and Namibia, also depend heavily on diamond exports which comprises over 70% of exports in both countries[2]. In addition, 90% of Angola's export is crude oil. All these countries import almost all consumption and capital goods from South Africa[3].

The target market for land-locked Zambian exports is the purchasing power of its neighbours: Angola, Botswana, and Namibia. These nations are less-industrialized but hey have relatively high purchasing power based on mining exports. In addition, the purchasing power of Congo DR with 62.9 million populations could be another market for Zambian exports as well, but GDP per capita income there is low level stemming from domestic political unrest.

Table 2.3.1 Comparison of Industrial Structure

Country	Industrial Structure			Year	Population Million	GDP Bill. US$*	GDP/CAPITA US$*
	Primary	Secondary	Tertiary				
Zambia	22%	24%	54%	2007	12.5	12.6	1,012.7
Angola	71%	8%	21%	2006	16.8	88.5	5,263.4
Botswana	42%	11%	47%	2005	1.5	13.4	8,691.2
Congo DR	54%	13%	33%	2006	62.9	11.8	187.3
Malawi	41%	16%	43%	2000	13.7	4.0	289.5
Mozambique	27%	26%	47%	2004	21.0	8.4	399.7
Namibia	24%	20%	55%	2006	2.1	7.7	3,689.5
Tanzania	13%	6%	81%	2006	39.7	19.8	499.1
South Africa	3%	30&	67%	2005	48.3	295.6	6,116.3
Zimbabwe**	20%	25%	45.3	2005	12.4	2.11	350.0

Footnote: This table excludes Madagascar, Mauritius, Swaziland, and Lesotho in SADC member.

Caution*: The price is 2008 value at current price

Caution**: Statistical Value of Zimbabwe is 2007 est. value based on the world FACTBOOK, CIA, and IMF country report in 2005 (GDP/CAPITA).

Source: International Monetary Fund, World Economic Outlook Database, April 2008

In 2005 private investment in Zambia was 15.8% which was above the Sub-Saharan average; however, Zambian domestic provision of credit as a percentage of GDP is low, only 7.6%. This is causally-related to financial institutions which are not well-developed. Furthermore the lending rate of commercial banks for small-medium enterprise is kept high; the nominal rate of interest has been 20-30% p.a. in recent years.

[2] Country Report, IMF
[3] Country Report, IMF

Table 2.3.2 Investment Climate in 2005

Country	Private Investment (% of GDP)	Net Foreign Investment (Mil. US$)	Domestic credit to private sector (% of GDP)
Zambia	15.8	380.0	7.6
Angola	2.8	1,639.0	4.8
Botswana	9.7	59.8	19.0
Congo DR	10.5	551.0	1.9
Malawi	3.4	26.5	10.5
Mozambique	13.6	105.4	11.2
Namibia	18.8	252.3	61.4
Tanzania	10.8	495.0	10.4
South Africa	15.1	2,305.3	143.5
Zimbabwe	19.5	13.0	26.9
Sub-Saharan Average	13.3	-	-

Footnote: This table excludes Madagascar, Mauritius, Swaziland, and Lesotho in SADC member.
Source: Africa Development Indicator 2007, World Bank

In Zambia, the lending interest rate of commercial banks depends on credit capability, especially years of business, business scale, etc. The nominal lending rate in 2005 was 27.4% p.a., and it has decreased gradually since then. Currently, the nominal rate of interest is around 18% p.a., which is too high vis-a-vis general profit rate of small medium enterprises in Zambia.

The nominal lending rate of commercial banks in Zambia in June 2007 was 18.2% p.a., whereas the real rate (excluding inflation) was 7.1% p.a., such a high nominal lending rate poses a huge impediment to business in Zambia.

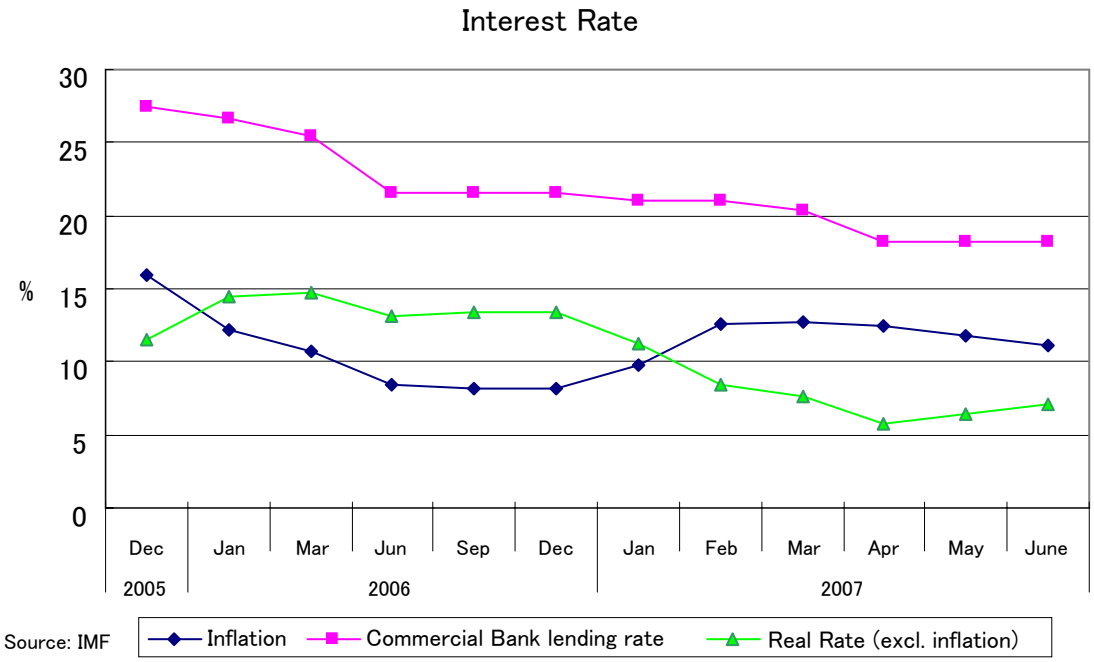


Figure 2.3.1 Interest Rate

The value of merchandise trade against GDP averaged 71% in Sub-Saharan and southern African countries with Zambia, South Africa and Tanzania below average. In the case of Zambia, its main causes are its land-locked location, lack of transport infrastructure, less-developed industry excluding copper and less purchasing power.

Table 2.3.3 International Trade in 2005

Country	Merchandise trade (% of GDP)	Exports (% of GDP)	Imports (% of GDP)
Zambia	41.6	16.4	25.2
Angola	121.8	73.5	48.3
Botswana	84.6	52.8	34.6
Congo DR	73.8	34.5	39.3
Malawi	79.3	27.3	53.0
Mozambique	73.2	31.7	42.3
Namibia	93.5	47.9	45.0
Tanzania	54.4	23.5	26.3
South Africa	55.1	26.8	28.6
Zimbabwe	129.8	56.8	52.9
Sub-Saharan Average	71.0	36.6	34.4

Source: Africa Development Indicator 2007, World Bank

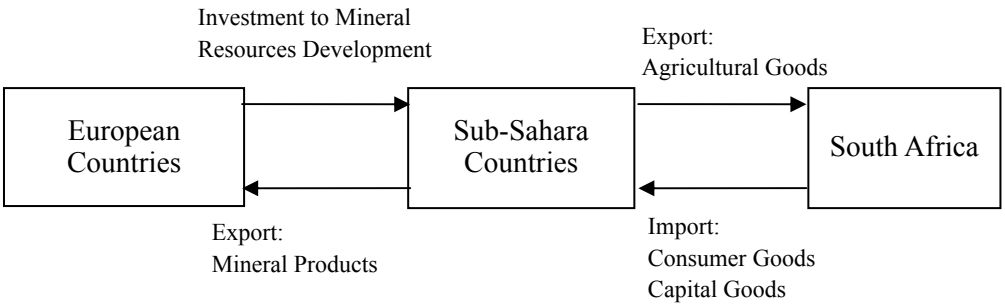
In other words, the southern African countries excluding South Africa and Botswana export mining products and import manufactured goods as shown in the following table.

Table 2.3.4 Structure of International Trade (In average 2000-05)

Country	Structure of Merchandise Export (% of total)					Structure of Merchandise Import (% of total)				
	Food	Agricultural, raw material	Fuel	Ores and metal	Manufactures	Food	Agricultural, raw material	Fuel	Ores and metal	Manufactures
Zambia	13.1	5.4	0.7	71.9	8.8	6.3	1.3	11.6	2.7	77.9
Angola*	0.0	00	96.0	4.0	0.0	-	-	-	-	-
Botswana	2.4	0.1	0	10.7	86.4	13.9	0.8	4.4	1.1	75.1
Congo DR*	8.0	2.0	25.0	65.0	0.0	-	-	-	-	-
Malawi	79.5	3.8	0	0.2	16.3	18.2	1	10.5	0.8	68.3
Mozambique	11.7	3.8	15	58.1	7	14.4	1	1.6	0.4	49.4
Namibia	48.3	1.3	1	7.3	40.9	14.9	0.7	10.4	3.6	69.4
Tanzania	56.7	16.7	0.2	11.7	14.4	11.9	1.3	9.9	1.1	75.7
South Africa	8.5	2	10.3	22.4	56.7	4.4	1.1	14.3	1.8	69.6
Zimbabwe	30.9	15.7	1.6	23.2	28.5	18.7	1.8	13.7	9.8	54.2

Source: Africa Development Indicator 2007, World Bank and IMF Country Report

Development of mining products generally requires huge initial investment; hence, the former colonial power in European countries played an important role in mining development but monopolized mining resources in the past. After independence of African countries in 1960's era, the government took over mining interests. Currently, China and India with their booming economies have been increasing foreign investment in African countries to develop the mining resources. Many of the capital goods for running mining business have mainly come from South African imports.



Source: JICA Study Team

Figure 2.3.2 International Flow among Typical Sub-Sahara Countries

Needless to say, mining resources are limited, and the Zambian economy can avoid problems by evolving into a self-directed economy in the future.

Zambia has already established a long-term economy policy entitled "Vision 2030". The vision indicated is to break away from mining dependency, and develop an industry oriented manufacturing sector.

2.4 INDUSTRIAL DEVELOPMENT

2.4.1 CURRENT CONDITION AND ISSUES

The current condition and issues of Zambian industry are as follows.

Zambian trade structure is a typical developing country model where natural resources are exported, and consumption and capital goods are imported; hence, the domestic manufacturing sector is less-developed. Zambian economy is a resource supplier to world markets; consequently the trend of international prices (external factor) always impacts the Zambian economy.

Natural resources (copper and cobalt) development takes a leading role in Zambian industrial development. After the privatization process was completed in 2001, exploration of minerals and development drilling intensified and foreign investment also increased rapidly. Almost all of the area for exploration of minerals and development drilling is mainly concentrated in the Copper-belt province in Zambia.

Copper is a capital-intensive industry, and crude oil for energy for the copper industry is imported mainly from the Middle East, and capital goods (reactor, transport machine, refinery plant, etc) are also imported. Consequently there is a little ripple economic effect from the copper. Active investment to copper industry triggers development of transport and industry infrastructure, promotes distributive trade industry and increases annual government revenue.

Zambian Copper industry has less industrial relationship with the other domestic industry; consequently it doesn't exert a production and employment expansion impact very much. However

Zambian copper export powerfully impacts trade balance in Zambia, and this has a big effect on the exchange rate because Zambia's foreign currency reserve is small. Stated another way, the Zambian copper industry has an indirect effect on consumption and capital goods inflow, and on the Zambian people's living through the exchange rate.

Zambia should establish a development scenario wherein the positive effect of Zambian mining resources would spill more and more onto other domestic industries, job development, poverty reduction, and so on.

2.4.2 VISION 2030

Zambian government established a long-term policy vision entitled "Vision 2030", which targets Zambia to be a middle income nation by 2030 through promotion and expansion of secondary industry focused mainly on the manufacturing sector.

The recent 5-year plan (2006-2010) stated dynamic policies: 1) Revision of industrial institution, 2) Comprehensive industrial support plan, 3) Promotion of industrial technology and skill, 4) Comprehensive support of Small-Medium Enterprise, and 5) Quality management and promotion of productivity, especially focusing on manufacturing sector development. However "VISION 2030" doesn't describe a detailed concrete manufacturing sector development plan.

<Phased Targets of GDP Growth>

2006－2010: 6% per annum

2011－2015: 8% per annum

2016－2020: 9% per annum

2021－2030: 10% per annum

Table 2.4.1 Sector GDP shares for 2004 and 2030

Sector	Sector Share of GDP		Structural Shift	Annual Growth Rate
	2004	2030		
Agriculture	23.6%	10.1%	-13.5%	5.2%
Mining	3.4%	2.4%	-1.0%	7.3%
Manufacturing	12.1%	18.3%	6.2%	10.5%
Other industry	12.6%	17.8%	5.2%	10.2%
Private service	40.2%	42.3%	2.1%	9.0%
Public service	8.1%	9.1%	1.0%	9.3%
GDP	100.0%	100.0%	-	-

Source: "Vision 2030", Ministry of Finance and National Planning

2.4.3 INDUSTRIAL DEVELOPMENT DIRECTIONALITY

Zambia has had no master plan concerning comprehensive industrial development in the past. Consequently JST has examined the rough direction of an industrial master plan as follows based on current economic conditions mentioned above.

Export industries (excluding mining) to international markets from Zambia as a land-locked country are disadvantaged because they have to add land transport cost to their production cost unlike South Africa, Tanzania, Mozambique, Angora, etc. which have seafronts.

The main costs of export industries located in a land-locked country are primary materials, labour, energy, and land transport. In addition, the price of imported consumption and capital goods from foreign countries also is more expensive than neighbouring countries have to pay because of additional land transport cost. For example, Zambia imports almost all its crude oil from the Middle-East, and so the cost of electricity generated by crude oil is more expensive compared to neighbouring seafront countries. And the high labour cost in Zambia based on the more expensive living cost also is a disadvantageous condition because Zambia depends almost totally on consumption goods from foreign countries. In consequence, it's very difficult for Zambia as a land-locked country to attract FDI.

To conclude the discussion mentioned above, it is thought to be a realistic option that Zambian industrial policy should develop and promote domestic industry as import substitution industry rather than attract foreign direct investment to promote export industry.

However the population of Zambia, 12 million, has limited purchasing power; hence it is very important to take advantage of the neighbouring countries, especially those with a less-developed industrial sector, in addition deeply depended on import commodities for South Africa. In this area, Zambian industry could reduce its delivery transport cost since it would all be by land.

Of course, the mining (e.g., copper, cobalt, etc.) industry in Zambia also has comparative advantages. To expand related industries of mining, deeply connected to other domestic industry, and promote high-value industry is thought to be necessary as well as in the development of import substitution industries.

JST proposes a realistic strategy of Zambian industrial development based on current conditions of the macro-economy in Zambia as follows:

a. To reduce impact of international market prices of primary products, the copper and related industry should aim more at high-value production and diversification, and provide stimulus to other domestic industry. The industrial policy concerning copper and related industries aimed at external markets in terms of expansion of domestic market and employment was indicated as follows:

- Support of small-medium enterprises; and
- Enhancement of research and development function.

b. Considering the limited domestic market size, existing industry should first aim at the domestic market in terms of import substitution, after then, as middle term target, expand the domestic market toward the neighbouring countries: Angola, Congo DR, Botswana, and Zimbabwe.

c. As a realistic strategy of Zambian industry, thereafter Zambian industry should corporate with South Africa's industry in the field of extension of international manufacturing market with the aim of export industry development in Zambia.

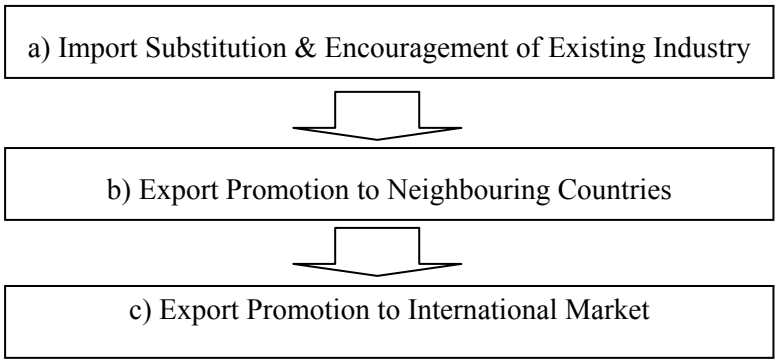


Figure 2.4.1 Steps of Industrialization in Zambia

2.4.4 STRATEGIC SCENARIO OF INDUSTRIAL DEVELOPMENT

Trade structure is generally decided based on comparative advantages. Many African countries have depended on mining products that are exported to developed countries, while many capital and consumption goods are imported from developed countries, mainly from South Africa.

This proposed strategic industrial development in Zambia is arranged in three (3) phases: short, middle, and long term. The short-term strategy is diversification of mining industry and enhancement of existing industry in Zambia. The middle-term strategy is fostering of import substitution industry with the aim of increasing autonomy of Zambian economy. The long-term strategy is promotion of export industry toward the neighbouring countries and also international markets.

A summary of the preliminary proposed strategic phases are indicated in Table 2.4.2.

Table 2.4.2 Preliminary Proposed Strategic Phases

Item	Phase-1	Phase-2	Phase-3
Export Oriented Import Substitution	Collaboration R&D - Parts - Components	Import Substitution	Consumer Durable - Motorcycle - Automobile
Import Substitution	Low Value Added	Daily Goods Capital Goods - Parts - Components	High Value Added
Enhancing Existing Industry	Mineral Industry - Copper - Cobalt Low Value Added - Food - Cotton - Wood	High Value Added	R&D New Product

Source: JICA Study Team

1) Mining Industry as Diversification (Short-Term)

Targeting Market: International, domestic, and neighbouring countries markets

Development Strategy:

To stabilize domestic economy, trade balance, and exchange rate, it is necessary not only to maintain the current copper exports but also to develop domestic and neighbouring markets. For this purpose, the Zambian government should promote the diversification of mining production and product development, and new market exploration. In addition, the government should establish a research and development centre[4] with the aim of creating new products and markets.

2) Existing manufacturing Industry as Import Substitution (Middle-Term)

Targeting Market: Domestic and neighbouring markets

Development Strategy:

According to statistical data of secondary sector, the main elements of Zambian manufacturing sector are "food, beverages and tobacco", "textile and leather industries", "wood and wood products", "chemicals", and "rubber and plastic products" industries. Especially "food, beverages and tobacco" that already exports its products to neighbouring countries, has the potential to expand production volume. Also, some "wood and wood products" export furniture products to European countries. Some companies of "rubber and plastic products" industry already have the intention to expand with the aim of producing import substitution goods. The government should select some promising industries as import substitution industries and concentrate on strongly supporting these industries. Concretely, the government should promote industries in the fields of neighbouring market cultivation, to make processing processes more efficient, and support creating new products.

[4] Ministry of Mining and Mineral Development has already established research institute in copper-belt province, but the institute is not workable sufficiently now.

3) Transport Machinery Industry as Export Industry (Long-Term)

Targeting Market: Domestic and neighbouring markets

Development Strategy:

Currently many used Japanese cars are driven in Zambia. In the past, cars were imported by way of Durban in South Africa, but South African's law prohibited re-exporting of used cars. Since then, used cars have been imported through Dar Es Salaam in Tanzania.

Lao PDR is a developing Asian country, which is a land-locked country the same as Zambia. In Lao PDR a joint capital company has started between Lao PDR and South Korea for motorcycle and automobile processing and assembly industry. The business model is to import used motorcycle and automobile parts from Korea, to assemble them in Lao PDR, and to sell them in the domestic market at a low price corresponding household income in Lao PDR. The government of Lao PDR supports the domestic automobile industry by means of import tax control. The import tax on reconditioned knock-down parts is 1%, while the import tax on used finish motorcycles and cars is 100%. Since the automobile industry has many suppliers and manufacturing companies, it generally takes a long time to establish full-set automobile industry. Accordingly it is possible not only to create new employment and value-added production, but also to transfer new spin-off technology from motorcycle and car assemble processing as well, if an automobile industry can be established.

With a new business model like this, the used Japanese automobiles in Zambia could become replacements for domestic products as a new domestic market in the middle term. In addition low-cost cars produced in Zambia could be exported to neighbouring countries in the long term.

Table 2.4.3 Socio-economic Comparison between Zambia and Lao PDR

Items		Lao PDR	Zambia	Year
Area (sq km)		236,800	752,614	
	Land	230,800	740,724	
	Water	6,000	11,890	
Population		6,677,534	11,669,534	2008
Life Expectancy		56.3	38.6	2008
GDP (PPP) in Billion US$		12.6	15.9	2007
GDP per capita in US$		2,100	1,300	2007
GDP Composition (%)				2004
	Agriculture	41.3%	17.3%	
	Industry	32.2%	26.2%	
	Service	26.5%	56.5%	
Labor Force(Million)		2.1	5.0	2007
Export-Partner		Thailand 42.1%, Vietnam 9.5%, China 4%	Switzerland 38.4%, South Africa 21.6%, China 10.3%, UK 7.6%, Tanzania 6.4%	2006
Import-Partner		Thailand 68.8%, China 11.3%, Vietnam 5.6%	South Africa 47.3%, UAE 10.4%, Zimbabwe 5.7%, Norway 4%	2006

Source: FACTBOOK, CIA

CHAPTER 3 POSITION OF ZAMBIA IN SOUTHERN AFRICA

3.1 FDI PERFORMANCE IN SOUTHERN AFRICA

Chapter 3.1 aims to highlight the current situation with regard to Foreign Direct Investment (FDI) not only in Zambia but also in Southern Africa in comparison with international trends. In this sub-chapter 3.1, FDI conditions in Southern Africa including the results of field survey by questionnaire and interviews with the local enterprises operating in the selected Asian countries, are explained.

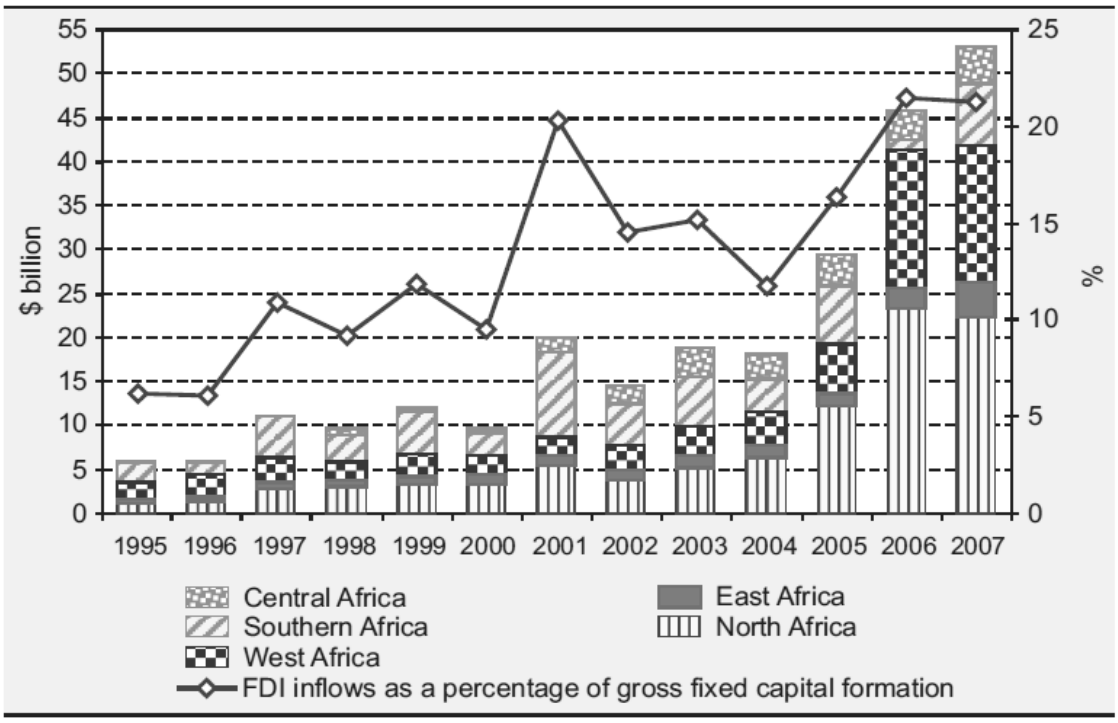
3.1.1 AFRICA

Africa received record FDI inflows of US$ 53 billion in 2007 (refer to Figure 3.1.1) by "*World Investment Report 2008 "(UNCTAD)* reveals. The region also surpassed the world´s other developing regions by providing the highest rate of returns on FDI for the past two years.

Africa´s FDI inflows in 2007 continued to be geographically concentrated: the top 10 host countries accounted for over 82% of total inflows, and nine countries received inflows of US$ 1 billion or more. The surge in FDI to the region, and its profitability, were driven by the boom in global commodity prices and by Africa´s changing policy environment. North Africa attracted 42% and sub-Saharan Africa 58% of FDI to the region. Investment in African least developed countries (LDC) also grew for the second consecutive year.

As a result of the commodity price boom, income on inward FDI grew by 31% in 2007, and the rate of return on investment in Africa was the highest among developing regions in 2006 and 2007. A large proportion of FDI in 2007 concentrated on expanding projects related to natural-resource exploitation, partly through reinvested earnings. Consequently, the share of reinvested earnings in total FDI inflows increased to 28%. Among the major natural-resource producers, FDI in natural-resource exploitation contributed to accelerated export growth. Foreign-exchange reserves in the region grew by some 36% in 2007, and by even more in some major oil-exporting countries such as Nigeria and the Libyan Arab Jamahiriya.

Despite higher inflows, Africa´s share of global FDI remained at about 3%. Transnational Corporations (TNC) from the United States and Europe were the main investors in the continent, followed by African investors, particularly from South Africa. TNC from Asia concentrated mainly on oil and gas extraction and on infrastructure. Prospects for increased FDI inflows in 2008 are promising in light of continued high prices for commodities, large projects already announced for the year, and forthcoming payments from previously concluded cross-border mergers and acquisitions (M&A). This could result in a fourth consecutive year of FDI growth on the continent.



Source: UNCTAD, FDI/TNC database (www.unctad.org/fdistatistics) and annex tables B.1 and B.3.

Figure 3.1.1 Africa: FDI Inflows in Value and as a Percentage of Gross Fixed Capital Formation, 1995–2007

3.1.2 SOUTHERN AFRICA

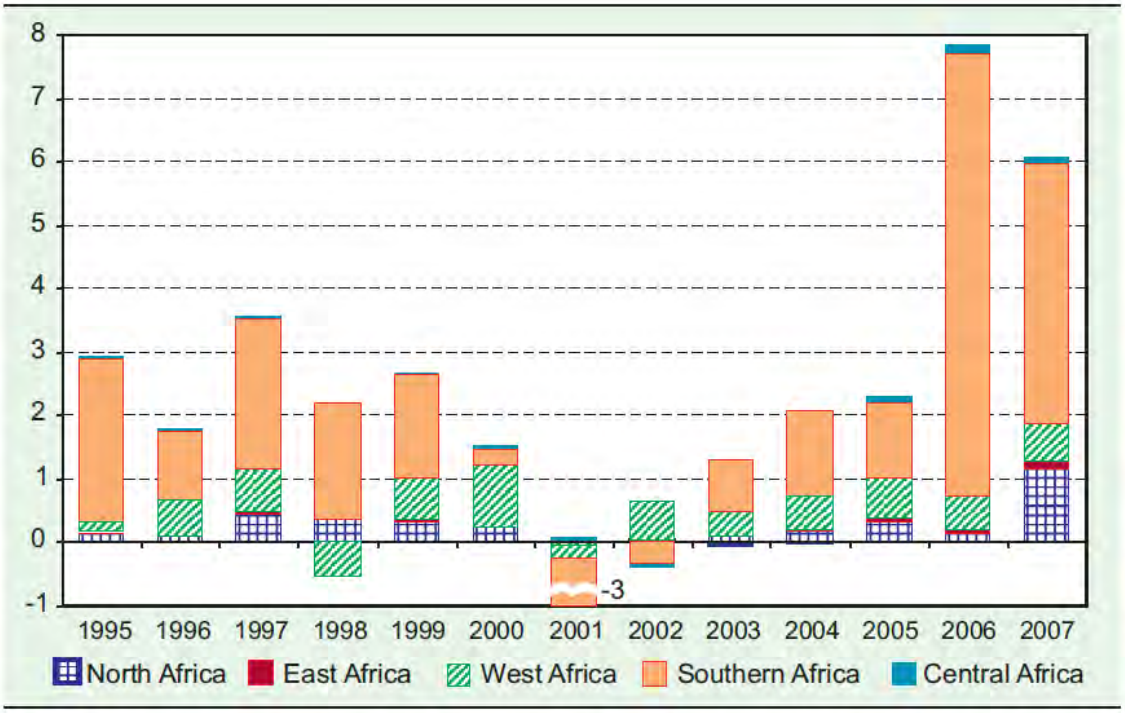
(1) FDI Inflows to Southern Africa

FDI inflows to Southern Africa grew more than fivefold, the highest among the sub-regions, to US$ 7 billion in 2007. A major increase in FDI to the top five host countries, namely South Africa, Zambia, Namibia, Botswana and Mozambique, accounted for this impressive growth. There was an increase in FDI from Asia, particularly from China. For example, the Standard Bank Group (South Africa) sold a 20% stake, worth about US$ 6 billion (ZAR 36.7 billion) to state controlled Industrial and Commercial Bank of China (ICBC). In Mozambique, inflows increased significantly as a result of increased investment in the aluminium industry because of demand for alumina in China. Higher FDI inflows into Zambia have largely been attributed to a surge in the copper mining industry, particularly at Lumwana Mine as well as at Konkola Deep Mining Project.

(2) Outward FDI: mainly driven by South Africa

FDI outflows from Africa in 2007 remained large compared to previous years, at US$ 6 billion, though they were short of their peak of US$ 8 billion in 2006 (refer to Figure 3.1.2). This was mainly due to expansion of operations by TNC, mainly from South Africa but also from some new home countries that benefited from revenues from high commodity prices.

The top 10 contributors to outward FDI from the region were South Africa, Egypt, Morocco, Liberia, Angola, Algeria, Nigeria, Mauritius, Gabon and Botswana, in that order. They invested in natural resource exploitation and the services sector. Of these countries, South Africa was the most important, with many of its TNC acquiring stakes in major projects within the region and outside, particularly in banking, information and communications technology, infrastructure development and natural resource industries.



Source: UNCTAD, FDI/TNC database (www.unctad.org/fdistatistics) and annex table B.1.

Figure 3.1.2 Africa: FDI Outflows, 1995–2007

(3) Sectoral Trends: a rise of inflows to services

Regarding the sectoral distribution of FDI inflows to Africa, those to the manufacturing sector lagged behind the other two sectors. However, crossborder M&A in manufacturing performed better in 2007 (refer to Table 3.1.1) as some countries made efforts to shift towards higher value-added production and services. Higher labour costs relative to other developing countries, especially in Asia, and increasing costs of production in manufacturing are in many cases, a deterrent to investors.

Table 3.1.1 Africa: Cross-border M&A, by Sector/Industry, 2005–2007

(Unit: million US$)

	Sales			Purchases		
Sector/industry	**2005**	**2006**	**2007**	**2005**	**2006**	**2007**
Total	11 259	19 806	10 217	18 496	24 295	5 501
Primary	1 060	3 515	4 638	67	2 176	1 368
Mining, quarrying and petroleum	1 060	3 515	4 638	67	2 176	1 368
Manufacturing	1 479	839	2 858	551	365	1 179
Food, beverages and tobacco	-	661	-	18	191	-
Wood and wood products	158	-	-	164	-	585
Chemicals and chemical products	9	3	1 715	186	-	-
Non-metallic mineral products	967	-	878	54	119	513
Services	8 720	15 453	2 722	17 878	21 754	2 955
Trade	913	1 001	283	1 590	89	166
Transport, storage and communications	1 876	9 686	738	1 395	5 886	318
Finance	5 895	3 509	1 378	14 831	15 170	1 987
Business activities	4	1 038	91	40	187	120

Source: UNCTAD, cross-border M&A database (www.unctad.org/fdistatistics).

Primary sector: A large number of enterprises and projects for sale led to an increase in cross-border M&A in the sector, to US$ 4.6 billion in 2007. All of these were in the mining, quarrying and petroleum industries. So far, FDI flows in this sector have had little impact on downstream activities, although some countries are initiating programmes.

Manufacturing: In 2007, data on cross-border M&A point to a slow recovery of FDI in the manufacturing sector in Africa from its decline in the 1990s. The value of M&A sales in the sector amounted to 28% of the region's total cross-border M&A sales, rising to $2.9 billion in 2007, from $0.8 billion in 2006. Cross-border M&A sales by TNC in some key manufacturing industries such as chemicals and pharmaceutical products and non-metallic mineral products picked up in 2007 (refer to Table 3.1.1). The automobile industry in Morocco and South Africa attracted sizeable greenfield investments, and flows to the latter country may increase further following a new pact with the EU.

Within Africa, new textile and apparel firms from Mauritius have moved to Madagascar, and South African clothing companies have invested in Lesotho. TNC from the Libyan Arab Jamahiriya have purchased textile factories in Uganda. Yet, wages in a typical African country striving to attract FDI in this industry, such as Lesotho, are much higher than those in Bangladesh and China, for example. As a result, TNC in this industry in Africa are not able to compete in markets abroad with cheaper imports from other developing countries. Lack of resources for enhancing technical skills continues to pose a problem in the manufacturing sector.

Services sector: In the services sector, finance was the largest FDI recipient in 2007, according to cross-border M&A data (refer to Table 3.1.1). The Industrial and Commercial Bank of China (ICBC) made one of the largest investments in the Standard Bank Group of South Africa. Barclays

Bank (the United Kingdom) and ABSA (South Africa) continued to acquire banks in other African countries. Increased financing of FDI projects by the affiliates of some major global banks in Africa, such as Barclays Bank, required capital from parent banks. FDI in other services such as business and health services is still small.

TNC continued to invest in infrastructure projects in areas such as electricity, telecommunications and water. Leading African firms in these services are South African TNC such as Eskom, MTN, Vodacom, Spoornet and Transnet, although other, non-African TNC, particularly from the EU, such as Veolia (France) that is involved in a water management project, are also active. In addition, TNC from China, for instance, are engaged in building hydroelectric stations in African countries.

(4) Policy Developments

In 2007, African countries introduced significant FDI-related policy and institutional reforms at both national and regional levels. Their development partners, including major home countries, and regional and multilateral entities, also took significant steps that may influence FDI inflows into Africa.

1) Improving the investment climate

Over the past few years, African countries have increased their efforts to develop or enhance their national policies and laws with a view to improving the investment climate. Ten countries introduced policy measures in 2007, most of which were in the direction of making their regulatory frameworks more favourable to FDI and TNC.

In 2007, 11 African countries signed a total of 11 bilateral investment treaties (BIT), and 10 countries signed 11 double taxation treaties (DTT), raising the total number to 696 and 459 respectively. Approximately 50% of the BIT and 60% of the DTT signed by African countries were with developed countries, mainly the United Kingdom, France, Germany and Italy. African regional entities also introduced a number of FDI-related policy and institutional reforms in 2007. For example: The Common Market for Eastern and Southern Africa (COMESA) adopted an investment agreement for the COMESA Common Investment Area, which envisages a free investment area by 2010. Moreover, as part of its efforts to make the region an attractive destination for regional and international investors, the COMESA Regional Investment Agency (RIA) was launched in 2006. It is implementing several activities and projects.

The Southern African Development Community (SADC) is implementing the Finance and Investment Protocol, a key instrument for deeper regional integration. So far, 10 of its 14 member States have signed the Protocol. SADC is also undertaking a joint investment promotion programme with the EU to facilitate various workshops, meetings and seminars.

The African Development Bank (AfDB) signed a memorandum of understanding with the Export-Import Bank of China in May 2008, which includes the provision of co-financing or guarantee for public sector and possible private sector investment projects. The Bank supports the NEPAD Infrastructure Short Term Action Plan (STAP) and the Medium-Long Term Strategic Framework

(MLTSF). It also manages a multi-donor NEPAD Infrastructure Project Preparation Facility (NEPAD-IPPF).

2） How development partners are promoting investment in Africa

Various countries and international and regional organizations have launched a number of initiatives to promote investment in Africa. China expanded its support to Chinese investments in Africa, building on its general investment policy on Africa adopted in 2006. In 2007, the Export-Import Bank of China financed over 300 projects in the region, constituting almost 40% of the Bank's loan book. Japan, at the Fourth Tokyo International Conference on African Development (TICAD IV) in May 2008, announced its decision to create a facility within the Japan Bank for International Cooperation (JBIC) for investment (i.e. equity investment, guarantees and local financing) in Africa of US$ 2.5 billion over the next five years. This is twice the total FDI flows from Japan to Africa during the past five years (2003–2007) or twice the size of Japanese FDI stock in Africa in 2007.

The United States signed trade and investment framework agreements with three African countries (Mauritius and Rwanda in 2006, and Liberia in 2007). It was also involved in promoting development of professional services in African countries by encouraging investment in those services in the Gambia, Kenya, Namibia, Uganda and Tanzania.

The Organisation for Economic Cooperation and Development (OECD) has taken various initiatives involving the promotion of private and international investment in Africa. For example, following up on the launch of the OECD Principles for Private Sector Participation in Infrastructure, a round table was organized to discuss their application to water and sanitation in Africa.

(5) Prospects: commodity prices boost FDI

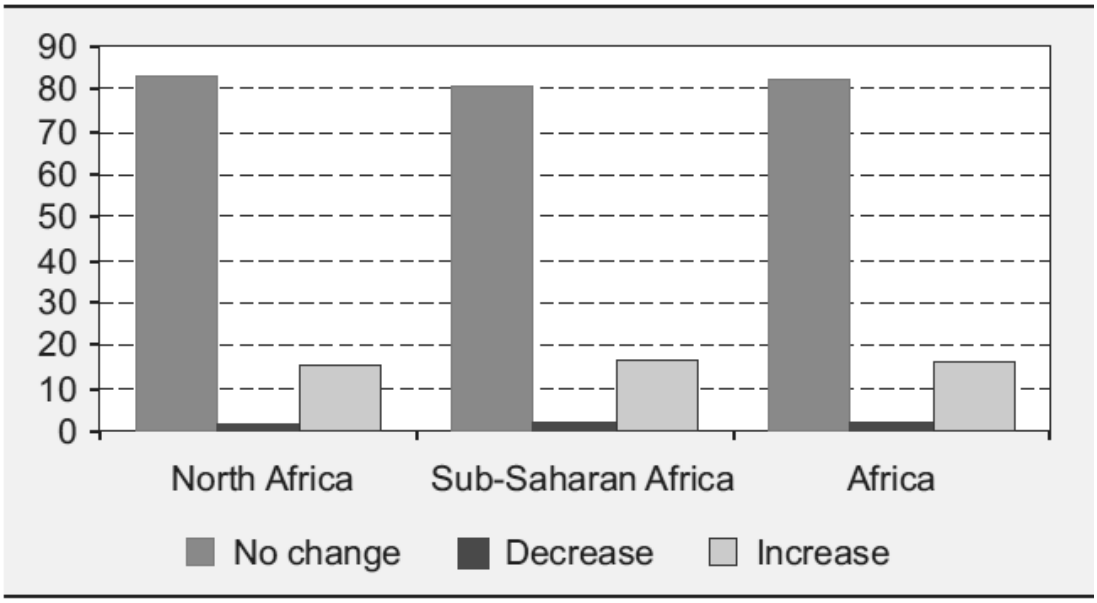
In 2008, FDI inflows to Africa as a whole are expected to grow further as a result of the current boom in commodity markets, notwithstanding the global financial crisis and economic slowdown.

FDI in infrastructure development is likely to gain importance, with a high concentration in Southern Africa.

Long-term prospects for FDI will depend on how much of it can be attracted to manufacturing and services in addition to infrastructure. FDI prospects will vary by region and by country. Investments from West Asia, particularly the United Arab Emirates, are likely to grow in North Africa, with Algeria and Libya being the major recipients.

In other Africa (mainly sub-Saharan Africa), Nigeria, the largest FDI recipient in 2007, will benefit from the implementation of major projects in 2008 as Chinese involvement picks up. Gazprom (Russian Federation) is also offering to invest billions of dollars in developing the gas industry in that country, where major western companies have traditionally invested. In Southern Africa – the largest recipient sub-region in sub-Saharan Africa – Angola, Botswana, South Africa and Zambia are expected to receive FDI inflows mainly in response to global demand for commodities. Inflows to South Africa are likely to be diversified.

UNCTAD's survey, World Investment Prospects 2008–2010 suggests that FDI in Africa will remain at its present level, with only about 15% of the respondents expecting an increase in FDI (UNCTAD,2008b) (refer to Figure 3.1.3).



Source: UNCTAD, 2008b.

Figure 3.1.3 FDI Prospects in Africa, 2008–2010
(Percentage of responses to the UNCTAD survey)

3.1.3 INVESTMENT DEMAND SURVEY FOR SOUTHERN AFRICA

(1) The Objectives and Strategy of the Study

This study was aimed at identifying the volume and the nature of the potential investment demand from Asian countries to the LS-MFEZ. At the same time, it was also to understand the environment and trend of overseas investments of investors in Asian countries in order to identify the necessary conditions for attracting potential investors to the LS-MFEZ as their investment destination. The study was undertaken in Malaysia, Thailand, Singapore and India. The Study comprises three parts, namely: trade and investment data analysis; enterprise questionnaire survey; and in-depth interviews with selected enterprises:

- Trade and investment data analysis: This was meant to understand the environment and trend analysis of trade and investment encompassing the flows between surveyed Asian countries and Southern Africa.
- Enterprise questionnaire survey: This targeted the industries identified as potential industries selected based on the above-mentioned data analysis and preliminary interviews mainly with industrial groups and a few preliminary sampled enterprises.
- In-depth interviews: This was to understand the structure of selected industries in detail and firm-level mechanism of investment decision making.

The growing importance of Asian countries as a source of FDI has recently been observed. In 2005,

Asian countries (excluding Japan) with US$ 84.56 billion accounted for 10.7% of the world total value of FDI outflow (US$ 778.88 billion). East Asia provided the majority and accounted for US$ 54 billion which is 7% of the world total value of FDI outflow[1].

On the other hand, FDI inflow to Africa (including North Africa) was small. In 2005, only 3.3% of the world total value of investment inflow was distributed to Africa. Within the total inflow to Africa, 20.8% went to South Africa[2]. The major flow of investment from Asia to Africa can be found in the growing Chinese investment.

The portion of Zambia's trade and investment to the total value of trade and investment of Asian countries are still limited as seen in later parts of the report. This study, therefore, incorporated the trends of trade and investment between Asia and Southern African region in order to capture the greater trends in the region. The study is expected to help not only an understanding of the trade and investment trend from wider aspects, but also seeks to analyze the competitiveness of Zambia in the on-going regional integration.

(2) Methodology of the Enterprise Questionnaire Survey

1) Selection of surveyed industries and structure of enterprise survey

Based on the analysis of trade trends and the records of outward investment, the sectors for the questionnaire survey were selected as described below. The sectors were scored based on the following criteria as indicators to measure the possibility of outward investment to Zambia:

- Task Force of the Triangle of Hope recommendation as target of Multi-Facility Economic Zone (MFEZ)
- Significant export and import value with surveyed Asian countries, Southern Africa and Zambia
- Past experience in investment from Asia to Southern Africa (partially included Eastern Africa)
- Governments' focus sectors for the promotion of trade and investment

Based on the analysis, initial surveyed sectors were selected (the result of the analysis is shown in Table in Annex, and categorisation is based on the terms used by International Standard Industrial Classification (ISIC).

In addition, industries in service sectors and sectors which are being promoted by Zambia Development Agency (ZDA) were considered for review as follows:

- Post and telecommunication
- Real estate, renting and business activities
- Other health and medical service
- IT related services
- Educational services

Based on the preliminary research, it was realized that it was necessary to identify the specific segment of industrial or service activities which may be profitable and beneficial to industries. This

[1] Calculated using the data appeared in UNCATD, World Investment Report 2006, p.299-302.
[2] Ibid.p.299-302

is due to the difference in the level of development of industries between Zambia and Asian countries as well as the characteristics of each industry in terms of their supply chain network, value-chain and cost structure. Therefore, instead of selecting enterprises according to the above-mentioned sectors, the sampling was done using the categories which comprised broader and related sub-sectors. The sampling categorization is reflected in Table 3.1.2 (the activities according to ISIC per category are shown in Table in Appendix A). For example, instead of limiting food and beverage companies for sampling, the category "agriculture and agro-resource based" was used in order to include plantation activities. As explained later, interviews revealed that not a small proportion of agro-processing firms preferred to secure their raw materials by engaging in plantation operations. While the farm may not be located in MFEZ, the possibility of locating processing and other supporting activities industries were sought.

Table 3.1.2 Researched Categories and Included Sub-Sectors

Sector	Sub-sectors included
Agriculture and agro-related Industries	・ Agricultural and forestry activities ("upstream") to processing industries of the agro-based, fisheries, and wood resources "downstream" ・ Service industries dealing with agro-based, fisheries and wood products
Textile and Garments	・ Manufacturing of textile ・ Manufacturing of wearing apparel
Chemicals	・ Manufacturing of pharmaceuticals ・ Manufacturing of organic chemicals ・ Manufacturing of petrochemical products
Rubber and Plastics	・ Manufacturing of semi-processed plastic and rubber (such as plates, sheets)
Metals	・ Mining ・ Manufacturing of basic metals and metal fabrication
Machinery and Equipment	・ Manufacturing of industrial equipment, machinery, and transportation equipment including vehicles. ・ Manufacturing of parts for above-mentioned machinery and equipment.
Building Materials	・ Manufacturing of the products used for construction such as cements, ceramic products (tiles, roofing), and steel and fabricated metals ・ Materials used for water, energy and telecom-related infrastructure development
Electric Appliances & Electronics	・ Manufacturing of electrical appliances ・ Manufacturing of parts and components of electrical appliances and electronics ・ Manufacturing of the components used in the above-mentioned products.
IT related Services	・ Services in information technologies or services using the information and communication technologies. ・ Various activities are included such as software development, system development and management, outsourcing, programming, soft product development, data processing services and network development. ・ Telecommunication operators
Construction, Engineering, Infrastructure Development and Industrial Estate Development	・ Construction ・ Engineering consultants and other engineering related services ・ Infrastructure related development and services ・ Industrial estate development and operation
Other services	・ Education, health care, other ・ Hotels and restaurants

Sector	Sub-sectors included
Others	・ Shipping and forwarding of products ・ Distributions and leasing of specific products ・ Financial intermediation ・ Business management consulting ・ Conglomerates operating various activities

2) Enterprise questionnaire survey: the number distributed and recovered

On commencement of the survey, the survey team also encountered difficulties in obtaining responses. It was observed that the general perception and knowledge of Africa and Zambia in particular was limited. It was therefore generally difficult to have responses from enterprises for the survey. Furthermore, in case of responses being received, meaningful responses was difficult to get from interviewees who did not have a clear picture on trade and investment with Southern African countries. Therefore, the survey took two measures to overcome the low response rate. Firstly, in Thailand and India, questionnaires were circulated to a wider selection of industries with the cooperation of private sector organizations. In Thailand, all the member associations of the Federation of Thai Industries (FTI) and selected members of the Federation of Thai Chambers of Commerce were contacted with the support of these two organizations. In India, the Confederation of Indian Industries gave support in the circulation of the questionnaires to all the member companies.

Secondly, workshops were held to provide information about investment opportunities in Zambia, in Thailand and Singapore, with the cooperation of FTI and IE Singapore. However, because of the rules of these organizations' member data administration, the names and contacts of enterprises that received the questionnaires through these organizations could not be shared with the JICA Study Team (JST). Therefore, in this report, only the number of the questionnaires sent by the JST was captured in Table 3.1.3.

Table 3.1.3 Number of Questionnaire Distributed from JICA Study Team

Sector	Malaysia	Thailand	Singapore	India				Total
				Delhi	Mumbai	Ahmedabad	Other	
Agriculture and Agro-resource based	31	53	12	8	15	13	0	132
Textile and Garments	9	28	1	0	0	0	0	38
Chemical	17	23	8	17	39	6	2	112
Rubber and plastics	32	18	1	0	3	0	0	54
Metals	15	23	4	7	28	0	0	77
Machinery and equipment	20	14	8	14	35	0	0	91
Building materials	19	20	5	2	3	5	0	54
Electric appliances and electronics	13	12	5	22	63	4	1	120
IT relate services	11	1	5	10	11	0	0	38
Construction Engineering, infrastructure & industrial estat	17	0	41	1	0	0	0	59
Other services	3	0	29	0	0	0	0	32
Other	19	9	39	7	11	1	0	86
Total	206	201	158	88	208	29	3	893

Source: JICA Study Team

The number of the questionnaire received and the responses per sectors (and sub-categories using ISIC) are as the table below.

Table 3.1.4 Number of Responses Received per Countries and Sectors

ISIC	Sector	Malaysia	Thailand	Singapore	India	Total
	Agriculture and agro-resource based					
02	Agriculture	1	0	0	0	1
15	Food product and beverages	3	6	1	8	18
21	Paper and paper products	0	1	1	0	2
	Textile and Garments					
17	Textile	0	1	0	3	4
18	Wearing apparel, dressing and dyeing of fur	0	1	0	0	1
	Chemical					
23	Coke, refined petroleum products and nuclear fuel	2	0	0	0	2
24	Chemicals and chemical products	2	8	2	8	20
	Rubber and plastics					
25	Rubber and plastics products	2	2	2	1	7
	Metals					
13	Mining of metal ores	0	0	1	0	1
27	Basic metals	0	0	0	3	3
28	Fabricated metal products, except machinery and equipment	1	0	0	2	3
	Machinery and equipment					
29	Machinery and equipment n.e.c.	0	1	1	3	5
33	Medical, precision and optical instruments, watches and clocks	0	0	0	2	2
34	Motor vehicles, trailers and semi-trailers	1	1	1	1	4
35	Other transport equipment	0	0	0	1	1
	Building materials					
26	Other non-metallic mineral products	1	3	0	0	4
28	Fabricated metal products, except machinery and equipment	1	0	0	0	1
	Electric appliances and electronics					
31	Electrical machinery and apparatus n.e.c.	2	3	0	1	6
32	Radio, television and communication equipment	2	0	0	4	6
	IT related services					
74	Other business activities	7	0	4	10	21
65	Post and telecommunication	0	0	0	1	1
	Construction, engineering, infrastructure development and industrial estate development					
45	Construction	3	0	1	6	10
40	Electricity, gas and water supply	1	0	0	4	5
70	Real estate, renting and business activities	0	0	3	2	5
	Other services					
80	Education	0	0	2	1	3
85	Health and medical service	0	0	0	1	1
55	Hotels and restaurants	0	0	1	0	1
	Other					
21	Publishing, printing and reproduction of recorded media	1	1	0	0	2
61	Transport and storage	0	0	1	0	1
74	Other business activities	0	0	3	1	4
65-67	Financial intermediation	0	1	2	2	5
50	Wholesale trade	0	0	1	0	1
-	Conglomerate	1	0	0	0	1
	Total	29	27	20	62	152

The number of interviewed companies per countries is as shown in Table 3.1.5.

Table 3.1.5 Number of Interviewed Companies

Sector	Malaysia	Thailand	Singapore	India
Agriculture and Agro-resource Based	3	1	0	7
Textile and Garments	0	0	0	2
Chemicals	1	1	0	9
Rubber and Plastics	0	0	0	0
Metals	0	0	0	2
Machinery and Equipment	0	0	1	8
Building Materials	1	3	1	0
Electric Appliances and Electronics	3	1	0	0
IT related Services	3	0	2	0
Construction Engineering and Industrial estate development	3	0	0	2
Other services	0	0	0	0
Others	2	0	4	2
Total	16	6	8	32

The number of the companies that participated were categorized and shown in Table 3.1.6.

Table 3.1.6 Participating Companies for Investment Seminars in Thailand and Singapore

Sector	Thailand	Singapore
Agriculture and Agro-resource based	1	0
Textile and Garments	0	0
Chemicals	3	0
Rubber and Plastics	0	0
Metals	0	1
Machinery and Equipment	1	2
Building Materials	1	0
Electric Appliances and Electronics	0	1
IT related Services	0	2
Construction Engineering and Industrial Estate Development	0	4
Other Services	0	1
Others	0	6
Total	6	17

(3) Overall and Cross-country Result of the Enterprise Questionnaire Survey

1) Enterprise questionnaire survey result

Among the 151 companies with valid responses for this question, 113 (75%) companies indicated that they had investment plans in next 3 to 5 years. As seen in Table 3.1.7, the percentage of the companies replied as "with investment plans" was high in Singapore and India, but significantly lower in Malaysia.

Table 3.1.7 Investment Plan for Next 3 to 5 Years

	Malaysia	Thailand	Singapore	India	Total
With plans	12	21	24	56	113
No plan	18	8	3	9	38
% with Plan	40.00	72.41	88.89	86.15	74.83

Within the companies, the number of the companies stated that they considered Southern Africa as their possible investment destination categorized according to their availability of investment plans. As shown in Table 3.1.8, the companies answered with investment plan in next 3 to 5 years and considering Southern Africa as a possible investment destination was 14 and without investment plan but considering Southern Africa as a possible investment destination was 75.

Table 3.1.8 Plan of Investment and Possibility of Investing in Southern Africa

		Investment demand toward Southern Africa			Total
		Southern Africa is considered as investment desination with an actual plan	Possible to consider Southern Africa as investment destination, but no actual plan	Not possible to consider Southern Africa as an investment desitination	
Plan of investment in next 3 to 5 years	With an investment plan in next 3 to 5 years	14	75	24	113
	No investment plan in 3 to 5 years	4	17	17	38
	No answer	0	1	0	1
Total		18	93	41	152

The possible investment destinations in Southern Africa were as shown in Table 3.1.9. The respondents were allowed to select multiple answers. More than 50% of the answers were South Africa. The ratios of South Africa in all the answers were relatively higher in Malaysia (72%) and India (61.5%).

Table 3.1.9 Possible Investment Destinations in Southern Africa

Country	Malaysia	Thailand	Singapore	India	Total	%
South Africa	13	19	8	40	80	54.79
Zambia	1	2	8	4	15	10.27
Botswana	0	2	4	0	6	4.11
Mauritius	0	4	1	5	10	6.85
Mozambique	0	3	2	2	7	4.79
Tanzania	0	4	2	6	12	8.22
Other countries	1	1	1	3	6	4.11
Outside of Africa	0	0	1	1	2	1.37
Depends on various conditions	3	0	1	4	8	5.48
Total	18	35	28	65	146	100

Among 18 companies which had investment plans and considering Southern Africa as investment destination, 16 companies selected South Africa, one selected Zambia while the other selected Nigeria.

2) Determinants for destinations of overseas investment

Various determinants of the investment destination were rated by the surveyed enterprises. While most of the factors were rated as “important” or “highly important”, business transaction legal system

was rated relatively higher. On the other hand, more than half of the surveyed companies rated market availability and availability of tax and other incentives as "highly important".

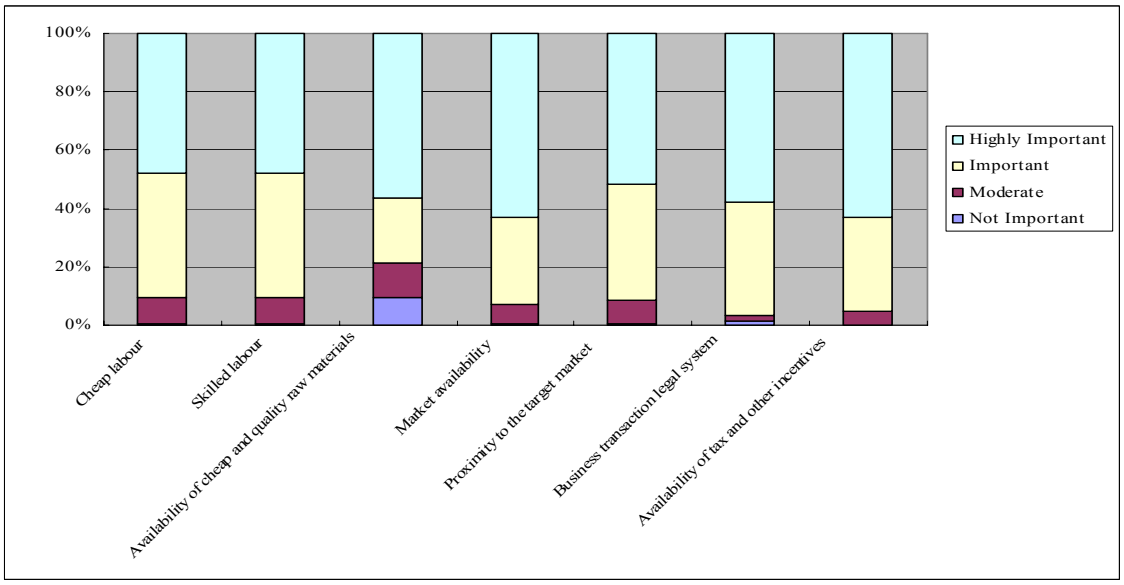
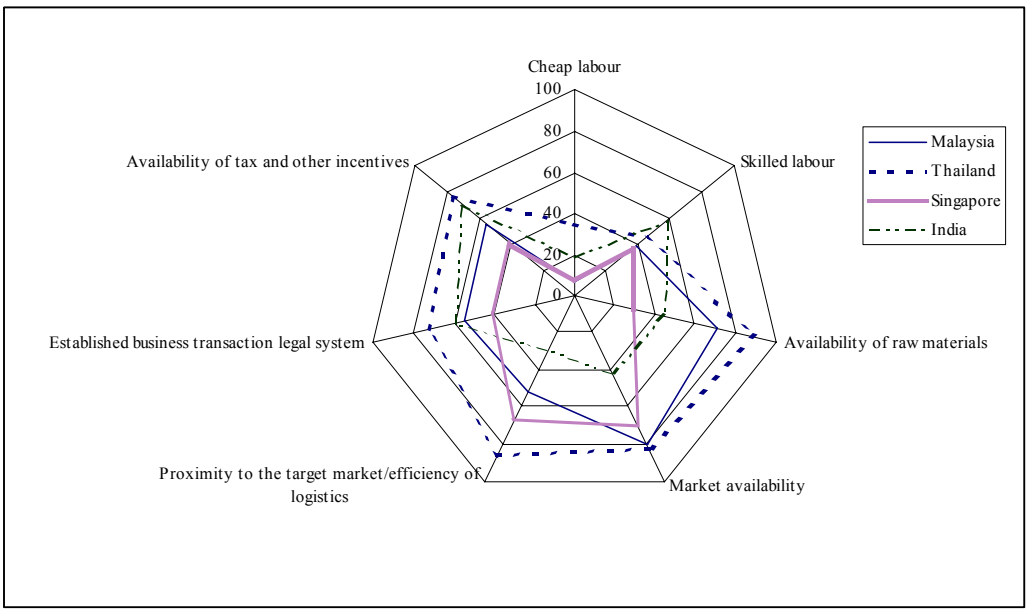


Figure 3.1.4 Determinants of the Overseas Investment

The determinants of overseas investment were as indicated in Figure 3.1.5. As the composition of the industries as well as the number of sample were different across the countries, it was difficult to generalize the characteristics of determinants. Cheap labor cost is not an issue to many companies when they decide on the investment destination, but skilled labor is of high priority. Market availability is a significant factor for Thai, Malaysian and Singaporean companies.



(Percentage)

Figure 3.1.5 Determinants of Investment Destination

3) Infrastructure requirement

The surveyed industries comprised companies producing and handling various commodities towards various markets. Therefore, it may not be adequate to generalize the needs of infrastructure. Moreover, the required capacity of infrastructure was difficult to be identified through this type of survey where some concrete conditions for estimating infrastructure needs were not provided. The degree of importance of infrastructure in the industrial and service sectors may only be assumed from Figure 3.1.6. The companies which valued electricity, road network, and telecommunication network as "highly important" exceeded 50% of the surveyed enterprises.

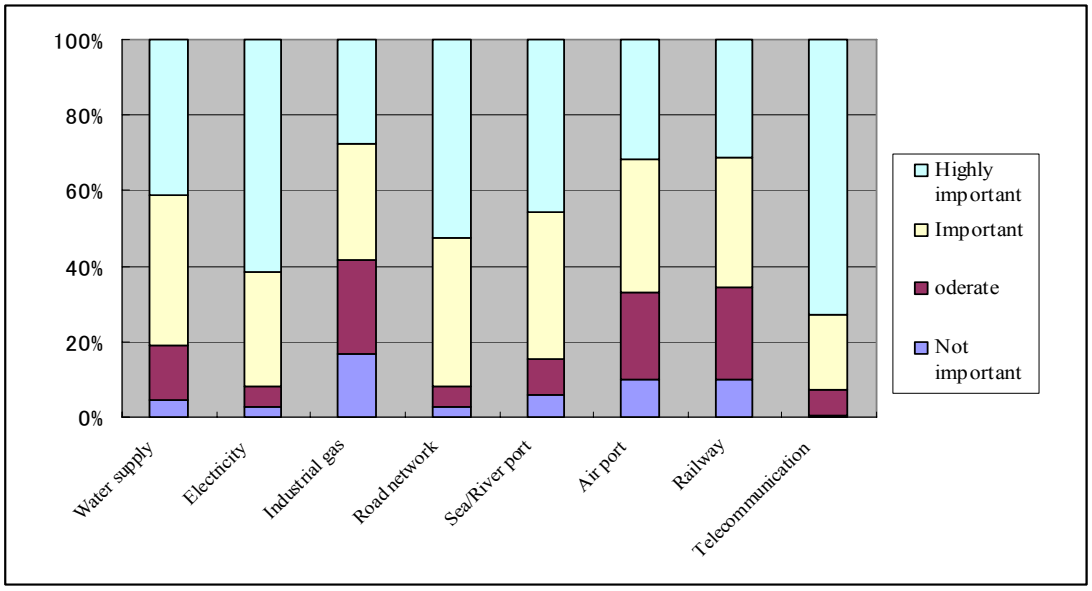


Figure 3.1.6 Necessary Infrastructure

4) Required facilities and business services

The number of companies which answered "highly important" or "important" for each service near or on site of the operational sites were as seen in Figure 3.1.7. The services in higher demand were banking services, quality testing and certification services, custom clearance, and security services.

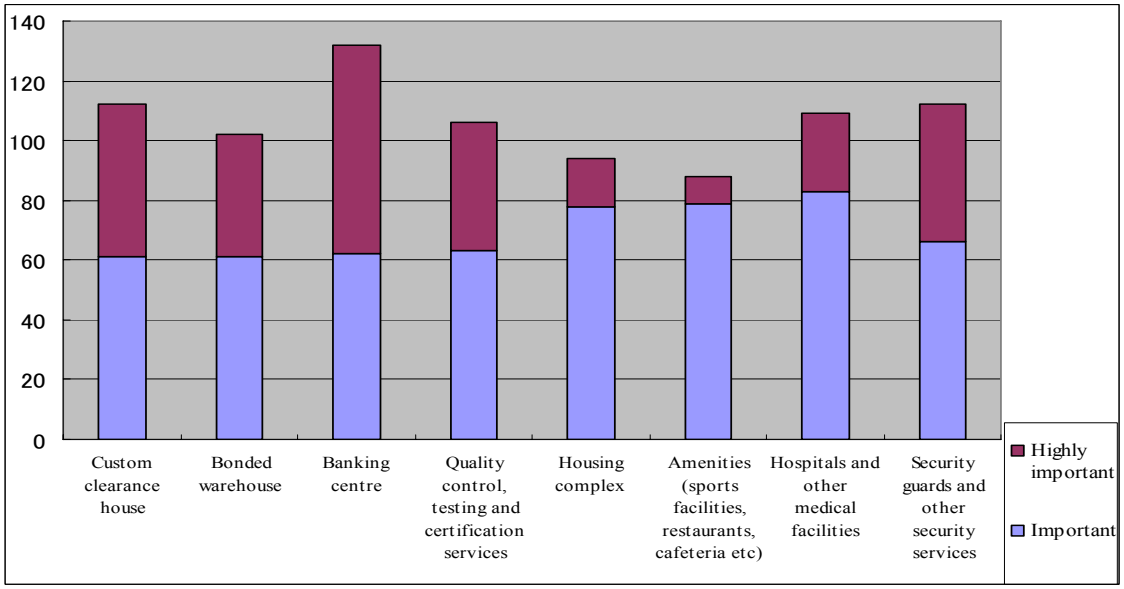


Figure 3.1.7 Demand for Facilities

Although most of the services are valued as necessary, logistical services (forwarders and freighters) were in relatively higher demand. On the other hand, R&D services (testing etc) were in lower demand compared with other services.

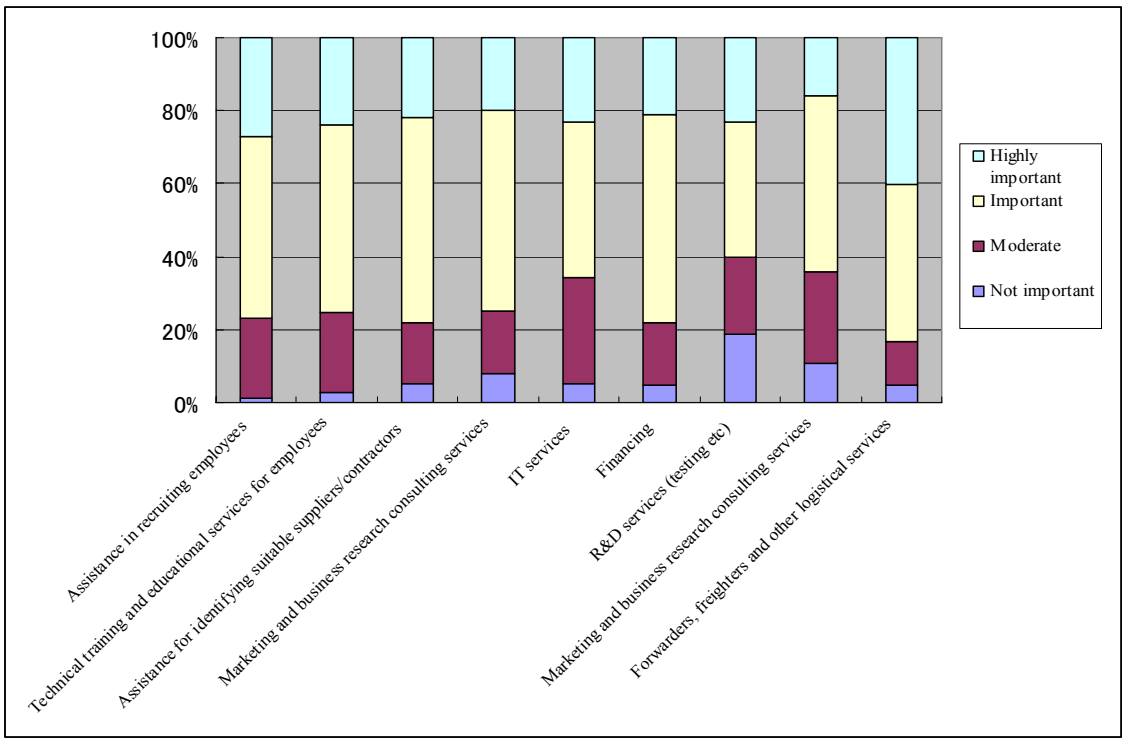


Figure 3.1.8 Demand for Business Services

5) Concerns for investing in Southern Africa

The degree of concerns if investing in Africa is as shown in Figure 3.1.9. The factors with expressed highest concern were legal and regulatory system for business, taxation system and the length of time required in obtaining various permits.

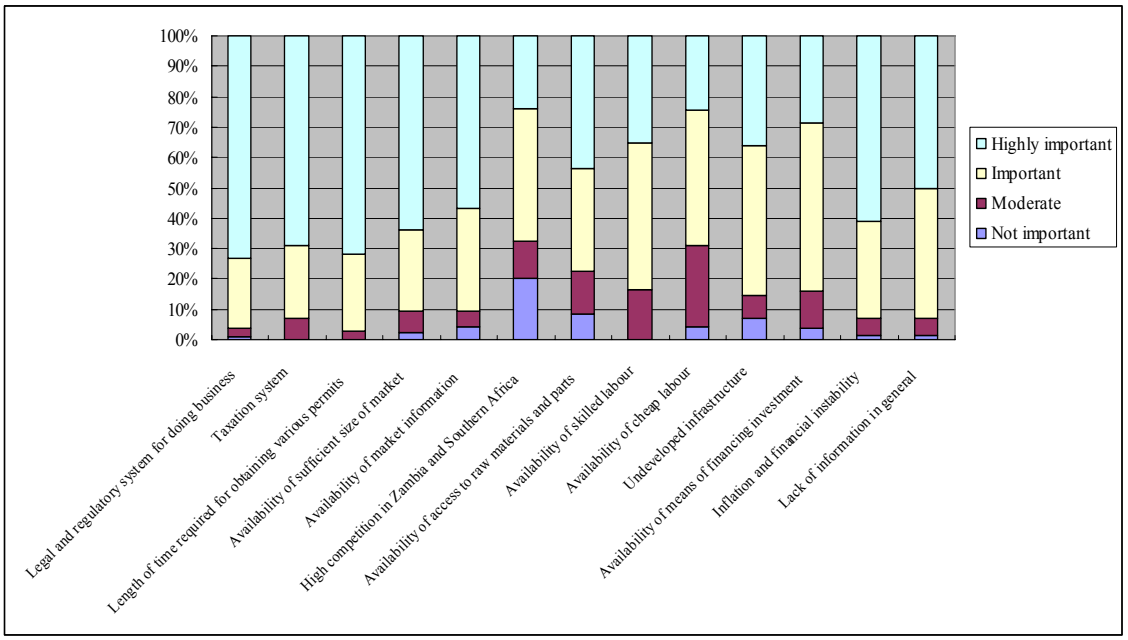


Figure 3.1.9 Significant Issues that may be Considered when Investing in Southern Africa

(4) The Results of In-depth Interviews

1) Companies with interest in investing in Southern Africa

There were two types of enterprises which showed interest toward investing in Southern Africa: The first type were companies which have established markets in Africa with sales volume which justifies the cost of investment; and the other type were resource-seeking enterprises in the area of mining and agriculture and agro-processing.

During the in-depth interview, there was no specific sector group where the former type of companies could be found: they were found, though very limited, in agriculture and agro-based (food processing), and machinery and equipment. As explained later in the section on both sectors, it was not a strong tendency to target Southern Africa. For these companies, although the production from the raw materials on site may not be efficient, some parts of the value-addition may be done in Zambia or Southern Africa. For example, one company which produces powdered juice was interested in setting up a packaging and distribution hub in Eastern and Southern Africa. Their products have large sales volume relative even to their domestic sales. Due to the technical difficulty, the production of powder cannot be transferred in Africa, but packaging and logistical operation can be moved. The strength of the specific product is non-perishable and cheaper than liquid juice which requires bottling or paper packs which fit African markets.

2) Problems of general perception and lack of information

One of the major problems for investment promotion observed was lack of information and the image problem in comparison with the Southeast Asian countries. This problem has two causes, namely general image problems caused by the geographic distance and limited business transactions, and the insufficient business and technical information. The first issue of perception is especially serious in Southeast Asia.

The second issue of insufficient information about the region including Zambia is a significant issue both for Southeast Asian and Indian companies. Although there are a few investment guides that cover generic information as well as on internet, the kind of technical information for investors to analyze such factors as market potentials and the cost structure are generally not available. It is not easy to attract investors when there are limited data such as figures to measure market size and cost factors. It is also very difficult to obtain the information on availability of local partners. The transaction costs and the time required first to obtain these information are not an attractive factor for the potential investors.

3) Investment destination in Southern Africa

As explained above, the major portion of those companies which showed strong interest in investing in Southern Africa was resource-seeking investors. Therefore, one of the important criteria raised by these companies for the determinants of investment destinations was availability of resources such as metal and other natural resource deposit and land.

Some companies selected South Africa because of the agglomeration of the industries, its function as the regional economic centre, and perception of relatively well established business environment and infrastructure. However, it was not as predominantly selected as the result of the questionnaire survey.

There were some interesting examples of having representation offices and local production facilities in countries such as Ghana, Nigeria (though they are not Southern African countries), and Kenya. The first reason of their launch of business there was market potential. Interestingly, however, a few companies started the production in these companies because they found reliable partners with capable marketing and management ability. As explained further in the following section, availability of reliable business partner is an important factor to investment for starting the business which can be developed...

4) Needs of facilitating protection mechanisms to mitigate risks

Partially due to the geographical distance together with insufficient knowledge and the image problem, investing in Africa in general, is viewed as having many risks. It is not only the political risks but the unstable and under established regulatory framework, licensing, and taxation systems in order to overcome the risk, two possible conditions were raised: to find reliable local partners with knowledge of the local market; and to ensure strong government commitment with practical and substantial measures implemented in order to sustain the demand for the goods and services and stable operation of legal and regulatory system, taxation, and licensing.

Having local partners or agents was preferred and, in fact, was used in most of the cases of companies with some trading relationship with African countries. By using the local partners, marketing risks can be avoided. The general insufficiency of information is also supplemented by the reliable information from local partners.

5) Incentives

Although tax incentives currently provided by the Government of Republic of Zambia (GRZ) to investors were regarded to be reasonable by interviewed enterprises, it was observed that they were not strong drivers of the investment. Incentives may be effective only if it is large enough to cancel other cost factors thereby providing larger margins than operating in other locations. In other words, investors make comparison of all the costs and benefits to select the profit maximizing location for their investment. In case of Zambia and Southern Africa, many Asian investors viewed their market as not large enough, yet incentives may not be effective if there are no other measures to improve other situations by boosting demand and minimizing cost factors.

Other incentives which were raised during the interviews were following:

- Duty exemption on raw materials for processing industries
- Lands and premises with subsidies accessible through simplified procedures
- Financing and guarantee for invested capital
- Resource-seeking sectors were more interested in easy accesses to the resources such as mining licenses.

(5) Sector-based Analysis

1) Enterprise questionnaire survey result

The number of companies with or without plans of investment per category was indicated in Table 3.1.10. Most of the categories except building materials show prospective of investment in the medium term: IT Related services do not have much difference between 'with' and 'without' plans.

Table 3.1.10 Number of Companies with Plans of Investment per Category

	Plan of investment in next 3 to 5 years		Total
	With an investment plan in next 3 to 5 years	No investment plan in 3 to 5 years	
Agriculture and Agro-resource based	16	5	21
Textile and Garments	5	0	5
Chemical	19	2	21
Rubber and plastics	6	1	7
Metals	8	1	9
Machinery and equipment	11	0	11
Building materials	1	4	5
Electric appliances and electronics	8	4	12
IT relate services	11	10	21
Construction Engineering, infrastructure and industrial estate	14	6	20
Other services	5	0	5
Other	9	5	14
	113	38	151

The possibility of the investment toward Southern Africa per category was shown in Table 3.1.11. Most of the companies hinted at the possibility of the investment toward Southern Africa, but the

majority is without an actual plan. The categories with relatively high number of companies with actual plans of investment toward Southern Africa were: agriculture and agro-resource based; textile and garment, machinery and equipment; metals; and other services. About the half of these companies named South Africa for their possible destination.

Table 3.1.11 Plan of Investment in Southern Africa per Category

	Investment demand toward Southern Africa			Total
	Southern Africa is considered as investment desination with an actual plan	Possible to consider Southern Africa as investment destination, but no actual plan	Not possible to consider Southern Africa as an investment desitination	
Agriculture and Agro-resource based	4	13	4	21
Textile and Garments	1	4	0	5
Chemical	2	16	3	21
Rubber and plastics	0	4	3	7
Metals	2	2	5	9
Machinery and equipment	3	7	1	11
Building materials	0	2	3	5
Electric appliances and electronics	1	8	3	12
IT relate services	3	14	5	22
Construction Engineering, infrastructure and industrial estate	0	13	7	20
Other services	1	3	1	5
Other	1	7	6	14
	18	93	41	152

2) Determinants for destinations of overseas investment

The category-based results showed some differences: for example, approximately 80% of the surveyed companies of agriculture and agro-resource based and metals rated availability of cheap and quality raw materials as “highly important”; and about 80% of IT related services answered that skilled labor is a “highly important” factor. Figure 3.1.10 shows the percentage of companies in different categories which answered the factors as “highly important”.

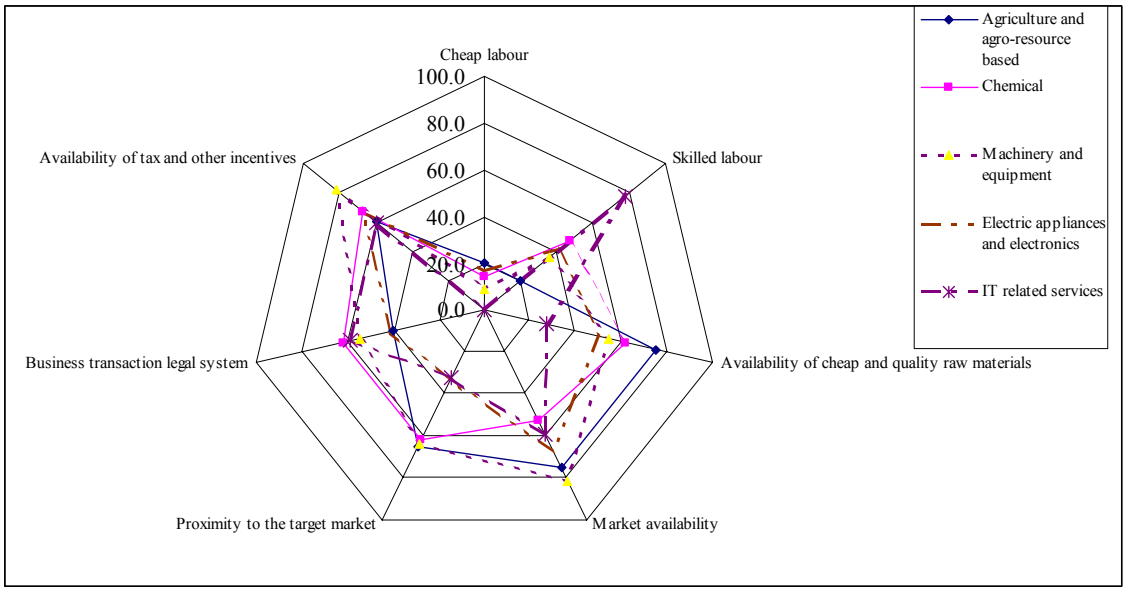


Figure 3.1.10 Determinants of the Overseas Investment per Category

3) Infrastructure requirement

There were some differences across industries: more than 60% of agriculture and agro-resource based and machinery and equipment rated road network as "highly important": and 60% of chemical, electrical appliances and electronics and machinery and equipment rated electricity as "highly important". Figure 3.1.11 indicates the percentage of companies in selected categories which rated the infrastructure as "highly important". Telecommunication and electricity was a significant infrastructure for various categories. While sea and/or river port was high for agriculture and agro-based and electric appliances and electronics, road network was high for agriculture and agro-based and machinery and equipment.

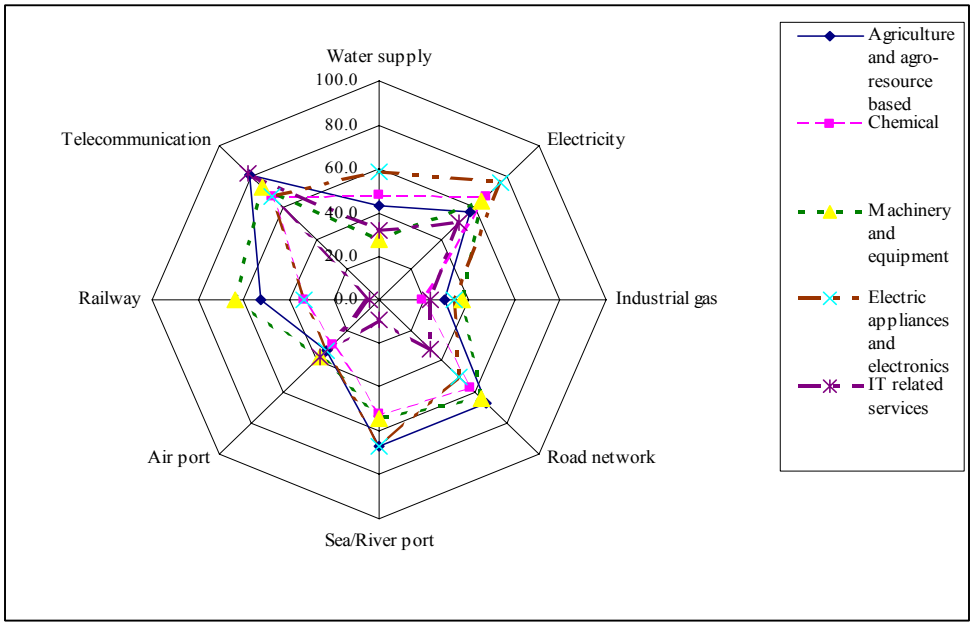


Figure 3.1.11 Necessary Infrastructure

4) The results of in-depth interviews

The companies interested in investing in Zambia and Southern Africa can be found more in agriculture and food processing, machinery and metal sectors. Within the enterprises which showed interest in investing in Zambia or Africa, however, there were only very limited companies that have been considering the substantial investment projects in the regions. As mentioned later, food processing and metal sectors were interested in the resources: the former, cheap land which is adequate for the agricultural production; and the latter, the mineral deposits in the area.

In this section, the sectors which recorded higher ratio of the companies which answered Southern Africa can be considered as investment destination in the questionnaire survey. Agriculture, chemical, machinery and equipment, and electrical appliances and electronics (more than 75% of the respondents answered either "consider with a plan" or "consider, but without plan"). IT related services were also analyzed in order to test out the concept of the LS-MFEZ as high-tech-led economic zone. Textile and garments was excluded as the sample sizes both questionnaire survey and in-depth interviews were too small to make analysis. Other Service was not analyzed as it comprised a few different types of businesses and each had very limited number of samples.

a. Agriculture and food processing sector

In India, rice milling and sugar companies showed interest in examining Zambia as the possible investment destination. With insufficient agronomic information, however, these companies stressed the needs of thorough study on agronomic conditions at possible investment destinations. As mentioned earlier, these companies were keen on establishing production sites of crops in order to ensure the supply as well as to seize the emerging opportunities with high crop prices. These companies were considering setting up plantations and milling facilities. The facilities should be at the logistically efficient location. According to the questionnaire survey result, all the interviewed companies rated road network and sea/river ports as "highly important" or "important" infrastructure. This may be due to the bulky nature of the commodity which requires efficiency in transportation and logistics.

Many processed food companies do not have strong interest in investing in Southern Africa: those companies such as fruit juice processing, ready-made food production indicated that the difference in food culture and preference between their operating areas and Southern Africa made their products difficult to penetrate into the Southern African market. It is especially effective and efficient for Southeast Asian companies to target countries such as China, Vietnam, Cambodia, and Lao DPR with cultural similarity. Moreover, the companies were more familiar with their market size and nature.

b. Chemical

11 companies interviewed comprise 7 pharmaceuticals, 2 producers of chemical dyes, 1 fertilizer companies and 1 basic chemical element producer. In Thailand, 3 pharmaceutical companies participated in the seminar. Pharmaceutical companies include those dealing with Active Pharmaceutical Ingredient (API), formulation, production of various enzymes, generic medicines to anti-neoplastic drugs. In this sector, a company which showed interests toward investing in Zambia

was a company producing pigments which heavily depends on copper as a raw material. They are interested in mining and refining of copper to ensure the supply of the raw materials. On the other hand, the export value to Africa is smaller than the other regions, and it did not see the rationale to have pigment production facilities in Africa.

Regarding the wide spectrum of products, production process and related services such as research and development (R&D) and logistics, there was an attempt to identify the kind of product and activities that might be viable in Southern Africa. However, according to the in-depth interviews, although the sample size was limited, it was yet to be concluded that pharmaceuticals may be difficult to attract the investment of production and some services. Despite relatively large share of African countries in the total export value, one Indian company engaged in formulation claimed that it was still cheaper to produce centrally in India rather than producing in COMESA or SADC countries. Import duty for raw materials and registration costs are too high to overcome the cost of transportation of raw materials into African countries. Some exports to Africa were found in the area of anti-neoplastic medicines, but most of the companies claimed that the market had not been conducive to move the production bases. The reason was the size of the market with under-developed medical and health care system where doctors who can utilize the kind of medicines are insufficient.

Many pharmaceutical companies in India also encompass R&D in the area of biotechnology. This area is highly knowledge-intensive. Therefore, the industry requires availability of quality and cheap technical level personnel with good technical education. At the same time, the laws and regulations to protect intellectual property rights are also necessary factors for the biotechnology industry to be fostered.

c. Machinery and equipment

Machinery and equipment also comprises various categories of products and the characteristics of the production. The interviews covered 3 heavy equipment and fabrication of plants, 1 special-purpose equipment (tractor), 1 other transportation equipment (bicycle), and 4 general-purpose or other special-purpose machinery.

Those that showed interest towards investing in Southern Africa were a tractor company, a company developing an energy-efficient ventilation system, a producer of plastic bottle forming machine. A tractor company was the only company which considered Zambia as their investment destination. This company has a track-record of trading with COMESA countries where it confirmed its comparative advantage of its products in the region: Due to the similarity in agronomic skill level, a tractor company found that the market potentials in the regional market would be large enough to compensate their assembly plants.

Two other companies recognized their products' potentials in Africa, although one company was seeking investment possibilities in Middle East, and a plan for Africa was still only an idea. Another company had started reviewing the possibility in investing in South Africa. The major factors raised were:

- Good transportation system to minimize transportation costs (and the proximity to the port)
- Business-friendly and well-established legal system
- Easiness of doing business with simplified license and permit requirements
- Availability of reliable local partners
- Power stability
- Manageable import duty for parts

With under-developed supporting industries which can provide the parts, the products sold in Africa were exported either as a form of assembled final products or assembling (complete knockdown, CKD, or semi-knockdown, SKD). Most of the interviewed machine producers procure a large share of the parts from their suppliers, regardless of the degree of complexity of the products (i.e., the numbers and variety of the parts). Therefore, current possible mode of transferring production sites may be CKD or SKD. However, due to the high transportation cost, these types of operations can also be difficult in Zambia.

Large equipment and heavy machinery companies did not find the attractiveness in establishing their production sites in Africa mainly due to the market size. The African market is too small to sustain the size of demand to support the newly-established facilities. This is mainly due to the level of the industrial development where the consumer products may be in demand, but the production facilities and other heavy machinery which should equally be in demand when the industrial sectors mature to the certain level is lacking.

d. IT related services

IT related services are a knowledge based intensive sector. According to the questionnaire survey, 77% of the companies rated availability of skilled labor as a "highly important" determinant for investment. At the same time, due to relatively small initial cost on physical investment, they can be flexible in sourcing the human resource on-site or bringing it from their headquarters if they value the size of the market is large enough or has potentials to justify their investment.

In terms of investing in Africa, the first concern raised by interviewed IT industries was the availability of markets. With rather weak private sector, the demand may have to be created through some government or public sector's initiatives. Some examples of possible areas to explore identified by interviewed companies were the following: facilitation of e-government; system development for introduction of multi-purpose cards; system development for passport control and immigration data administration; system and software development for education (distant learning and e-learning); and system development for medical sector's back-office functions (e.g. distant diagnosis). These areas may be strongly led by governments and the public sector. Some companies in Southeast Asia also worked on banking system development. In order to induce the investment, interviewed companies maintained strong commitment of the GRZ in order to lead the creation of demand for IT-related services by such measures as system innovation through promoting E-Government and optimal deregulation in the area of telecommunication sector and other public services such as health sector.

e. Electronics and electrical appliances

Interviewed companies in the area of electronics and electronic appliances include 1 electric home appliance, 1 radio, television and other communication apparatus, 2 electronic machinery and apparatus such as equipment for electric distribution and electrical wires. These companies raised market availability and accessibility to the markets as one of the most important factors. None of the companies interviewed have any plan for investment in Africa in the next 3 to 5 years. The reason cited were weak demand compared with other regions with growing demand (e.g., Asian countries and Russia).

In the questionnaire survey, cheap and quality raw material availability was scored as "important" or "highly important" by all the responding companies. Raw materials would, however, have different meanings for different product groups. For those producing electrical distribution system and wires, copper is one of the important raw materials. However, they procure this from the London Metal Exchange (LME) with the appropriate classification and grading. These companies have no plan at this moment to go for vertical integration to the upstream of copper industry such as mining and smelting. Location does not necessarily require being in the proximity in the specific copper producing areas. On the other hand, according to the sources of electrical wire related industry, in the face of surging copper price, wire producers have been seeking alternative materials for wires[3].

According to an electronic manufacturing service (EMS) company handling radio, television and other communication devices, the location for the investment should also be examined based on the various cost factors such as cost of procuring the parts, labor, transportation, utilities, duty and excise, and tax structure. The cost of production varies depending on the structure and the nature of the specific value-chain of the products. All these factors are reviewed vis-à-vis the potentials and the size of the market and the profits to be created.

[3] Based on the interviews with the Copper Development Centre South East Asia in June 2008.

3.2 INVESTMENT CLIMATE IN ZAMBIA

3.2.1 POTENTIAL INDUSTRY

Zambia's central geographical location within South Central Africa with common borders with eight countries in the region provides excellent export market opportunities to potential enterprises. Though landlocked, its road, rail and telecommunication facilities are reasonably well developed for direct access to regional and international markets.

Zambia's active participation in the SADC Trade Protocol as well as the COMESA/FTA offers preferential tariff access to total market potential. Similarly, with the advent of Africa Growth and Opportunity Act (AGOA) duty free access to the huge US market has become a reality. Zambia is also a signatory to the Cotonou Agreement, which aims to achieve free trade arrangements between the EU and the Africa, the Caribbean and the Pacific (ACP) countries.

Prime growth sectors for investment are manufacturing, agriculture and agro-processing, tourism, energy, mining. Others offering fresh investment opportunities are infrastructure development, commercial buildings, transportation, human resource development, media, telecommunication and IT services.

(1) Manufacturing

The manufacturing sector account for about 13.7% of the country's GDP and has been consistently growing. However, the sector needs diversification to produce a wide variety of high quality value added intermediate and final products principally for the export markets. Engineering, textiles, wood & wood products, building materials, processed foods, chemicals, leather and leather products and handicrafts offer potential opportunities.

(2) Agriculture

Zambia has vast agricultural resource endowment. Arable land is plentiful for large-scale modern farming. Government has allocated vast tracks of land near rail and road networks for prospective investors and electrification of these blocks is on-going. Surface and underground water is in abundance.

Climatic conditions are ideally suited for wide variety of exportable crops including horticulture and floriculture. Agro-processing of wheat, soybeans, cotton, tobacco, spices, sugar and vegetables is encouraged to add value to local produce. Special incentives are offered to commercial and small holder farmers.

(3) Mining

Zambia has enormous reserves of copper-cobalt ore and the country is the fourth largest producer of copper metal. Gold, nickel, lead-zinc, iron and manganese are also mined. In addition, Zambia is endowed with very high quality of Gemstones – emerald, amethyst, aquamarine, rubies, garnets, and

diamonds – which are still unexploited. With the privatization of the mining sector, potential opportunities have become very attractive.

(4) Tourism

Potential of Zambia as one-stop destination offers excellent prospects for advancement of this highly under-developed sector. With 19 national parks, 23 game management areas, largest water fall in the world, and 23 million hectares devoted to the conservation of spectacular variety of animals, the scope for an integrated quality tourism related investment is very attractive. Wildlife such as elephant, leopard, lion, cheetah, rhinoceros, zebra, giraffe, hippopotamus, crocodile, buffalo, impala, antelope, baboon and a host of smaller creatures as well as over 700 species of birds can be seen. Opportunities to promote adventure holidays, namely white-water rafting, canoeing, rock-climbing, hang-gliding, fishing, bungee-jumping at Victoria Falls including its unique walking safaris offer excellent tourism potential.

(5) Energy

Zambia has abundant energy resource. The most important source of energy is electricity, which is generated by three major hydroelectric power stations with installed capacity of 1,608 MW. With the liberalization of the economy, GRZ has amended legislation affecting generation, transmission, distribution and supply of electricity thus allowing private sector entry. Potential opportunities identified are Kafue Gorge Lower Hydro-Electric Project, Itezhi-tezhi Hydro-Electric Project, Zambia-Tanzania Interconnector and Zambia-Namibia Interconnector. Exploration potential for hydrocarbons (oil and gas) is one area that has not been tapped fully; hydrocarbon source rocks are proven and are preserved in all basinal areas of Zambia. GRZ welcomes active participation from prospective investors with modern technological expertise.

(6) Others

Development, improvement and modernization of Zambia's road, transport, railway, inland waterway transport and telecommunication networks as well as commercial properties to meet high quality international business and consumer requirements are areas that should offer profitable opportunities for both domestic and foreign entrepreneurs to pursue. Knowledge-based business institutions to improve and enhance the quality and diversity of Zambian and regional workforce and management to achieve international standards, also offer exciting investment opportunities. Similarly, private sector enterprises with expertise in environmental protection and natural resource management, capacity building and training, would find Zambia an attractive location to invest to meet both domestic and regional market potentials.

3.2.2 FDI IN ZAMBIA

(1) Investment Performance – "World Investment Directory Volume X Africa 2008 (UNCTAD)"

Zambia's natural resource balance includes copper and some deposits of cobalt, both of which are open to foreign investors. Since the early 1920s copper has been mined commercially. Alongside these base metals, precious and semi-precious gems (emeralds, amethyst, aquamarine, tourmaline,

among others) have been mined in around four hundred operations. Zambia has also privatized a large part of its state-owned enterprises without much restriction on foreign participation. GRZ has considered plans to break the state-owned Zambia Electricity Supply Company (ZESCO) into separate energy generation, distribution and transmission utilities, and place them all under private management. Other privatization plans include the state telecoms company, Zambia Telecommunications Corporation (Zamtel), and the Nitrogen Chemicals, Zambia. GRZ has also begun liberalizing energy and transport sectors.

Zambia signed to the Convention on the Settlement of Investment Disputes between State and Nationals of other States on 17 June 1970 and aims at furthering its integration into the global economy by joining many market access schemes. It is a member of the SADC, COMESA, the African Union (AU) and New Partnership for Africa's Development. It is also eligible to the Cotonou Agreement for renegotiating the partnership agreement between the European Union and the African, Caribbean and Pacific countries, and the United States' market access arrangement for African countries - the African Growth and Opportunity Act. Zambia is also a member of the World Trade Organization (WTO).

Table 3.2.1 Summary of FDI

(Unit: millions US$)

Variable	Inward	Outward
1. FDI flows, 2003-2006 (annual average)	316.6	-
2. FDI flows as a percentage of GFCF, 2003-2006 (annual average)	20.8	-
3. FDI stocks, 2006	3 780	-
4. FDI stocks as a percentage of GDP, 2006	34.5	0.0

Source: Based on tables 3 and 4 and UNCTAD, FDI/TNC database.

Table 3.2.2 FDI Flows, by Type of Investment, 1980-2006

(Millions of dollars)

Year	Inward investment				Outward investment			
	Equity	Reinvested earnings	Other	Total	Equity	Reinvested earnings	Other	Total
1980	-	61.8	-	61.8	..	..	..	..
1981	-	- 38.4	-	- 38.4	..	..	..	..
1982	-	39.0	-	39.0	..	..	..	..
1983	-	25.7	-	25.7	..	..	..	..
1984	-	17.2	-	17.2	..	..	..	..
1985	-	51.5	-	51.5	..	..	..	..
1986	-	28.3	-	28.3	..	..	..	..
1987	-	74.5	-	74.5	..	..	..	..
1988	-	93.3	-	93.3	..	..	..	..
1989	-	15.2	135.1	163.6	..	..	..	..
1990	-	102.5	88.0	202.8	..	..	..	..
1991	-	20.4	3.2	34.3	..	..	..	..
1992	-	-	-	45.0	..	..	..	..
1993	-	-	-	314.4	..	..	..	..
1994	-	-	-	40.0	..	..	..	..
1995	-	-	-	97.0	..	..	..	..
1996	-	-	-	117.1	..	..	..	..
1997	197.4	-	10.0	207.4	..	..	..	..
1998	198.0	-	-	198.0	..	..	..	..
1999	162.0	-	-	162.8	..	..	..	..
2000	121.7	-	-	121.7	..	..	..	..
2001	..	..	..	71.7	..	..	..	..
2002	..	..	..	82.0	..	..	..	..
2003	..	..	..	172.0	..	..	..	..
2004	..	..	..	364.0	..	..	..	..
2005	..	..	..	380.0	..	..	..	..
2006	..	..	..	350.4	..	..	..	..

Source: UNCTAD, FDI/TNC database (www.unctad.org/statistics).
Note: Data for inflows are based on information provided by the IMF for 1980-1989, Zambia Investment Center for 1990-1991 and 1993-2006, and World Bank for 1992.

3.2.3 COMPARISON OF FDI WITH NEIGHBOURING COUNTRIES

(1) Position of FDI to Zambia

While FDI to Africa is a very small portion in the world FDI, South Africa accounted for almost 60% of total FDI in Southern African countries in the past 5 years (2003-2007). FDI to Zambia accounted for 10% of total FDI in Southern African countries. This ratio is almost same as FDI to Tanzania, but higher than Mozambique.

Table 3.2.3 FDI to Southern African Countries (2003-2007)

	2003	2004	2005	2006	2007	Average from 2003–2007
World FDI inflows						
Inflows (US$ mil)	564,078	717,695	958,697	1,411,018	1,833,324	1,096,962
Rate of growth (%)	–	27%	34%	47%	30%	34%
% of GDP	180%	200%	220%	240%	230%	214%
Africa						
Inflows (US$ mil)	18,677	18,020	29,459	45,754	52,982	32,978
% of world total	3.3%	2.5%	3.1%	3.2%	2.9%	3.0%
Rate of growth (%)	–	−4%	63%	55%	16%	26%
Southern Africa						
Inflows (US$ mil)	5,307	3,715	6,571	1,278	7,063	4,787
% of Africa	28%	21%	22%	3%	13%	15%
Rate of growth (%)	–	−30%	77%	−81%	453%	84%
South Africa						
Inflows (US$ mil)	734	799	6,644	−527	5,692	2,668
% of Southern Africa	14%	22%	101%	−41%	81%	56%
Rate of growth (%)	–	9%	732%	−108%	1180%	363%
Zambia						
Inflows (US$ mil)	172	364	357	616	984	499
% of Southern Africa	3%	10%	5%	48%	14%	10%
Rate of growth (%)		112%	−2%	73%	60%	48%
Tanzania						
Inflows (US$ mil)	308	331	568	522	600	466
% of Southern Africa	6%	9%	9%	41%	8%	10%
Rate of growth (%)	–	7%	72%	−8%	15%	17%
Mozambique						
Inflows (US$ mil)	337	245	108	154	427	254
% of Southern Africa	6%	7%	2%	12%	6%	5%
Rate of growth (%)	–	−27%	−56%	43%	177%	27%

Note: Prepared by JST
Source: Country fact sheet; UNTD World Investment Report 2007 & 2008

(2) Investment Potential in Neighbouring Countries

1) South Africa

The UNCTAD World Investment Report for 2004 rated South Africa as the most attractive country in Africa for transnational corporations in 2003. FDI in telecommunications and information technology overtook mining and extraction.

Alan Greenspan commented in June 2008 that two critical elements are required to maintain investment stability in South Africa: 1 – Stable supply of electricity; 2 – Stability at political and economic level.

There are many lucrative possibilities arising from South Africa's wealth of natural resources and almost unlimited export and import opportunities. South Africa is a vast country covering 1,223,000km^2. It is equivalent in size to Germany, France, Italy, Belgium and the Netherlands combined.

South Africa has huge mineral resources. It holds 80% of the world's reserves of manganese ore; 88% of the world's reserves of platinum group minerals; 45% of the world's reserves of gold and 73% of the world's reserves of chromium. South Africa is the world's largest producer of gold, platinum, vanadium, chromium, manganese and alumina-silicates.

According to the Department of Trade and Industry, South Africa as an investment host country offers a policy of openness which promotes FDI. It is also favourable to enacting investment legislation, industrial development zone legislation and making investment incentives available. South Africa is the engine of growth in Southern Africa and with its new global focus, strategic geographical location and world class infrastructure assets; it presents a highly competitive investment location.

2) Mozambique

The 1993 Investment Act was enacted in Mozambique to attract local and foreign investment. Certain types of foreign investment qualify for fiscal and custom benefits as provided in the Code of Fiscal Benefits. The Investment Promotion Centre (CPI) is responsible for promoting investment and monitoring the implementation of the investment legislation.

There are no restrictions on foreign ownership in Mozambique, except those provided for under the Land Act. However, foreign investment proposals must be submitted for approval to the CPI, if investors intend to benefit from guarantees and incentives established under the Investment Law in Mozambique. The minimum amount for foreign investments is fixed at US$ 50,000.

The main requirements are that these investments should contribute to the sustainable economic and social development of the country, meet the principles and objectives of national economic policy and satisfy the provisions of the investment law and its regulations, and any other applicable legislation in force in the country.

3) Tanzania

Tanzania is regarded as one of the countries with the highest growth potential in Africa with enormous potential as an investment destination. Tanzania embarked on a wide ranging reform program since the mid-1990s in order to provide an enabling business environment that would facilitate the development of the private sector. Since the country started to implement economic and institutional reforms, there has been a steady increase of FDI inflows in the economy. An increase in FDI indicates that the country's investment environment has increasingly improved in the manner that investors are now able to predict more precisely profits to be accrued from their investments.

Tanzania is an emerging economy with high growth potential. Whilst the economy is relatively diversified, a number of opportunities remain untapped in many sectors. In an attempt to make Tanzania the preferred destination for FDI, continuous improvements towards the creation of an enabling environment have been made to cater for investment opportunities in specific sectors of the economy.

(3) Measuring Africa's Competitiveness by WEF

1) Global Competitiveness Index (GCI)

In order to assess national competitiveness, the World Economic Forum (WEF) has developed the Global Competitiveness Index (GCI). Competitiveness is defined as the set of institutions, policies, and factors that drive productivity and therefore set the sustainable current and medium-term levels of economic prosperity.

The GCI, albeit simple in structure, provides a holistic overview of factors that are critical to driving productivity and competitiveness, and groups them into nine pillars: institutions (public and private), infrastructure, the macro economy, health and primary education, higher education and training, market efficiency (goods, labor, financial), technological readiness, business sophistication, and innovation. Each of pillar plays a critical role in driving national competitiveness. The GCI is the most comprehensive competitiveness index to date, measuring the macro and micro economic drivers of competitiveness across a large number of countries. The selection of these pillars, as well as the factors that enter each of them, is based on the latest theoretical and empirical research. It is important to note that none of these factors alone can ensure competitiveness.

2) Competitiveness of Africa

This section will assess the performance of individual African countries, as well as the overall competitiveness of Africa as a region, compared with international standards.

Table 3.2.4 shows the rankings and scores of the 29 African countries covered in the 2007 GCI out of all 128 countries covered. The table also shows their rankings in 2005 for comparison. To put the analysis into a global context, a number of comparator economies are included. These include the averages of two relevant developing regions, Latin America and Southeast Asia, as well as the ranks and scores of the four rapidly developing and large "BRIC" countries (Brazil, Russia, India, and China).

As the table shows, of all the countries covered Tunisia is the strongest performer, ranked among the top 30 of all countries included in the index. Tunisia also outperforms all other comparator economies shown in Table 3.2.4. Within Africa, Tunisia is followed by South Africa and Mauritius, ranked 46th and 58th, respectively. A bit farther down in the rankings are the other North African countries, namely Egypt, Morocco, Libya, and Algeria, ranked 65th, 72nd, 73rd, and 76th, respectively. All other countries ranked below Algeria are from the sub-Saharan region, with Botswana, Namibia, and Kenya as the only three other countries within the top 100 countries ranked. All of the other 19 countries from sub-Saharan Africa rank among the 27 weakest performers occupying ranks of 102 or lower.

Table 3.2.4 Global Competitiveness Index, 2007 and 2005 Comparisons

	GCI 2007		GCI 2005
Country/Region	Rank*	Score	Rank**
Tunisia	29	4.72	37
India	42	4.47	45
South Africa	46	4.42	40
China	55	4.25	48
Southeast Asia average		**4.25**	
Mauritius	58	4.22	55
Russian Federation	61	4.13	53
Egypt	65	4.09	52
Brazil	67	4.08	57
Latin America & Caribbean average		**4.07**	
Morocco	72	4.02	76
Libya	73	4.00	—
Algeria	76	3.98	82
Botswana	83	3.83	72
Namibia	88	3.76	79
Kenya	97	3.61	93
Nigeria	102	3.49	83
Gambia	104	3.45	109
Benin	107	3.41	106
Tanzania	108	3.40	105
Cameroon	111	3.32	—
Madagascar	113	3.29	107
Lesotho	115	3.24	—
Uganda	116	3.21	103
Zambia	117	3.21	—
Mauritania	118	3.18	—
Burkina Faso	119	3.10	—
Malawi	120	3.09	114
Zimbabwe	121	3.07	110
Mali	122	3.04	115
Ethiopia	123	3.00	116
Mozambique	124	2.97	112
Chad	126	2.64	117
Burundi	127	2.62	—
Angola	128	2.50	—

*Out of 128 economies; ** Out of 117 economies
Note: All averages are weighted by population.

Table 3.2.5 provide more details behind what is driving the overall ranks and scores shown in Table 3.2.4. North Africa and sub-Saharan Africa have radically different competitive performances, as shown by the averages in Table 3.2.5. Specifically, North Africa outperforms the average of the other countries on the continent in all three sub-indexes measured by the Index, as well as all nine pillars. The largest gaps can be found in the areas of health and primary education, higher education and training, infrastructure, and the macroeconomic environment. The smallest gaps are in market efficiency, technological readiness, and innovation.

The gaps between the north and south of the continent are echoed in many of the comparisons with the other regions and selected countries shown in the tables.

Sub-Saharan Africa is, on average, outperformed by all comparators in seven out of the nine pillars: namely, infrastructure, health and primary education, higher education and training, market efficiency, technological readiness, business sophistication, and innovation. Again, the largest performance gaps relative to the comparators are in infrastructure, health and primary education, and higher education and training. However, it is noted that, on average, sub-Saharan Africa outperforms a few countries in the remaining two pillars. This includes Russia, China, and, narrowly, Brazil with regard to the quality of the institutional environment, and Brazil with regard to macroeconomic stability. Yet overall, it is clear that sub-Saharan Africa's competitive performance trails well behind that of other developing countries and regions.

Table 3.2.5 The Global Competitiveness Index 2007: Africa and Comparators

	OVERALL INDEX		SUBINDEXES					
			Basic requirements		Efficiency enhancers		Innovation factors	
Country/Region	Rank	Score	Rank	Score	Rank	Score	Rank	Score
NORTH AFRICA								
Algeria	76	3.98	44	4.91	92	3.30	92	3.22
Egypt	65	4.09	64	4.55	75	3.63	65	3.63
Libya	73	4.00	45	4.87	95	3.25	97	3.16
Morocco	72	4.02	70	4.45	77	3.60	73	3.54
Tunisia	29	4.72	33	5.27	40	4.34	28	4.42
North Africa average		**4.09**		**4.67**		**3.58**		**3.56**
SUB-SAHARAN AFRICA								
Angola	128	2.50	128	2.48	126	2.51	126	2.52
Benin	107	3.41	106	3.74	107	3.04	90	3.23
Botswana	83	3.83	82	4.30	80	3.54	98	3.15
Burkina Faso	119	3.10	124	3.17	112	2.96	86	3.27
Burundi	127	2.62	127	2.73	127	2.46	121	2.66
Cameroon	111	3.32	108	3.71	117	2.91	104	3.05
Chad	126	2.64	126	2.90	128	2.35	125	2.53
Ethiopia	123	3.00	118	3.31	123	2.69	119	2.72
Gambia	104	3.45	105	3.84	103	3.11	115	2.89
Kenya	97	3.61	109	3.70	83	3.47	59	3.73
Lesotho	115	3.24	107	3.72	122	2.81	123	2.59
Madagascar	113	3.29	114	3.60	116	2.92	91	3.23
Malawi	120	3.09	119	3.30	119	2.87	112	2.93
Mali	122	3.04	123	3.19	121	2.83	96	3.17
Mauritania	118	3.18	117	3.41	113	2.94	108	2.98
Mauritius	58	4.22	50	4.74	62	3.88	47	3.84
Mozambique	124	2.97	122	3.25	124	2.63	118	2.86
Namibia	88	3.76	72	4.44	93	3.29	88	3.25
Nigeria	102	3.49	113	3.60	90	3.33	69	3.60
South Africa	46	4.42	57	4.66	45	4.24	29	4.35
Tanzania	108	3.40	115	3.56	96	3.17	77	3.49
Uganda	116	3.21	121	3.27	100	3.12	83	3.30
Zambia	117	3.21	116	3.52	109	3.01	127	2.43
Zimbabwe	121	3.07	125	3.09	108	3.03	94	3.18
Sub-Saharan Africa average		**3.29**		**3.55**		**3.05**		**3.12**
BRICs								
Brazil	67	4.08	88	4.23	58	3.96	38	4.09
China	55	4.25	47	4.82	72	3.66	57	3.75
India	42	4.47	63	4.56	41	4.33	26	4.60
Russian Federation	61	4.13	68	4.49	59	3.96	72	3.55
Latin America and Caribbean average		**4.07**		**4.41**		**3.83**		**3.75**
Southeast Asia average		**4.25**		**4.53**		**4.01**		**3.90**

Note: All averages are weighted by population.

3.2.4 INDUSTRIAL SURVEY IN ZAMBIA

(1) Methodology of the Industrial Research

A questionnaire survey was conducted for the qualitative analysis and an interview survey was carried out concurrently by JICA Study Team (JST).

300 enterprises were targeted after an initial screening from existing records of enterprises in Lusaka (200 samples) and the towns of Copperbelt (100 samples). The duration of the survey was from May 16th, 2008 to July 15th, 2008.

The number of collected questionnaires is shown in Table 3.2.6. In order to make the analysis easier, the sectors were tentatively fixed for this report in i) manufacturing Sector (except food industry), ii) food industry and iii) service industry.

Table 3.2.6 Number of Collected Questionnaires by Sector

Sector of Industry	Executive Body of Investment		
	Lusaka	Copperbelt	Total
Manufacturing Sector (except Food)	49	36	85
Food Industry Sector	16	6	22
Service Industry Sector	40	20	60
Others	5	3	8
Total	110	65	175

Source: JICA Study Team

"Type of business," which is a sub-category of the "Sector" above is shown in Table 3.1.2. Those types of businesses were designated by the JST for ease of analysis. Since the registration system of Patents and Companies Registlation (PACRO) is not categorized by sectors, the accurate proportion of the business types of companies cannot be discerned. The proportion of the sample is not indicative of the real condition. Also, some companies have diversified their businesses such that they span multiple sectors. Therefore, there are duplications in the types of businesses shown in Table 3.2.7.

Table 3.2.7 Number of Collected Questionnaires by Type of Business

Type of Business	Total	Type of Business	Total
1. Mining	2	7. Transporting / Forwarding	18
2. Manufacturing (except Food)	44	8. Financial Institutions	9
3. Construction	13	9. Tourism	10
4. Agricultural Products	6	10. ICT	3
5. Food Processing	12	11. Mass Media/ Design / Art	3
6. Trading /Retailing	43	12. Others	33

Source: JICA Study Team

(2) Outline of the Respondent Companies

1) Foundation

Zambia had been pursuing a socialistic economic system of government from 1964 to 1991, and the major enterprises were majority government-controlled in principal. Following the breakup of the Soviet Union, Zambia turned to a market-oriented economy in the same manner as many other socialist countries. Privatization of state owned companies was executed very drastically under the guidance of the World Bank (WB) and Interanational Monetary Fund (IMF).

However, most companies faced difficulties in business operation after the economic system changed to a market-oriented economy. Distribution systems and credit dealings that had been carried out based on a planned economy collapsed and at the same time cheap, imported commodities flooded the markets. Most local manufacturers were no longer able to keep running their factories. Foreign investors such as Colgate, Lonrho, etc. withdrew from Zambia.

30 % of respondent companies were established after the year 1991 (see Table 3.2.8). Some of the former national companies were shared by international investors. There were some companies that stopped manufacturing and started importing instead due to the weakened competitiveness of their commodities.

Table 3.2.8 Number of Respondents by Established Years

Year of Establishment	Total
1948-1980	37
1981-1990	16
1991-2000	64
2001-2008	51
n.a.	7

Source: JICA Study Team

2) Capital

Table 3.2.9 shows the nominal capital by type of capital and background. The total number of valid respondent companies was 101.

- Local companies owned 100% by locals are rather smaller companies with an average capital of ZMK 515 million.
- The former state owned companies received indirect investment from foreign investors and continue operating under their supervision.
- The average amount of capital of joint capital companies is recorded as ZMK 2,731 million. This is caused by the large international food processing company “Parmalat” having ZMK 30,000 million.
- Since only 8 respondents are foreign owned companies, the average is just for reference but it is certain that their average capital is greater than that of the locals.
- FDI to locals and/or joint ventures with foreign companies are effective ways to increase capital and introduce modern facilities.

Table 3.2.9 Nominal Capital by Type of Capital and Background

Type of Capital	Num of Company	ZMK
All Local Capital	109	514,572,323
Mixed with Foreign Capital	12	2,731,089,667
All Foreign Capital	8	1,600,250,000
Total	129	788,088,831

Source: JICA Study Team

3) Personnel

Table 3.2.10 shows the average number of staff including the Chief Executive Officer (CEO), permanent staff and seasonal staff. 94 out of 174 (54%) of respondent companies answered that their number of staff is less than 50. In this survey the average number of staff was 128.

Table 3.2.10 Number of Staff

Number of Staff	Number of Respondents	Percent (%)
<50	94	54
50-99	28	16
100-199	25	14
200-399	17	10
≥400	10	6
Average	128 staffs	

Source: JICA Study Team

There are no obvious gaps of staff numbers among the sectors in accordance with this questionnaire survey, as shown in Table 3.2.11.

There are not many large manufacturing companies in Zambia; it is dominated rather by manual works using old machinery. Automation systems utilizing robots have not been developed at all, but labor-intensive industries have also not been expanded. The food industry is rather larger than the manufacturing (except food) in terms of staff numbers, and the service industry is the largest. The super-large mining companies in the Copperbelt province were not sampled in this statistical analysis.

Table 3.2.11 Number of Staff by Sector of Industry

Sector of Industry	Number of Respondents	Average Number of Staff
1.Manufacturing (except Food) Sector	85	113
2.Food Industry Sector	22	122
3.Service Industry Sector	60	136
4.Others	8	230
Total / Average	175	128

Source: JICA Study Team

(3) Business Performance

1) Turnover, Profit and Cost

The amounts of turnover, cost and profit were sought in the questionnaire, but most respondents failed to provide adequate responses. Although the survey was conducted to grasp the current situation of local companies, the respondents were reluctant to reveal their financial conditions. The accountability and transparency of companies required for modern international business haven't yet penetrated into the Zambian society. The JST removed a large amount of invalid data provided and selected the 98 samples which provided the necessary data. Table 3.2.12 indicates the turnover, profit and cost of the screened 98 valid samples. Profitability of the business was 6.1% on average; manufacturing sector was 6.5%, food was 5.7% and others were 6.0%. The food sectors appear to represent "low profit margins".

Table 3.2.12 Turnover, Cost and Profit in the Past Financial Year

(Unit: ZMK)

Sector	Sample Num.	Turnover	Cost	Profit	Profitability (%)
Manufacturing	46	15,066,355,355	14,086,858,601	979,496,754	6.5
Food	17	25,299,427,929	23,868,147,053	1,431,280,876	5.7
Others	3	5,713,295,667	5,369,528,667	343,767,000	6.0
Total	101	14,302,212,267	13,431,633,505	870,578,761	6.1

Source: JICA Study Team

Table 3.2.13 shows the financial status by number of staff. It seems that larger companies were more profitable but the reality is not in order; in particular the group of companies with staff numbers of 100-199 is less profitable (5.0%) than the group with 50-99 staff members (6.3%).

The medium-size companies may face the turning point of efficiency when upsizing in general. Additional investments and/or restructuring of the personnel are required to perform business more efficiently in the process of a company's upgrading.

Table 3.2.13 Turnover, Cost and Profit by Number of Staff

(Unit: ZMK)

Staff	Sample Num.	Turnover	Cost	Profit	Profitable (%)
<50	52	7,035,533,726	6,734,954,263	300,579,463	4.3
50-99	19	10,603,874,566	9,932,474,310	671,400,255	6.3
100-199	18	11,895,615,524	11,304,407,804	591,207,720	5.0
200-399	9	59,822,222,222	55,645,333,333	4,176,888,889	7.0
≥400	3	41,560,329,667	37,791,003,333	3,769,326,333	9.1
Total	101	14,302,212,267	13,431,633,505	870,578,761	6.1

Source: JICA Study Team

2) Business Tendency

Although respondents did not clearly indicate their financial status in the questionnaires, they found it relatively easy to answer questions of the tendencies of business performances.

Table 3.2.14 indicates business tendency over the last 5 years. There is a not difference among sectors but the variable cost of the service sector is higher than in the other sectors. Most respondents answered that while their turnover and profit have been increasing, their costs, especially variable costs, have been increasing as well.

Table 3.2.14 Tendency of Business Performance

Items / Score	Great Decrease	Slight Decrease	No Change	Slight Increase	Great Increase	Average Score
	1	2	3	4	5	-
Turnover	3	6	2	95	27	4.03
Profit	4	16	5	98	10	3.71
Fixed Cost	2	10	21	49	51	4.03
Variable Cost	1	13	6	54	59	4.18

Source: JICA Study Team

3) Financing

According to this survey, 41.1% of the respondent companies have borrowed money at some time from a bank and/or financial institutions as shown in Table 3.2.15.

Table 3.2.15 Frequency of Borrowing Money

Item	Number	Percent
Never	69	39.4%
Seldom	53	30.3%
Often	46	26.3%
n.a.	7	4.0%
Total	175	100.0%

Source: JICA Study Team

Table 3.2.16 indicates the reasons for the debts as well as their amounts and interest rates.

91.8% (90 out of 98 respondents who have borrowed money) use private banks and 8.2% (8 out of 98) have borrowed from a government controlled bank. The average lending rate was 19.2% per year. Since the reasons for the debts have multiple answers, the total percent in the table is not 100%.

Focusing on the sum of debts by reason, raw material totals about ZMK 1,663 million and equipment is about ZMK 2,858 million on average. The amount of borrowing for building and facilities is rather higher.

There are no obvious characteristics of interest rates by reason observed from the data collected.

Table 3.2.16 Reasons for the Debts (multiple answers)

	Frequency	Percent	Million Kwacha	Interest Rate (%)
Raw material	36	36.0%	1,663	19.55
Equipment	46	46.0%	2,858	18.86
Salary	1	1.0%	500	23.00
Building and facilities	8	8.0%	3,615	16.90
Others	28	28.0%	4,691	19.38
Total	100 (119)		2,804	19.20

Source: JICA Study Team

The system of investment through selling a company's stocks has not yet fully developed in Zambia. The important issues to be taken into consideration to promote investments and credits were sought in the questionnaire; "financial performance" received 106 points out of 174 respondents and "transparency" got 91 points. "Mutual trust" got 50 points, "guarantee" got 45 points and "mortgage" received 31 points. Incidentally, up to 3 multiple answers were allowed.

Some of the respondents insisted that it is harder to borrow money from banks for equipment than for raw material because the time schedule for repayment is longer and the risk is higher. The interest rate is too high to invest in machinery as well. A reasonable long-term credit system is necessary to develop the manufacturing sector.

4) Sales and Marketing

The clients of most respondent companies are within Zambia. There are 10 companies which have expanded their businesses to surrounding countries in Africa and 2 companies that concentrate entirely on international business with foreign clients. One company in this questionnaire survey has been working directly for Asian companies. Even if they deal with Chinese goods and Japanese machinery, there might seldom be direct connection with international clients. Three companies deal with European companies and 2 deal with Middle East companies.

In terms of sales promotion, direct sales with a salesperson is the most popular method, followed by sign board, and then TV / magazine, as shown in Figure 3.2.1. Trade fairs, which are often held in Lusaka, Copperbelt and local towns have been utilized for finding regular customers. Websites are not yet popular for promoting business.

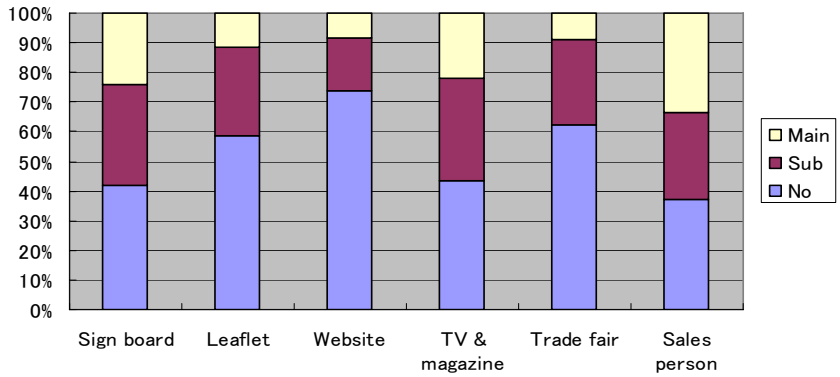


Figure 3.2.1 Sales Promotion

Most respondent companies indicated that they had researched and analyzed their business competitors, their customers' degree of satisfaction, and price fluctuations. They were aware that their products and services are not competitive enough for the international market but can fulfill the local market. The demands and requirements of the customers in Zambia might not be so high compared with developed countries. Low quality of goods and services is still acceptable in the local markets; however, low priced, low quality products from China and India have already replaced local ones in some markets.

Figure 3.2.2 shows the results of the question, "How do you get business market information?" Most respondents use information provided by mass media, as well as their own networks with acquaintances.

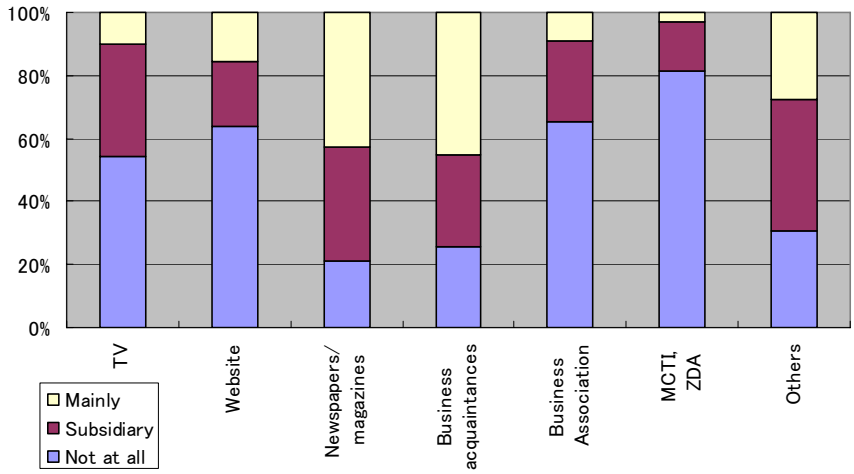


Figure 3.2.2 Access to Business Information

Figure 3.2.3 illustrates the results of the question, "What are your strong and weak points in business?" Most have self-confidence of "quality" with the highest average score of 4.44. The scores of "delivery on time" and "service attitude" are relatively high, at 4.03 and 3.98 respectively. On the other hand, the respondents recognize their costs and selling price are relatively weak, with scores of 3.32 and 3.72, respectively. In this context, the companies think their quality and service are good enough but their costs and prices are high.

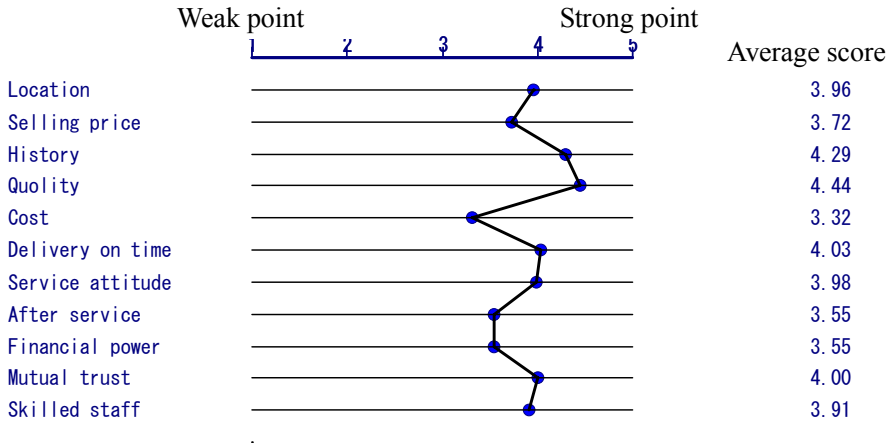


Figure 3.2.3 Strong and Weak Points in Business

Generally, the quality of products in Zambia is lower compared with Asian and European products. Low competitiveness is not only because of high prices but also because of low quality. The most serious issues are that Zambian companies were not aware of the reality of the international market. Imported goods are selected by consumers not only for low price but also high quality. For example, consumers said that the textiles from the Democratic Republic of Congo are better in quality. People are not selecting goods only by price but also by quality. Even where the price is high, consumers will buy a product as long as the quality is reasonable.

5) Purchasing

In terms of purchasing, the degree of satisfaction is rather lower on the whole. Respondents were not satisfied in their selling price, cost, delivering on time, and after services, with average scores of 3.02, 2.99, 3.21 and 3.27, respectively.

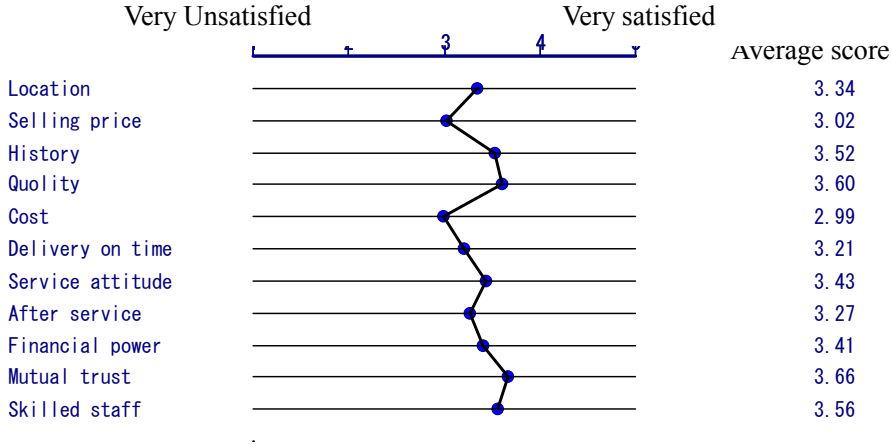


Figure 3.2.4 Degree of Satisfaction in Purchases

Since most of the raw materials and finished products are purchased from SADC, especially South Africa, the transportation costs are added. According to an interviewee, trucks are sometimes stuck at the international borders and have to wait up to 7 days for the Customs procedures. In cases where the raw material is not delivered on time, staffs are just waiting without working. Salaries have to be paid even if the staff did not put in work, and this is one of the causes of the increased costs.

Landlocked countries have a disadvantage in production. But on the other hand, transportation companies are active among the SADC.

(4) Infrastructure

Utilities such as water supply, drainage system and electricity in industrial areas were installed by the government during the first republic of the Kaunda era using international foundations. The system is still functioning but some parts of industrial areas have faced serious problems with utilities. Figure 3.2.5 and Figure 3.2.6 illustrates the degree of satisfaction by utility.

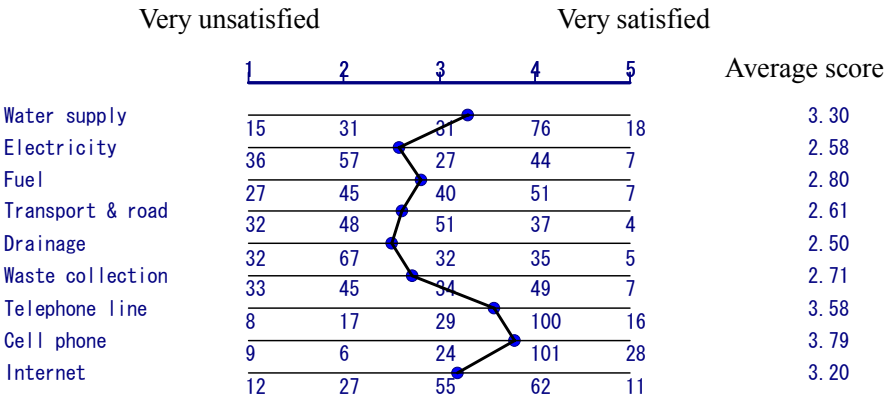


Figure 3.2.5 Degree of Satisfaction of Infrastructure

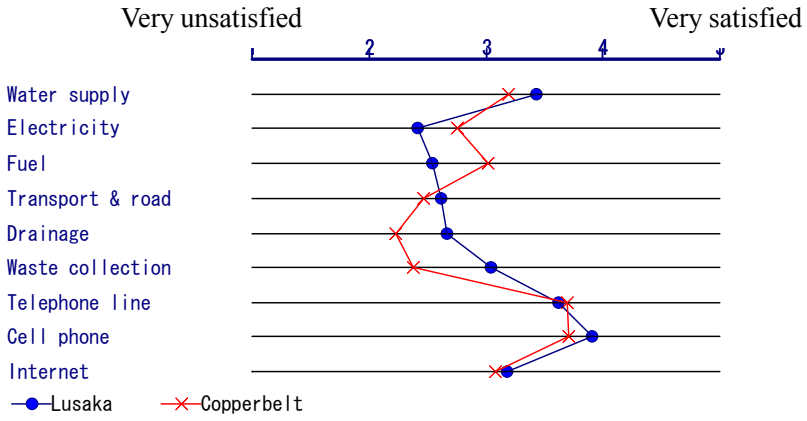


Figure 3.2.6 Degree of Satisfaction of Infrastructure by Location

1) Electricity

One of the most serious issues in Lusaka is shortages of electricity. Load shedding by ZESCO has been carried out very often without advanced warning. Some of the factories complain about power cuts and indicate that this is one of the causes of rising costs. After load shedding, food processing factories have to clean the equipment and check the hygiene conditions; it takes 3 hours to restart the equipment. "This is not the fault of the staff and we have to pay wages even if no one can work while waiting for the machinery to restart," said one head of a factory.

2) Communications

Internet connection is one of most important utilities for modern business. According to the questionnaire survey, the degree of satisfaction is not low cost but people complain about the high cost of internet in Zambia which is incredibly expensive compared with the international standard.

Another complaint is that the internet connections are not stable enough. Although the respondents acting locally haven't complained about the stability of their internet connections, international businesses expect a higher level of stability.

3) Drainage and Waste Collection

According to Figure 3.2.6, the most serious issues of concern on the Copperbelt are drainage and waste collection. The industrial area in Ndola was established in the 1970s and the drainage system needs rehabilitation.

The southern part of the industrial area in Lusaka often flood during the rainy season as well. The roads have been rehabilitated by Japanese support in recent years, but the conditions are still poor.

4) Access Roads and Railroad Connections

Most paved roads in the industrial area were damaged and require rehabilitation. Since the heavy tracks carried loads of 30-35 tons every day, the road conditions have been getting worse. Also, the road connections in the industrial area in Lusaka are not well planned, i.e. the dead end roads in Mukwa and Buyantanshi could not link other roads.

Railroad connections in the industrial area have not been functioning for a long time. They have not been rehabilitated and have not been operated efficiently.

The road network in the existing industrial area in Lusaka is inefficient. Traffic jams are serious and road renovations are required.

(5) Quality Assurance

1) Quality Control

Quality control (QC) of products and services is one of the most significant issues to consider in competitiveness of business. According to the results of the questionnaire, regular inspection is not common in Zambia. The International Organization for Standardization (ISO) certification system is also not popular. When requested about the degree of satisfaction of the quality as shown in Figure 3.2.4, respondents were rather satisfied and not concerned that quality should be improved.

Innovations in quality assurance have not yet extended to the market in Zambia. It is important to show the current level of quality in the international market. Self-satisfaction and over-estimation would be obstacles to improving business.

2) Training of Staff

Figure 3.2.7 illustrates the type of staff training. Asking senior staff is a common method of staff training to improve skills. In addition, respondents sometime send staff members to participate in seminars and/or ask consultants and experts to train staff.

One of the foreign capital companies engaged in manufacturing for export said that they provide regular training to avoid accidents and to secure quality. In order to satisfy the international clients of surrounding countries as well as Europe and the Middle East, they have to strictly maintain the quality. However, the turnover of trained staff is a problem. Even if the staffs are trained by the company, employees do not hesitate to quit a job for another job when they find better pay. The cost of training staff is not small on the whole.

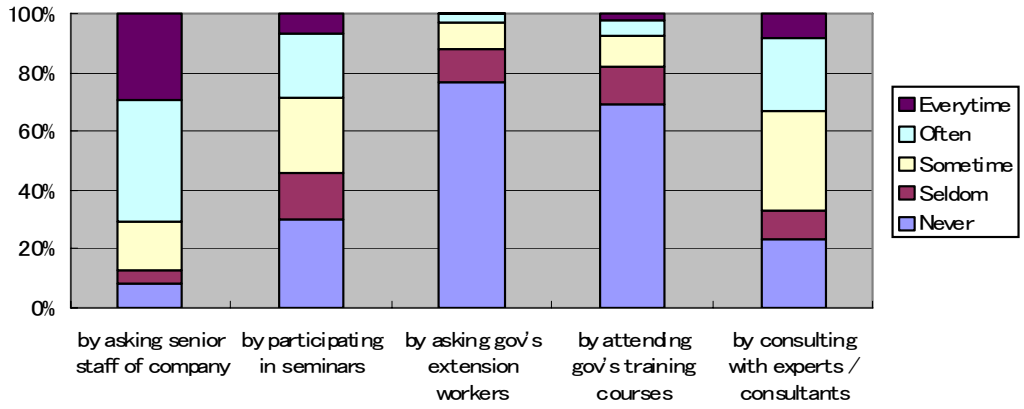


Figure 3.2.7 Type of Staff Training

3) Weights, Measures, Inspection and Standard

Zambia Weights and Measure Association (ZWMA) is a statutory body under the Ministry of Commerce, Trade and Industry (MCTI) playing the roles of checking the weights and measures in business. However, it is not functioning well. For example, there are not many scales in the local market, and so consumers cannot check the weights of commodities. The modern supermarket uses measures with certificate, but most weights are not given regular periodical calibration.

According to the international transportation company, the truck scales at the international border is calibrated twice a year and it is not trustworthy since the weight measured at other borders and at Zambian borders are often different.

A trackable and calibrated system of measurement should be introduced, otherwise manufacturing, and even fair trade, cannot develop to an international level.

(6) Economic Evaluation by Respondents

Table 3.2.17 indicates the results of the question, "What do you think are the strong and weak points of the Zambian economy, compared with other countries?" The remarkable points are stated as follows;

- The strongest point is peace and stability with a score of 4.59.
- Natural resources and agricultural products are regarded as strong points with 4.51 and 3.81, respectively.
- Free market is accepted as preferable with the score of 3.76.
- Weakest is electric appliance business in Zambia, scoring 2.22, and manufacturing is also weak with a score of 2.45.
- Government protection for local companies is very weak, with a score of 2.27.
- The taxation system also has a low score of 2.94.

Table 3.2.17 Strong and Weak Points of Zambian Economy Evaluated by Respondents

	Very Weak		Weak		Neutral		Strong		Very Strong		Average score
Score	1		2		3		4		5		
Peace & Stability	0	(0)	1	(1)	8	(14)	23	(40)	68	(119)	4.59
Natural Resources (Mines)	1	(1)	0	(0)	6	(11)	34	(60)	59	(102)	4.51
Agricultural Products (Meat, Cotton, etc)	2	(3)	3	(6)	28	(48)	47	(81)	21	(36)	3.81
Manufacturing	19	(33)	37	(64)	28	(49)	12	(21)	4	(7)	2.45
Electric Appliances & Electronics	29	(50)	32	(55)	30	(53)	7	(12)	2	(4)	2.22
Food Processing	8	(14)	29	(50)	43	(74)	18	(31)	3	(5)	2.79
Tourism	3	(5)	9	(15)	26	(46)	53	(92)	9	(16)	3.57
Trading / Commerce	1	(2)	11	(19)	34	(60)	38	(66)	16	(27)	3.56
Mass Media / Entertainment	6	(11)	29	(50)	37	(64)	24	(42)	4	(7)	2.91
Labor Force (cost and quality)	6	(11)	23	(40)	33	(58)	30	(52)	7	(13)	3.09
Taxation System	10	(18)	25	(43)	32	(56)	26	(45)	7	(12)	2.94
Financial System	5	(9)	19	(33)	39	(67)	33	(57)	5	(8)	3.13
Location (center of Africa)	4	(7)	13	(23)	34	(59)	30	(52)	19	(33)	3.47
Exchange Rate	6	(11)	18	(32)	37	(64)	33	(58)	5	(9)	3.13
Free Market	2	(4)	5	(8)	29	(50)	44	(76)	21	(36)	3.76
Government Protection for Locals	34	(59)	31	(54)	15	(26)	14	(25)	6	(10)	2.27
Foreign Investors	3	(6)	11	(20)	34	(59)	34	(59)	17	(30)	3.50

Percentage of points are at left and their frequencies are at right in ()
Source: JICA Study Team

The results of the question, "What kind of countermeasure should be considered by the government?", which can have multiple answers, is shown in Figure 3.2.8.

The major issue of local companies is the less protection policy of the government. Some of the companies complain that incentives are given to the international companies but not to the locals. The low import tax is also of concern; manufacturers raised the questions, "Why is importing cost so much lower than manufacturing in Zambia because of the low or even zero tax for importing goods. Isn't it strange that only local companies have to pay such a heavy tax?"

Some of the respondents emphasize the differences in the industrial policy of South Africa. "In order to foster the car manufacturing industry of South Africa, the government sets high taxation against imported cars. The Zambian government does not have such a kind of practical fostering policy."

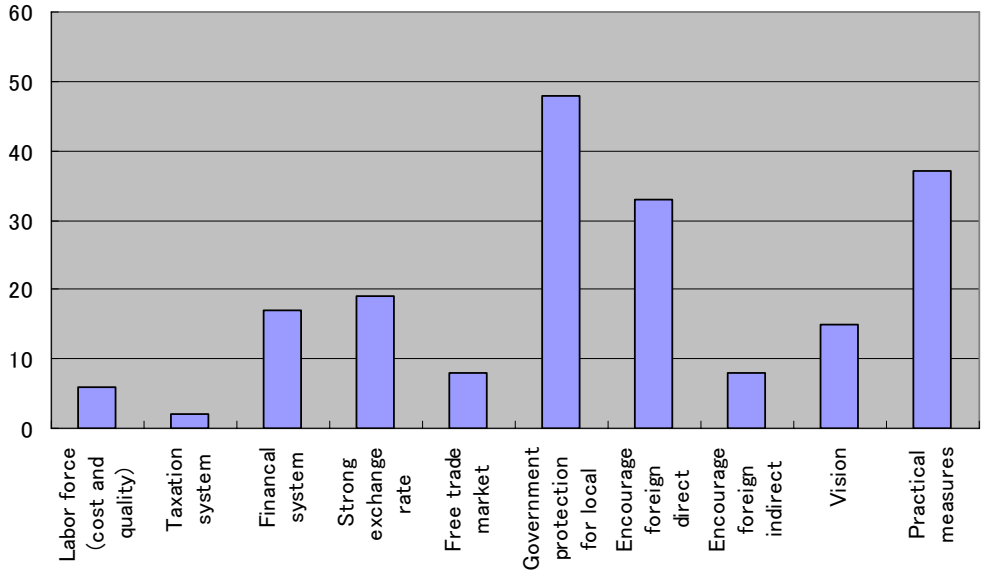


Figure 3.2.8 Countermeasures that Should Be Considered by the Government

(7) Findings

Through the interviews and the questionnaire analysis, the JST summarized the characteristics of the industries by sector.

1) Agriculture Sector

Agriculture is an important sector in Zambia. It is not only to fulfill their self-consumption but also to supply raw materials to agro processing factories. Maize, potato, cotton, and coffee are all regarded as potential products to export. Zambian agriculture plays an important role in supplying cereals to food-deficit countries in Africa as well.

A new trend in the agriculture sector has been observed in recent years. After the crisis in Zimbabwe, many Caucasian owners of big farms moved to Zambia to open new farms. The modern technologies of agriculture might be introduced in rural areas. If the government treats this tendency properly, the agriculture sector could bring more profit to Zambia. The modern food processing factories that use local raw materials in rural areas would be able to create new jobs.

Cattle breeding and enzyme development are also potential businesses. Biotechnology is one of the remarkable high value-added sectors in the world, and the R&D in local areas is significant in this field. Bio-business in Africa is still immature, so that initial inroads in this field in Zambia will have an advantage. Pharmaceutical R&D using local natural resources might have potential for the long term.

2) Food Processing Sector

Food processing has high potential since the raw materials can be produced locally. Some of the local food products have already been exported to neighbouring countries. Foreign investors are positive about investing capital in the food processing business of Zambia since the markets in the southern African countries are large enough and Zambia is centrally located. Zambia can afford to supply processed foods to deficit countries such as Malawi, Zimbabwe, Democratic Republic of Congo, Angola, etc. It contributes to the food security of the region.

Packaging of foods and beverages according to the types of physical distribution systems and target markets should be improved in order to compete with South Africa and Kenya, Indications of nutrition and expiration dates should follow the international standard, and for that issue, a third party like an inspection agency should be engaged to secure reliability.

Linkage with suppliers of raw materials in farmlands could help to reduce costs and to sustain food products.

3) Manufacturing Sector

Manufacturing is not active in Zambia and has a lower potential than that of the food processing sector. As mentioned previously, most factories that were established by foreign companies during the first republic had withdrawn after the economic crisis in 1991 since the products of Zambia could not compete with imported ones both in price and quality.

Most entrepreneurs indicated that Zambian manufacturing is not competitive. The finished products cannot be assembled without the support of local small and medium scale enterprises (SME) such as with the mold industry. It is almost impossible to introduce high-tech industry to Zambia at this moment. Enhancing SME should be the critical issue to realize direct investment in the manufacturing sector; no investors want to take a risk of importing anything and everything, i.e. from nails to robots.

If the labor cost were very low, it might be possible to introduce labor-intensive industries, but the labor cost in Zambia is too high; almost 5 to 10 times higher than in China. Unless the government gives special incentives, foreign investors will not establish manufacturing factories.

4) Mining Sector

The mining sector came back to life in 2003 when the international price of copper and other natural resources rose. Since then it has been growing steadily. Most large mining companies invested foreign capital and made modern and eco-friendly renovations to their facilities.

Mining gemstones is a potential business. Indian investors have been investing in the mining fields and polishing process. Finished jewellery is also a target of Indian investors for the near future.

With respect to the mining boom, there is a criticism that only the mining sector profits from using the natural resources of the nation and that there is little impact to the other sectors; but more or less, the people in Copperbelt do enjoy the benefits from the boom of the mining business. Car dealers and retailers recorded better turnover than before while equipment suppliers and transporters receive direct benefits.

The mining sector contributes to road construction and social welfare under its Corporate Social Responsibility (CSR) as the leading sector in the local community. In addition, mining royalties on the export of mining products rose from 0.06% to 3% and the corporate tax rose to 35% from 25% in 2007; this means the contribution of the mining sector through government tax management to other sectors could be enjoyed by the whole nation.

5) Construction and Real Estate Sectors

Construction is another booming sector. Construction materials are being actively transported to construction sites. It is said that there is a shortage of office buildings which have proper modern facilities. Existing buildings' lifts and internet systems are very old and need to be renovated to deal with international business.

Construction of public infrastructure is active and this contributes to job creation. Technical transfers of construction work by international donors are necessary to improve the skills of local contractors. Through the practice, local contractors will learn know-how and will take over the roles of management and maintenance of infrastructure.

6) Service Sector

Trading and retailing have been active in recent years, influenced by the boom of the mining sector. Due to the low savings interest rate and high inflation, the pressure of consumer spending is increasing. Imported goods with low prices from China such as clothes and potteries have spread throughout Zambia. Better quality goods have been imported from South Africa and Kenya instead.

Victoria Falls is attractive and tourism is one of the potential sectors of Zambia. The crisis of Zimbabwe may provide an opportunity to emphasize Zambian safety. However, the recent appreciation of the Zambian Kwacha (ZMK) discourages foreign tourists from visiting Zambia and inefficient networks of the tourism industries have raised the cost of tourism.

Entertainment is a remarkable potential business. Demand for music and movies in the domestic and regional markets are high. However, it should be noted that the Government's position is not to promote entertainment industry in the LS-MFEZ.

7) Industrial Policy and Monetary Policy

The cost of borrowing from commercial banks has been high at 19% per annum which is generally on short term basis. It is, however, the absence of financial institute by the Development Bank of Zambia that have narrowed credit options for the borrowers that require cheap long-term financing for business.

Apart from this, the survey revealed lack of general appreciation by most respondents of guarantees, mutual trust and mortgage as viable means of promoting investment.

In addition, interviewees pointed out that other specific policy and incentives to local investors by the Government along the same lines as given to foreign investors as lacking. Local companies emphasized that they didn't need subsidized condition but equal fair market to compete with international companies.

Free market is the principal of development of industry but it could not function well without the appropriate policy and practical measure. Government leadership is significant to encourage private sector.

3.3 SEZ COMPETITIVENESS WITH NEIGHBORING COUNTRIES

3.3.1 INCENTIVES AND BENEFITS TO EXISTING ECONOMIC ZONES IN SOUTH AFRICA

In South Africa, economic zones are referred to as Industrial Development Zones (IDZ).

IDZs are purpose-built industrial estates linked to an international port or airport in which quality infrastructure and expedited customs procedures are coupled with unique duty-free operating environments suited to export-oriented production.

The IDZ programme in South Africa was established to attract FDI through the export of beneficiated, manufactured products which, in turn, would promote the competitiveness of South African enterprises as well as regional development.

The IDZ programme is one of many incentives offered by the Department of Trade and Industry (DTI) to encourage international competitiveness of the South African based manufacturing sector. IDZ is intended to promote the competitiveness of the manufacturing sector and to encourage beneficiation of locally available resources. The support could either be a turn-about strategy to attract investment or a national programme for economic development to increase exports and competitiveness of South African products.

(1) Objectives, Benefits and Restrictions pertaining to IDZ

The objectives of IDZ are to:

- Attract foreign direct investment (FDI)
- Attract advanced foreign production and technology methods in order to gain experience in global manufacturing and production networks
- Develop linkages between domestic and zone-based industries
- Provide world-class industrial infrastructure

(2) A brief Look at existing IDZ in South Africa

The South African Government licenses operators to develop and run the IDZ, provide enterprise support measures, minimise red tape and provide efficient services to enterprises within the IDZ. There are currently four IDZ in the country, namely:

- Coega IDZ, Port Elizabeth in the Eastern Cape;
- The East London IDZ (ELIDZ);
- Richards Bay IDZ in Kwa-Zulu Natal; and
- JIA IDZ, Kempton Park in Gauteng.

The Coega IDZ is one case study of an effective IDZ that described next section.

(3) Coega IDZ, Port Elizabeth in the Eastern Cape – a Case Study of a successful IDZ

The Coega Industrial Development Zone (IDZ) initiative, located within Nelson Mandela Bay (Port Elizabeth), is South Africa's premier location for new industrial investments. This multi-billion Rand industrial development complex covers 11,000 hectares and includes a new deepsea port.

The Coega Development Corporation (CDC), which is the developer and operator of the Coega IDZ, is responsible for the entire landside infrastructure, while a modern deepsea port facility is being developed by the Transnet National Ports Authority (TNPA). This initiative, commonly known as the Coega Project, aims to position South Africa as a platform for global exports by attracting foreign and local investment, principally in manufacturing industries.

Coega IDZ is the solution for a wide range of manufacturers and logistics service providers who want to be in the best position to serve both the world and African markets. Coega IDZ is already served by all the world's major shipping and logistics companies.

Coega is part of the Nelson Mandela Metro, which is the home of one of the most diverse auto clusters in the world. It includes original equipment manufacturers (OEM) of General Motors and Volkswagen, as well as over 150 suppliers, including Goodyear, Bridgestone, Cumrning, Visteon, Hella, Faurecia, LUK and Johnson Controls. Both OEM and most of the suppliers are active in local and export markets.

They are succeeding in the highly competitive global auto market thanks to their position, Coega and the metro, which includes the city of Port Elizabeth, are mid-way between the major markets in the east and west. Coega is also ideally situated for primary production as it has access to South Africa's vast mineral reserves, as well as its strategically important position at the centre of shipping routes for ore reserves that are found in different parts of the world. This positioning reduces the risk of having to rely on a single source of raw materials or single market.

The Coega Project, having been identified as a lead project in South Africa, has received government funding of over ZAR 8 billion, including ZAR 3.1 billion for the new port, ZAR 2 billion for infrastructure in the IDZ, and ZAR 2.1 billion by the State electricity company, Eskom, to upgrade the power supply. State rail company, Transnet, has invested ZAR 500 million in upgrading rail facilities.

Synergies exist between the mandate of the Coega Project and the intent of the Accelerated and shared growth initiative of South Africa (AsgiSA) and the Joint Initiative on Priority Skills Acquisition (JIPSA). The mandate of the Coega Project is to develop and operate the IDZ of more than 11,000 hectares. AsgiSA's purpose, on the other hand, is to accelerate the rate of economic growth, substantially increase the rate of employment, and broaden the impact of economic development.

The contribution of the Coega Project towards AsgiSA and JIPSA will primarily be through: the creation of job opportunities, focused development of SME, and skills development through the Coega Human Capital Solutions (CHCS) division. The core capabilities of CHCS are in the

provision of priority skills in the construction and services industries, particularly Business Process Outsourcing and Off-shoring (BPO&O).

3.3.2 SPECIAL ECONOMIC ZONE IN MOZAMBIQUE

(1) Industrial Free Zones

The 1993 Investment Law provides for the establishment of Industrial Free Zones (IFZ) in Mozambique. The regulation regarding the development and operation of IFZ came into effect on 1st January 1994. The IFZ in Mozambique are to be developed by the private sector to promote export-processing activities. Investors can choose to develop and/or administer IFZ areas or operate within them as certificate holders (e.g., MOZAL).

An IFZ is defined by law as an "…area or unit of industrial activity geographically demarcated …[and] specially designated, by the competent authority, for the establishment, development and operation of an industrial park or unit, where investors holding IFZ certificates or licenses may carry out production or industrial processing of articles essentially destined for export …". The IFZ regulation further define an IFZ established company as a legal entity with an IFZ certificate, whose main activity is production for export.

A maximum of 15% of the production is allowed for sale to the domestic market. If products from an IFZ are actually sold on the domestic market, they are subject to the usually applicable import custom duties. Development licenses for those who wish to develop and/or administer IFZ areas require a minimum investment of $5 million.

An interested party intending to establish and operate an IFZ must submit a proposal to the Executive of the IFZ Council, which covers the following requirements:

- an architectural and urban planning proposal;
- an environmental impact study;
- the establishment of green zones and leisure areas;
- the establishment of water supply systems, rain and residual water drainage systems, and waste removal and industrial waste treatment systems;
- the installation of an electricity distribution grid and a telecommunication system and the provision of facilities for emergency care; and
- the provision of security and telecommunication systems at the main entry gate of the IFZ.

Upon receipt and review of the proposal, the IFZ Council prepares and recommends it to the cabinet, which must approve it so that the IFZ Council can issue a development certificate. IFZ certificate holders are exempted from custom duties on the import of construction materials, machinery, equipment, accessories, spare parts and goods required for their main IFZ activity.

Exemption is also granted from the value added tax (VAT) and from the tax on specific consumption, even for goods purchased locally, excluding foodstuff, alcoholic beverages, tobacco, clothing and other personal effects.

A licensed IFZ company also enjoys, for the period of ten (10) years, benefit from sixty (60%) percent reduction in the rate of corporate income tax on the profit derived from the exercise of activities licensed under the IFZ.

Land concession must be requested via normal government channels, through the Provincial Department of Agriculture, at the *Serviço Provincial de Geografia e Cadastro*.

Developers must pay a royalty fee of 1% of their gross turnover from the 7th year of operation, based on invoiced gross quarterly revenue.

IFZ developers are allowed to open, maintain and use foreign exchange accounts in Mozambique and abroad. They may source funding externally, provided that it does not require guarantees from the Government or the Banco de Moçambique.

A copy of the articles must be submitted to the central bank for registration. The first IFZ project, which has been approved, is the Beluluane Industrial Park, located in Beluluane, in Boane District, in the Maputo province, which enjoys excellent access to the industrial port of Matola and the road and rail networks extending to Swaziland and South Africa. A second project, the Beira Industrial Free Zone (Savane) in Sofala province has also been approved, although no investment has been announced so far. More projects are planned elsewhere in the country.

(2) Raid Development Zones ("RDZ")

New undertakings located in the following geographic areas may qualify for tax incentives applicable to RDZ:

- Zambeze Valley, including the Province of Tete, Districts of Morrumbala, Mopeia, Chinde, Milange, Mocuba;
- Niassa Province;
- Nacala District;
- Mozambique Island and Ibo Island.

The following benefits are available, until 31st December 2015, for investors in RDZ:

- Exemption of import duties on equipment included in Classes "K" (equipment) and "I" (raw materials) of the Customs Tariff Schedule;
- Tax credit for investment ("TCI") equal to 20% of the total realized investment during 5 tax years. The portion of tax credit not used in a tax year may be deducted in the 5 subsequent years counting from the date of commencement of operation;
- Exemption from property transfer tax
- Professional training – as explained above
- Tax deductible expenditure – as explained above
- Stamp duty – as explained above.

3.3.3 ECONOMIC ZONES IN TANZANIA

(1) Export Processing Zones

The Export Processing Zones (EPZ) Act was established in April 2002. The effective implementation of the Act started in March 2003. In February, 2006 the Act was amended to strengthen supervision of the programme and to improve the incentives package. The EPZ are under the authority of the Export Processing Zones Authority ("EPZA").

1) Objectives of Establishing EPZ

The main objectives in establishing the EPZ were to:

- Attract and promote investment for export-led industrialization;
- Increase foreign exchange earnings;
- Create and increase employment opportunities;
- Attract and encourage transfer of new technology; and
- Promote processing of local raw materials for export (value addition).

2) EPZ Structure

The EPZ Council is composed of 7 Ministers, Attorney General, Governor of the Central Bank, Chairman of the Tanzania Private Sector Foundation ("TPSF"), Executive Secretary of the Tanzania National Business Council ("TNBC") and Secretary General of Trade Union Congress of Tanzania ("TUCTA"). It approves EPZ plans and programmes and gives general policy directions. The Minister Responsible for Industry is the Chairman of the Council and has authority and power to declare EPZ. The Export Processing Zones Authority (EPZA) is responsible for EPZ programme design, management and Investor facilitation.

3) Other Facilities Surrounding EPZs in Tanzania to Attract Potential Investors

- Tanzania has a political stability of nearly 40 years;
- Availability of a variety of raw materials;
- Availability of preferential trade markets (AGOA-USA; EBA- European Union; Japan; Canada; China) and regional markets (SADC; East African Community);
- Availability of skilled labour force;
- A lucrative package of incentives offered by EPZ;
- Free repatriation of foreign exchange;
- Tanzania is the gateway for regional and international trade (Tanzania boarders 8 landlocked countries);
- Tanzania has 4 international airports (Dar Es Salaam, Mwanza, Kilimanjaro and Zanzibar) and four major sea ports (Dar Es Salaam, Tanga, Mtwara and Zanzibar); and
- A Simplified bureaucracy; activities are streamlined through EPZA.

(2) The Mini Tiger Plan 2020 – Special Economic Zone

In 2005, the Tanzania Government started to implement the Tanzania Mini-Tiger Plan 2020 based on the experience of the Southeast Asian Countries with a view to accelerating the economic growth which is envisaged to increase the average income of Tanzanians; increase of merchandize and service exports; and increase of employments opportunities for poverty eradication.

The Mini-Tiger Plan 2020 is a strategy designed to build among others things, Special Economic Zones (SEZ) needed to fast track realization of the set targets for investments from local and external sources. In the SEZ, issues of inadequate infrastructure and non-conducive policy, legal and institutional frameworks are addressed. In its efforts to pursue this programme, the construction of an SEZ known as "Benjamin William Mkapa Special Economic Zone (BWM-SEZ)" started at Mabibo in Dar Es Salaam

The SEZ Act was established in 2006. The SEZ comprises of specific selected geographical areas where economic activities are being promoted by a set of policy instruments that may not be applicable elsewhere in the country. The focus is on priority sectors whose economic activities have a potential for supporting domestic production and exports development and in areas that provide relative advantages for attracting private investment.

1) Objectives of Establishing SEZ

- Is a strategy to implement the "Mini Tiger Plan 2020";
- Is aimed at fast-tracking economic growth and poverty reduction;
- Involves other sectors than manufacturing (agriculture, tourism, mining, forestry, etc); and
- Combines both export oriented investments and investments targeting the domestic market.

2) SEZ Eligibility

- Be new investment.
- 100% local market.

3) SEZ Incentives

- Economic activities under SEZ are not subjected to:
- Customs duty;
- Value added tax; and
- Any other tax payable in respect of goods purchased for use as raw materials, equipment, machinery including all goods and services used in undertaking the licensed businesses.

(3) The ICT Special Economic Zone

As part of the Mini Tiger Plan 2020, a feasibility study for the establishment of an Information and Communication Technology Special Economic Zone ("ICT-SEZ") was started in 2005 through a Memorandum of Understanding signed between Tanzania and India whereby India would provide support to the initiative. The coordination committee for the construction of the centre is operated under the supervision of the University of Dar Es Salaam. The implementation of the ICT-SEZ started in 2006-2007.

The ICT-SEZ is modeled on India's success in the IT industry. The ICT-SEZ will provide investors with basic facilities including premises, power and internet. An enabling legal framework has been charted out including intellectual property rights. There will be tax incentives as well. One challenge that faces ICT-SEZ is lack of skilled manpower. Tanzania needs to attract and elevate ICT manpower to international standards even if they are being trained locally because they have to produce products of global standards. Tanzania could use its position as a home to Swahili language as a base for Tanzania's ICT industry. There have been a number of initiatives to mainstream

Swahili language in ICT. Tanzania (through Kiswahili Research Institute) has been working with Microsoft's Kenya office on various projects.

3.3.4 RECOMMENDATIONS FOR LS-MFEZ

(1) Recommendation from South Asian Countries' Survey

1) Potential sectors and incentives

The enterprises indicating higher investment demand to Zambia and Southern Africa were those groups of products which have established market in the region and those in search of resources such as mineral deposits and agricultural lands. For the former category of enterprises, the next step of determining their investment destinations should be depending on the results of comparison of factors such as various costs and business environment with other countries in the region unless there are any strong reasons to be in Zambia. One of the major issues raised is the transportation cost incurred due to the distance from the seaports. In order to have the competitiveness in the region, the examples of further incentives named by these companies were as follows:

- Duty exemption for raw materials;
- Provision of cheap or free land or operational site

For the latter type of industries, resource-based, the LS-MFEZ may not be the favorable location. It is, however, possible to seek the potentials of the service industries and down-stream activities for which demand may be stimulated by these sectors. For example, looking at the road transportation network connecting various parts of the countries and eventually abroad, the distribution network can be established utilizing the LS-MFEZ site with an agglomeration of various services.

2) Strong government commitment

In the current market situation and cost structure, the strong government initiatives would be indispensable. The following may be the possible policy measures as a part of the government commitment:

- Combination of tax incentives and measures to facilitate easy and speedy launch of business for companies in selected sectors
- Preparation and provision of detailed business and technical information accessible for investors
- Generation of perceivable good business environment with simplified and transparent regulatory systems for doing business
- Proactive market creation through necessary deregulation and government procurement if adequate

As explained earlier, generic incentives for many industries were not perceived as strong factors for many companies. On the other hand, each industry or even the level of the production or operation has its own problems and, therefore, preferred specific incentives. They should therefore be more closely studied and selectively provided.

All the business and technical information may not be necessarily available at the Government's investment promotion related agencies or departments. The first issue is to grasp the types of information required from potential investors. Furthermore, the information should be prepared by establishing a network of domestic industries and related agencies in order to be able to prepare the information upon request. At the same time, the efforts of prompt reply would also be an important point.

3) Capacity building and dialogue with domestic and regional private sector

In the current structure of many industries, it may not be easy to have FDI by sole investors. The strong domestic private sector is required for attracting potential investors.

As mentioned earlier, many companies are more interested in having trade partners. While some of these companies are willing to have the licensed or contracted production if the market situation is conducive, many companies face difficulty in identifying the trustworthy and capable local partners.

Though it is difficult to identify the specific sectors, firm-level interviews revealed that some products with large sales volume to the companies might be possible to be considered for some local processing or operation. This kind of information is often found in the domestic dealers and agents. Therefore, dialogues with domestic and regional private sector players should be encouraged to identify more investors.

(2) Issues to be considered based on the Industrial Survey

1) Expectation and Issue of the LS-MFEZ

Some 50% of the respondents have never heard about the LS-MFEZ but the others have already heard something about it. Since the concept and plan of the LS-MFEZ is not clear enough, the expectation of the LS-MFEZ is high and 31.1% of respondents answered that they would like to move into the LS-MFEZ if the conditions are reasonable, as shown in Table 3.3.1. Some of the respondents select 2 of the designated selections, and there are respondents selecting No.2 and No.4. Even if they doubt the plan they still expect the LS-MFEZ will be able to help local companies.

Table 3.3.1 Expectation of the LS-MFEZ

Expectation		Number	Percent
1	We are not interested in the LS-MFEZ.	10	6.8%
2	We are interested in the development plan of the LS-MFEZ, but doubtful.	52	35.1%
3	We expect that our company's business will improve because of the LS-MFEZ development project.	50	33.8%
4	We would like to move into the LS-MFEZ if the conditions are reasonable.	46	31.1%
		148 (158)	100.0%

Source: JICA Study Team

Figure 3.3.1 illustrates the result of the question, "What kind of obstacles do you think will arise when you consider the LS-MFEZ as the investment destination?" The time required for obtaining various permits, availability of a market of sufficient size, availability of market information and access to raw materials and parts are all regarded as highly important issues.

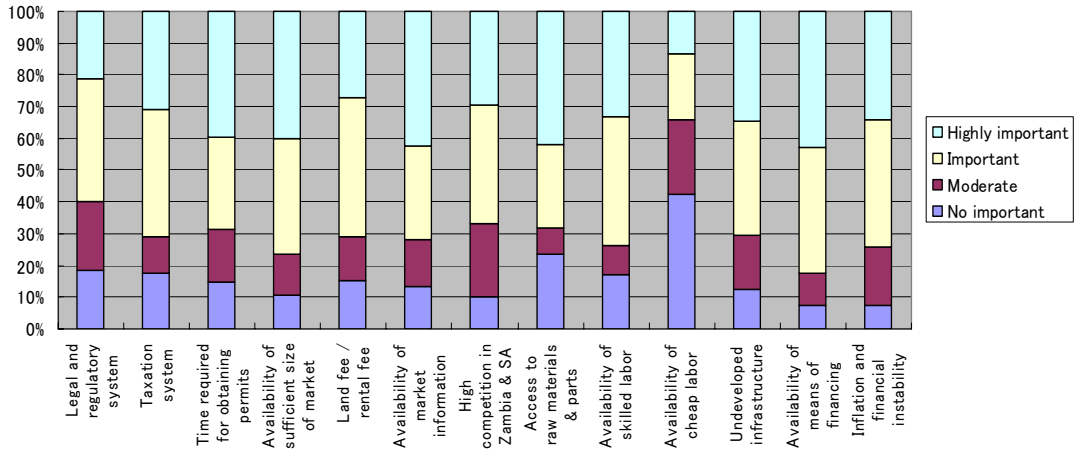


Figure 3.3.1 Issues to be Raised with Investment to the LS-MFEZ

2) Suitable areas by industrial sector

The characters of industries are different among three major areas in Zambia.

- Lusaka is a commercial and light industry area
- Copperbelt is a mining and heavy industry area
- Livingstone is a tourism area
- The other regions are engaged in agriculture, and production areas are good for food processing

3) Existing local business

Focusing on Lusaka, the industrial area in the western part of the city needs rehabilitation. Local factories are gradually improving their performance, so it is time to support them by renewing the existing infrastructure such as roads and electricity before fixing LS-MFEZ. The following should be noted:

- The LS-MFEZ should have a positive impact to the local businesses.
- The LS-MFEZ should not be apart from local business activities but rather harmonize with them.
- The LS-MFEZ should not omit local companies that want to move there.

4) Environment

Since the location of LS-MFEZ has environmental constraints, the following should be taken into consideration:

- Factories that consume less water are favourable.

- Heavy industry that needs heavy track transportation should be avoided the sinkhole and depression land.

5) Maturity of the economy

Evaluation of the maturity level of the local economy is very important when investors take action. International investors will evaluate the following matters.

- Education, discipline and business behavior
- Extension level of standard, quality control and inspection system
- Degree of local proficiency
- Cost and efficiency
- Incentive for business
- Deregulation in barriers and obstacles to business activities

According to the industrial survey, the maturity level of the economy is still low. The evaluations from the investors' viewpoints will be stated in the following sub-chapter.

6) Development concept expected by the GRZ

According to the MCTI, the development concept of the LS-MFEZ is something like "High Tech Park" which exists in Malaysia. However, the background and situation of the development of "Kulim High Tech Park" are totally different. The LS-MFEZ will not be able to copy Kulim High Tech Park, which was established because of strong demand by Japanese companies. Japanese companies had been looking for places to move their factories because of tough international competition caused by Yen appreciation and high labor costs in Japan. They researched potential places in Southeast Asia and established many industrial zones there.

Although MCTI emphasizes the advantages of Zambia in Southern Africa, it is not a compatible place to establish manufacturing factories from the investors' viewpoint. Economists cannot say that there is the potential for FDI of "High Tech Industry". Individual negotiations that target companies using exchange conditions (which are incentives), deregulations, priority supplies of raw materials, etc., are necessary. The government should take careful consideration of the benefits to locals and whether it is proper to give incentives to international companies.

It is said that i) the nation's participation, ii) public-private partnership, and iii) private initiative and government leadership are necessary to realize socio-economic development. Rather than expecting miracles by foreign investors, practical steady efforts made step-by-step from the bottom will bring progress.

(3) Recommendations from Local Industrial Survey

According to the initial idea of the LS-MFEZ, the targeted factories would be international high-tech industries. However, local factories should not be omitted from the candidates; otherwise, the nation will complain about discrimination. The voice of the nation should be incorporated into the plan of the LS-MFEZ.

The following recommendations are formulated through the discussions of the local companies and Japanese experts. It would be appreciated if GRZ take them into consideration.

1) Infrastructure

Since the designated site of the LS-MFEZ is a conservation area, time is needed for land preparation. Responsible organization will have to be carried out to settle the infrastructure around the site. It is necessary to ask an international general contractor to manage it. Organizers of roads, land preparation, electricity, internet, water supply and drainage systems have to fulfill the needs of tenants' factories. However, it is possible that there are no specific names of companies engaged. In that case, envisioned sectors of industries will be plotted tentatively. Looking at the reality, the local companies may come first.

2) Promotion of the LS-MFEZ

In parallel, promotion work should be carried out both locally and internationally. In order to encourage international direct investment, the government facilities should be settled in advance. Potential facilities operated by public-private initiatives are listed below.

- R&D of bio-technology
- Institution of weight, measurement and standards
- Antenna shops of provinces
- Music halls, art galleries and amusement centres
- Modern office buildings with fast internet
- Game parks
- Botanical gardens

Those facilities help foreign investors to understand the level of infrastructure, and to evaluate the functioning of the operation. The government should lead and show the model of management and operation; otherwise investors will hesitate to come.

3) Administration and maintenance

According to the observation, one of the weak points of Zambian organizations, both public and private, is administration and maintenance. Even if the international donors provide modern facilities, they depreciate rapidly because of poor maintenance. Unless it is maintained properly, any facility will get damaged. It is said that the capacity of maintenance is one of the indicators to evaluate the maturity levels of development, as well as quality control. It is recommended that people learn the operation system through the above-mentioned public-private partnership programs.

3.4 PROPOSED TARGET INDUSTRY FOR THE LS-MFEZ

3.4.1 BASIC CONCEPT FOR INDUSTRIAL SELECTION

According to the Zambian National Development Plan ("VISION 2030"), the GRZ aims at becoming "A Prosperous Middle-Income Nation" in 2030. To attain this goal, the manufacturing sector should be expanded as a key economic-growth sector. The LS-MFEZ would be used as one of the vehicles for achieving this objective. Therefore, the LS-MFEZ bears the promotion of the manufacturing sector.

Thus, the LS-MFEZ is part of GRZ efforts to provide industrial sites with infrastructure for many types of industries in manufacturing and service industries. The industrial development for the LS-MFEZ should be studied on the basis of the pre-conditions described below.

a) The site for the LS- MFEZ is the same as that mentioned in the Chapter 4.
   i) The selected industries such as coastal and river-side industries which require large amounts of water per industrial unit will not be eligible industries in the LS-MFEZ due to the underground water situation of the proposed site as it is a resource for citizens in Lusaka City.
   ii) The electricity will be fully supplied by ZESCO for the investors' demands after its rehabilitation programme is to be accomplished.
   iii) Telecommunications system will also be fully developed by Zemtel for the investors' demands.
b) The LS-MFEZ should contribute in promoting the manufacturing sector development toward the national economic development targeted by "VISION 2030".
c) Population change in Greater Lusaka City is some 2.6 million in 2030 from 1.2 million in 2005. The labor force in Lusaka will be required to expand according to the population increase, the LS-MFEZ should contribute in creating job opportunities in order to reduce unemployment or unstable jobs.
d) According to the economic framework of LUSEED, Lusaka GRDP in 2030 will be more than 6 times of the level in 2005, the LS-MFEZ should create value-added industries in response to this economic framework.
e) High-tech industries such as electronics, ICT, etc., will be one of the main target industries for the LS-MFEZ in future. However, general industries in the manufacturing sector will be mainly targeted industries in the initial stage.
f) R&D activities are also important to support value-added industries located in the LS-MFEZ. Such activities are to be fully supported by the GRZ in order to receive high-tech industries from not only public, but private sectors in multinational and foreign companies.

3.4.2 SELECTION OF ELIGIBLE INDUSTRIES FOR THE LS-MFEZ

Selection of industries for the LS-MFEZ will proceed with the following steps.

- Review of the priority sector proposed by the MFEZ Task Force
- Limitation of water consumed-type of industries

- Recommendable industries based on the value of manufactured goods shipments and industries for job creation
- Results of investment demand survey

(1) Review of the Priority Sector proposed by the MFEZ Task Force

The Zambia side (MFEZ Task Force) set out the following industries and service businesses in the priority sectors for MFEZ enforced by the Gazette (Statutory Instrument No. 27 of 2007, dated 9th March 2007 and No.6 dated 11th January 2008).

A. Manufacturing
  (i) Machinery and machinery components
  (ii) Iron and steel products
  (ii) Electrical and electrical products and components and parts thereof
  (iv) Chemical and petrochemicals
  (v) Pharmaceutical and related products
  (vi) Wood and wood products
  (vii) Palm oil products and their derivatives
  (viii) Pulp, paper and paper board
  (ix) Textile and textile products
  (x) Transport equipment, components and accessories
  (xi) Clay-based, sand-based and other non-metallic mineral products
  (xii) Plastic products
  (xiii) Professional medical, scientific and measuring devices/parts
  (xiv) Rubber products
  (xv) Leather and leather products
  (xvi) Packaging and printing materials
  (xvii) Fertilizer
  (xviii) Cement
B. Tourism
C. Processing
  (i) Agricultural products
  (ii) Forest products
  (iii) Non-ferrous metals and their products, and
  (iv) Gemstones

Based on the above priority sector, sub classification of type of industry was reviewed while referring to the ISIC (International Standard Industrial Classification) code.

For the selection of type of industry at the beginning, the industries which are not suitable industries are excluded, taking into consideration Zambia's geographic conditions as a landlocked country. For instance, "Shipbuilding and repairing" of sub classification was excluded from "transport equipment", and "frozen seafood products" and "seafood products" were also excluded from "processing of agricultural products".

As the result of review of 23 priority sectors (19 manufacturing and 4 service sectors) can be broken-down into 122 types of industries, referring to Table 3.4.2.

(2) Limitation of Water Consumed-type of Industries-1st Selection of Industry

In the first selection stage, the water consumed-type of industry is examined to limit introduction to the LS-MFEZ in order to exclude contamination of underground water. Therefore, the water consumption volume by type of industry is examined based on the industrial statistics for water consumption by business units (establishment) of the Ministry of Economic, Trade and Industry (METI) in Japan. As a result, industry that consumes the water of 500 m^3/day or more is assumed to be excluded from the LS-MFEZ.

As a result, 82 types of industries have been chosen based on selection criteria as water consumption volume per day per unit. Average water consumption per unit is assumed about 190 m^3/day after selection of type of industry.

(3) Recommendable Industries based on the Value of manufactured Goods Shipments and Industries for Job Creation-2nd Selection

In the second selection stage, the value of manufactured goods shipments and the labor intensive type of industry are prioritized to encourage the inducement of industries into the LS-MFEZ according to the future economic framework and employment framework in Greater Lusaka. The amount of the value of manufactured goods shipments and number of employees per business unit are applied for section of industry based on the industrial statistics of the METI in Japan. In the second selection stage, the type of industry are selected as a recommendable industry either more than US$ 30 million per year in terms of the value of manufactured goods shipments or 110 employees per business unit which are an average value as the selection criteria.

As a result, 37 types of industries have been chosen by the second selection criteria as value of manufactured goods shipments and number of employees.

(4) Results of Investment Demand Survey-3rd Selection

In the third selection stage, the type of industries answered as the plan to be invested in the Southern Africa as a result of the investment demand survey are assumed to be a priority type of industries, although such type of industries are excluded by the 2nd selection. This selection criterion is a promotional factor as actual demand data for the LS-MFEZ, potential demand of industries to invest in Zambia had been performed to assess the demand of the concerned firms and products towards investing in Zambia.

The Investment Demand Survey is also conducted in the South Africa. The market survey conducted in four countries: namely Zambia, Tanzania, South Africa and Mozambique. Unfortunately, available data for this study is not obtained from neighbouring countries due to several constraints, i.e., lack of availability of the LS-MFEZ information, no descriptive benefits/incentives provided by the LS-MFEZ, time constraints and confidentiality of company's financial data, etc.

As a result of the 3rd selection, 44 types of industries have been chosen as eligible industries for the LS-MFEZ. These types of industries should be promoted to be introduced to the LS-MFEZ.

The selected type of industry is summarized as follows

Table 3.4.1 Summary of the Selected Type of Industries

Selected Steps	Selected Criteria	Number of Types of Industries Selected
	23 Priority sectors (19+4) proposed by GRZ	122
1st Selection	Water consumption: less than 500m^3/day/unit	82
2nd Selection	Value of manufactured goods shipments and Number of employees per business unit; more than US$30 million/year and 110 employees/unit	37
3rd Selection	Identified demand to invest to Southern Africa; 22 industries	44

Note: JICA Study Team

Table 3.4.2 Proposed Target Industry for the LS-MFEZ

	Type of Industry	1st Selection		2nd Selection			3rd Selection	
		Water Demand (m3/D)	Firstly Selected	Value-Added(US$mil /Unit)	Number of Employees/Unit	Secondly Selected	Investment Demand Survey	Thirdly Selected
1	**Machinery and machinery components**							
	Boiler, Turbine	360	■	99.4	280	☆		※
	Metal working	300	■	25.0	90		★	※
	Weaving and knitting machinery	140	■	64.7	180	☆		※
	Miscel. special industry machinery	40	■	26.5	100			
	Pumps and pumping equipment	120	■	61.6	150	☆		※
	Fabricated pipe and fittings	40	■	11.5	70			
	Molds and dies, parts and accessories	40	■	13.0	80			
2	**Processing of Iron and steel**							
	Tin cans and other platted sheets	200	■	50.1	120	☆		※
	Fabricated construction materials	50	■	27.1	80			
	Stamped & pressed products	890		14.0	70			
	Powder metallurgy	340	■	30.9	140	☆		※
	Fabricated wire	110	■	n/a		☆		※
	Bolts, Nuts, Rivets	160	■	18.9	80			
	Fabricated metal products	70	■	16.9	80		★	※
3	**Electrical and electrical products and components and parts thereof**							
	Generators, motors,	190	■	34.9	140	☆		※
	Switchboards & electrical control	80	■	34.5	130	☆		※
	Kitchenware & Home comforts	830		91.4	210			
	Household electric appliances	60	■	28.4	110	☆		
	Video & duplication equipment	200	■	175.0	280	☆		※
	Communication equipment	480	■	90.2	120	☆	★	※
	Radios & TV sets	570		328.5	360		★	※
	Electronic audio equipment	50	■	70.9	160	☆		※
	Electric measuring instruments	30	■	29.2	120	☆		※
	Computers (except PC)	1,390		134.6	210			
	Miscellaneous electrical products	90	■	40.0	130	☆	★	※
4	**Non-ferrous metals and their products**							
	Primary smelting refinery	29,530		404.5	230			
	Secondary smelting refinery	1,720		24.9	100			
	Rolling of non-ferrous metals	7,540		75.0	170		★	
	Electric wires & cables	1,410		54.7	140			
	Non-ferrous die castings	100	■	10.4	70			
	Non-ferrous metal products	2,100		45.3	110		★	
5	**Chemical and petrochemicals**							
	Nitrogenous and phosphate fertilizers	70,990		59.5	100			
	Miscel. industrial inorganic chemicals	8,000		43.5	110			
	Synthetic fibers	68,550		108.7	270			
	Paints	490	■	45.7	90	☆		※
	Soaps and synthetic detergents	4,110		109.2	130			
	Medical material preparations	8,520		55.5	120			
	Chemicals and allied products	10,630		45.9	100		★	
	Petroleum refining	207,640		n/a	100			
	Lubricating oils, grease	40	■	34.4	60	☆		※
	Paving materials	30	■	10.3	40			
	Miscellaneous petroleum	1,210						
6	**Pharmaceutical and related products**							
	Medical product preparations	3,120		149.3	180			
	Medical products for animals	140	■	n/a		☆		※

7	**Wood and wood products**							
	General sawing and planning mills	30	■	12.0	50			
	Millwork, plywoods	160	■	25.8	90			
	Cork fabricated materials and cork goods	80	■	12.5	60			
	Furnitures & fixtures	50	■	18.5	90			
8	**Palm oil products and their derivatives**							
	Edible oils and fats	5,060		99.1	150			
9	**Pulp, paper and paper board**							
	Pulp	2,430		27.2	90			
	Paper	64,450		115.7	180			
	Coated paper	2,650		45.0	110			
	Paper products	40	■	11.5	70		★	※
	Corrugated board boxes	120	■	17.3	60			
	Printing	40	■	21.8	80			
10	**Textile and textile products**							
	Silk reeling plants	470	■	2.6	60			
	Spinning mils	3,860						
	Twisting yarns, except bulky yarns	110	■	10.0	50			
	Finished woven fabrics	700		14.3	70		★	※
	Dyed and finished textiles	1,160		12.2	80			
	Outer garments	10	■	5.2	90			
	Miscel. knitted garments and shirts	20	■	5.6	70			
	Fur apparels & assessors	100	■	9.0	60			
	Towels	110	■	14.5	70			
11	**Transport equipment, components and accessories**							
	Motor vehicles, including motorcycles	125,210		3,864.5	3090			
	Motor vehicles bodies and trailers	640		204.7	310		★	※
	Train's coach-car-parts	3,270		125.5	360			
	Aircraft parts and auxiliary equipment	380	■	n/a		☆		※
	Forklift trucks and parts and accessories	340	■	142.4	250	☆	★	※
	Bicycles and parts	110	■	31.5	100	☆		※
12	**Clay-based, sand-based and other non-metallic mineral products**							
	Flat glass	41,220		300.2	410			
	Processed flat glass	850		30.4	100			
	Table and kitchen glassware	1,290		13.9	120			
	Cement	29,970		87.8	100			
	Concrete products	100	■	9.2	50			
	Clay roofing tiles	30	■	10.6	60			
	Tableware pottery	50	■	7.6	70			
	Fire bricks	240	■	28.5	160	☆		※
	Misc. carbon and graphite products	390	■	21.4	90			
13	**Processing of gemstones**							
	Crushed stones	1,630		9.4	60			
	Products	220	■	10.3	80			
14	**Plastic products**							
	Plates, bars, rods, tubes	3,170		45.5	150			
	Plastic sheets, floor coverings	690		42.2	120			
	Industrial plastic products	320	■	22.9	100			
	Foamed plastic products, rigid	660		15.7	70			
	Compounding plastic matter	430	■	29.3	80			
	Plastic tableware, kitchenware	220	■	18.3	80			

15	**Professional medical, scientific and measuring devises/parts**							
	Precision measuring instruments	40	■	20.3	110	☆		※
	Analytical instruments	80	■	55.8	180	☆		※
	Medical instruments and apparatus	180	■	48.9	160	☆	★	※
	Physical and chemical instruments	40	■	18.4	90			
	Optical lenses and prisms	160	■	30	140	☆	★	※
	Ophthalmic goods, including frames	1,090		16	110			
	Watches, clocks and parts	220	■	54.8	190	☆	★	※
16	**Rubber products**							
	Tires & tubes for automobiles & bicycles	20,610		307.3	710			
	Rubber & plastic footwear	140	■	7.9	70		★	※
	Rubber hoses	500	■	34.1	160	☆		※
	Mechanical rubber products	800		25.9	120			
	Miscellaneous rubber products	110	■	14.6	80			
17	**Leather and leather products**							
	Leather tanning and finishing	790		28.9	120			
	Leather footwear	20	■	10.4	60			
	Baggages	10	■	9.9	70			
	Miscellaneous leather products	10	■	6.2	50			
18	**Packaging and printing materials**							
	Printing	40	■	21.8	80		★	※
	Plate making for printing	60	■	14.0	90			
	Bookbinding	10	■	7.9	70			
	Printed matter	30	■	6.7	70			
19	**Processing of Agricultural products**							
	Meat products	320	■	33.2	120	☆		※
	Dairy products	1,020		57.0	110			
	Miscellaneous livestock products	380	■	18.8	110	☆		※
	Canned and preserved fruit and vegetable	480	■	15.2	80			
	Vegetables pickled or in brine	260	■	9.6	70			
	Sugar, except refined sugar	25,790		54.6	80			
	Wheat flour milling	140	■	62.5	70	☆		※
	Bread	400	■	34.5	250	☆		※
	Pastries and cakes	90	■	12.3	100			
	Misc. bakery and confectionery products	800		34.6	130			
	Food and related products	270	■	18.0	140	☆	★	※
	Soft drinks and carbonated water	2,240		98.0	120			
	Tea, Coffee	2,020	■	33.6	70			
	Tobacco stemming and redrying	420	■	304.1	80	☆		※
	Elemental feeds, Organic fertilizer	370	■	23.4	70			
20	**Service industries such as tourism and medical facilities**	n/a	■	n/a	n/a	☆	★	※
21	**Information and communication technology (ICT)**	n/a	■	n/a	n/a	☆	★	※
22	**Health related; medical laboratories, diagnostic services and other medical services**	n/a	■	n/a	n/a	☆	★	※
23	**Education and skills training**	n/a	■	n/a	n/a	☆	★	※
	Selected Number of Industries	122	82			37	22	44
	Gross Average	258	191	85.3	150			
	Average of Selected Industries		191	37.2	107			

Source; Statistics data on water volume, value-added and number of employees are based on the Report by the industrila site and water of the 2003 Census, Statistics Office, Research and Statistics Department, Ministry of Economy, Trade and Industry (METI)

Note: Prepared by JST