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ISBN 978-89-8063-944-1
ISBN 978-89-8063-827-7(set)

Knowledge Sharing Program
www.ksp.go.kr

Center for International Development, KDI
cid.kdi.re.kr

2014/15 Knowledge Sharing Program with Ethiopia

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Knowledge Sharing Program

2014/15 Knowledge Sharing Program with Ethiopia:

Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan

MINISTRY OF STRATEGY AND FINANCE

KDI Korea Development Institute

2014/15 Knowledge Sharing Program with Ethiopia: Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan

2014/15 Knowledge Sharing Program with Ethiopia

Project Title	Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan
Prepared by	Korea Development Institute (KDI)
Supported by	Ministry of Strategy and Finance (MOSF), Republic of Korea
Prepared for	The Government of Federal Democratic Republic of Ethiopia
In Cooperation with	Ministry of Finance and Economic Development (MOFED) Ministry of Industry (MOI) Ministry of Agriculture (MOA)
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English Editor	Seoul Selection

Government Publications Registration Number 11-1051000-000610-01

ISBN 978-89-8063-944-1 94320
978-89-8063-827-7 (set)

Knowledge Sharing Program

Government Publications Registration Number
11-1051000-000610-01

2014/15 Knowledge Sharing Program with Ethiopia:

Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan

MINISTRY OF STRATEGY AND FINANCE

KDI Korea Development Institute

Preface

In the 21st century, knowledge is one of the key determinants of a country's level of socio-economic development. Based on this recognition, Korea's Knowledge Sharing Program (KSP) was launched in 2004 by the Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI).

KSP aims to share Korea's experience and knowledge with the partner countries to achieve mutual prosperity and cooperative partnership. Former high-ranking government officials are directly involved in the policy consultation to share their intimate knowledge of development challenges, and to complement the analytical work of policy experts and specialists who have extensive experience in their fields. The government officials and practitioners effectively pair up with their counterparts in the development partner countries to work jointly on pressing policy challenges and share development knowledge in the process. The program includes policy research, consultation and capacity-building activities, all in all to provide comprehensive and tailor-made assistance to the development partner countries in building a stable foundation and fostering capabilities to pursue self-sustainable growth.

In 2014, policy consultation and capacity building workshop were carried out with 29 partner countries covering over 100 research agendas. As a new partner country, Kyrgyz Republic, El Salvador, Guatemala, Cuba were selected in consideration of the country's policy demand, growth potential, and strategic economic partnership.

The 2014/15 Knowledge Sharing Program with Ethiopia was carried out with the aim of exchanging socio-economic development experience of two countries for improving Ethiopia's policy making capacity and achieving her socio-economic development. Under the MOU signed between the Ministry of Strategy and Finance of Korea and the Ministry of Finance and Economic Development of Ethiopia, the joint research and seminars were conducted in order to support the establishment of "Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan".

I would like to take this opportunity to express my sincere gratitude to Senior Advisor Mr. Jae Jin Byun, Project Manager Prof. Tai-Hyuk Kang, as well as the project consultants including Prof. Seungwon Yu, Prof. Nam Ho Lee, and Prof. Kyung-Taik Han for their immense efforts in successfully completing the 2014/15 KSP with Ethiopia. I am also grateful to Executive Director Dr. Si Wook Lee, Former Executive Director Dr. Hong Tack Chun, Program Director Dr. Song Chang Hong, and Program Officer

Ms. Gang I Kim, and all members of the Center for International Development, KDI for their hard work and dedication to this program. Lastly, I extend my warmest thanks to the Ethiopian counterparts, the Ministry of Finance and Economic Development (MOFED), Ministry of Industry (MOI), Ministry of Agriculture (MOA) and other related agencies, program coordinators, and participants for showing active cooperation and great support.

In your hands is the publication of the results of the 2014/15 KSP with Ethiopia. I believe that KSP will serve as a valuable opportunity to further elevate mutual economic cooperation of Ethiopia and Korea to a new level. I sincerely hope the final research results on the selected areas could be fully utilized to support Ethiopia in achieving economic development goal in the near future.

Joon-Kyung Kim
President
Korea Development Institute

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Acronyms

Chapter 1

ASTU	Adama Science & Technology University
BOK	Bank of Korea
CMT	Cutting-Manufacturing-Trimming
EDRI	Ethiopian Development Research Institute
EEPA	Ethiopian Export Promotion Agency, Federal Democratic Republic of Ethiopia
EIA	Ethiopian Investment Agency, Federal Democratic Republic of Ethiopia
EPB	Economic Planning Board, Republic of Korea
ERCA	Ethiopian Revenues and Customs Authority, Federal Democratic Republic of Ethiopia
ETRI	Electronics Technology Research Institute, Republic of Korea
FDI	Foreign Direct Investment
GTP	Growth & Transformation Plan
HCI	Heavy and Chemical Industries
KDI	Korea Development Institute, Republic of Korea
KOICA	Korea International Cooperation Agency, Republic of Korea
KIMM	Korea Institute of Machinery & Metals, Republic of Korea
KRICT	Korea Research Institute of Chemical Technology, Republic of Korea
KRIS	Korea Research Institute of Standards, Republic of Korea
LIDI	Leather Industry Development Institute, Federal Democratic Republic of Ethiopia
MCI	Ministry of Commerce & Industry, Republic of Korea
METEC	Metals and Engineering Corp., Federal Democratic Republic of Ethiopia
MIDI	Metals Industry Development Institute, Federal Democratic Republic of Ethiopia
MLEs	Medium & Large Enterprises
MMIC	Model of Middle Income Country
MOI	Ministry of Industry, Federal Democratic Republic of Ethiopia
MOFED	Ministry of Finance & Economic Development, Federal Democratic Republic of Ethiopia
MOT	Ministry of Trade, Federal Democratic Republic of Ethiopia
MOTI	Ministry of Trade & Industry, Federal Democratic Republic of Ethiopia
MSEs	Micro & Small Enterprises
NECC	National Export Coordination Committee, Federal Democratic Republic of Ethiopia
NIF	National Investment Fund, Republic of Korea
ODA	Official Development Assistance
OEM	Original Equipment Manufacturing

PASDEP	Plan for Accelerated & Sustained Development to End Poverty
PMMEP	Presidential Monthly Meeting for Export Promotion, Republic of Korea
SDPRP	Sustainable Development & Poverty Reduction Program
SITC	Standard International Trade Classification
SME	Small & Medium Enterprise
SOC	Social Overhead Capital
TIDI	Textile Industry Development Institute, Federal Democratic Republic of Ethiopia

Chapter 2

EDC	Entrepreneurship Development Center
EDRI	Ethiopian Development Research Institute
EKI	Ethiopian Kaizen Institute
FeMSEDA	Federal Micro and Small Enterprise Development Agency
GDP	Gross Domestic Product
GTP	Growth and Transformation Plan
JICA	Japan International Cooperation Agency
KSP	Knowledge Sharing Program
LIDI	Leather Industry Development Institute
LMEs	Large and Medium Enterprises
MFI	Micro Finance Institutions
MoFED	Ministry of Finance and Economic Development
MoUDC	Ministry of Urban Development and Construction
MSE	Micro and Small Enterprise
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
ReMSEDA	Regional Micro and Small Enterprise Development Agency
SBTI	Small Business Training Institute
SME	Small and Medium Enterprise
TIDI	Textile Industry Development Institute
TTC	Triangle Training Centre
TTS	Triangle Training System
TVET	Technical and Vocational Education and Training
UNIDO	United Nations Industrial Development Organization

Acronyms

Chapter 3

AAMI	Adama Agricultural Machinery Industry
ADLI	Agricultural Development-led Industrialization
AGP	Agricultural Growth Program
ATA	Agricultural Transformation Agency
CAADP	Comprehensive African Agriculture Development Program
CADU	Chilalo Agricultural Development Unit
COMESA	Common Market for Eastern and Southern Africa
CSA	Central Statistical Agency
DA	Development Agent
EFY	Ethiopian Fiscal Year
EIAR	Ethiopian Institute of Agricultural Research
FTC	Framers Training Center
GTP	Growth Transformation Plan
HIMIs	High and Intermediate Mechanization Implements
KATS	Korean Agency for Technology and Standards
LMIs	Low Mechanization Implements
MFIs	Micro Finance Institutions
MOFED	Ministry of Finance and Economic Development
NARI	Northern Agriculture Research Institute of Korea
NARS	National Agricultural Research System
NTAP	Nazareth Tractor Assembly Plant
PASDEP	Plan for Accelerated and Sustainable Development to End Poverty
PIF	Policy Investment Framework
RARI	Regional Agricultural Research Institute
RBoA	Regional Bureau of Agriculture
RDA	Rural Development Administration of Korea
RDPS	Rural Development Policies and Strategies
RuSACCOs	Rural Savings and Credit Cooperatives
SDPRP	Sustainable Development and Poverty Reduction Strategy Program
SME	Small and Medium-size Enterprise
SNNP	Southern Nations and Nationality People
TAA	Technology Access and Adoption

WADU	Wolaita Agricultural Development Unit

Chapter 4

ADB	Asian Development Bank
AfDB	African Development Bank
BLT	Build-Lease-Transfer
BOO	Build-Own-Operate
BOT	Build-Operate-Transfer
BTL	Build-Transfer-Lease
BTO	Build-Transfer-Operate
EEA	Ethiopian Economic Association
ESLSE	Ethiopian Shipping and Logistics Service Enterprise
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GIS	Geographic Information System
GTP	Growth and Transformation Plan
ICT	Information and Communication Technology
KDI	Korea Development Institute
KSP	Knowledge Sharing Program
MCIT	Ministry of Communication and Information Technology
MDG	Millennium Development Goal
MOFED	Ministry of Finance and Economic Development
MOSF	Ministry of Strategy and Finance
MRG	Minimum Revenue Guarantee
MTEF	Mid-Term Expenditure Framework
NGO	Non-Government Organization
OECD	Organization for Economic Cooperation and Development
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PFI	Public Finance Initiative
PICKO	Private Infrastructure Investment Center of Korea
PIM	Public Investment Management
PIMA	Public Investment Management Center
PIMAC	Public and Private Infrastructure Investment Management Center

Acronyms

PPIAF	Public Private Infrastructure Advisory Facility
PPP	Public Private Partnership
PRC	PPP Review Committee
PSC	Public Sector Comparator
RFP	Request for Proposal
SDPRP	Sustainable Development and Poverty Reduction Program
SPC	Special Purpose Company
UNDP	United Nations Development Program
VFM	Value for Money

2014/15 KSP with Ethiopia

Gang I KIM (Program Officer, Korea Development Institute)

Ethiopia is one of the world's five fastest growing economies, according to the International Monetary Fund (IMF). With a population of 94.1 million,[1] Ethiopia is continuously expanding its economy with 10.8% real GDP growth per year. African Development Bank says all of Ethiopia's main business sectors have performed well: agriculture, which represents 40.2 percent of GDP, grew 5.4%; industry (14%) expanded 21.2%; and services (46.2%) rose 11.9 percent over a 12-month period starting July 2013.[2] Having stabilized its volatile inflation rate to single digits since 2013 as well as maintaining its political structure over the national election of May 2015, the Ethiopian government is preparing the second phase of its Growth and Transformation Plan (GTP 2). The 2014/15 Knowledge Sharing Program (KSP) with Ethiopia was initiated to support the Ethiopian government's efforts toward sustaining its strong economic growth.

The KSP with Ethiopia began in 2011 through the Ministry of Strategy and Finance of the Republic of Korea (MOSF) and the Korea Development Institute (KDI). In 2011, KSP with Ethiopia was conducted under the theme "Promotion of Micro and Small Scale Enterprises Sector and Improvement of Addis Ababa City Transportation System." With its successful completion of the 2011 KSP, cooperation between Ethiopia and Korea continued through the 2012 KSP under the topic "Strategy for the Implementation of e-Government and the Development and Promotion of the Leather & Footwear Industry". In 2013, Ethiopia became a Strategic Development

1) World Development Indicators database (retrieved data on August 17, 2015)
2) African Economic Outlook: Ethiopia 2015

Partner Country (SDPC), and this paved the way toward a more comprehensive and focused research and provided policy recommendations for four topics under the umbrella title of "Growth and Transformation toward a Middle-Income Country."

In its second year as an SDPC, Ethiopia sought to widen bilateral cooperation with Korea through the 2014 KSP, based on the expertise and experience gained from their previous partnership. Receiving KSP demands from the Ethiopian government in April 2014 after holding preliminary dialogue in the Final Reporting Workshop of the 2013 KSP with Ethiopia, the 2014/15 KSP with Ethiopia was carried out under the theme "Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan" in coordination with the Ministry of Finance and Economic Development (MOFED) of Ethiopia. The 2014 KSP with Ethiopia had four sub- topics: 1) A Study on Developing Implementation Programs for Industry Sector of GTP2; 2) Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building: 3) Development of Efficient Agricultural Mechanization and Technology; and 4) Public-Private Partnership in the Government Funding Modality. To conduct research and provide recommendations on these topics, experienced professionals were invited to join the program to provide hands-on experience and in-depth analysis. Ethiopian consultants were also nominated to assist the Korean team in providing local information and network.

As a result, the 2014 KSP team was comprised of following four Korean researchers and four Ethiopian consultants, along with a senior advisor, program director, manager, officers and Young KSPians (YKSP).

No.	Topics (Relevant Ethiopian Ministries)	Korean Researcher	Ethiopian Consultant
Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan			
1	A Study on Developing Implementation Programs for Industry Sector of GTP2 (Ministry of Industry)	**Tai-Hyuk Kang** Hankyong National University	**Solomon Wole** Freelance Consultant
2	Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building (Ministry of Industry)	**Seungwon Yu** Korean National Police University	**Girum Abebe** Ethiopian Development Research Institute (EDRI)
3	Development of Efficient Agricultural Mechanization and Technology (Ministry of Agriculture)	**Nam Ho Lee** Hankyong National University	**Yasmin Wohabrebbi** Ethiopian Agricultural Transformation Agency (ATA)
4	Public-Private Partnership in the Government Funding Modality (Ministry of Finance and Economic Development)	**Kyung-Taik Han** Seoul National University of Science and Technology	**Ibrahim Worku** Freelance Consultant

* Senior Advisor: H.E. Jae Jin Byun, Former Minister of Health and Welfare
Project Manager: Tai-Hyuk Kang, Professor, Hankyong National University
Program Director: Song Chang Hong, Director, Division of Planning & Policy Consultation, CID, KDI
Program Officers: Gang I Kim, Research Associate, CID, KDI
Wooyong Jung, Research Associate, CID, KDI
Young KSPians (YKSP): Lee Soo Kim, Student, Hankuk University of Foreign Studies
Haejin Hwang, Student, Sookmyung Women's University

In the first stage of the program, a Korean delegation headed by Tai-hee Lee, former Program Director of the 2014 KSP with Ethiopia, visited Ethiopia during October 4-10, 2014, for the High-Level Demand Survey and Pilot Study. During its trip, the Korean delegation had meetings with high-level officials from the Ministry of Finance and Economic Development (MOFED), Ministry of Industry (MOI) and Ministry of Agriculture (MOA) of Ethiopia to designate research topics and foster in-depth understanding on them. Through the meetings, Ethiopian experts (Local Consultants) were identified. In the Pilot Study, the Korean delegation visited related institutions such as the Prime Minister's Office (PMO), Federal Micro And Small-scale Enterprise Agency (FEMSEDA), Regional Micro and Small Enterprise Development Agency (REMSEDA), Ethiopian Investment Agency (EIA), Oromia Agricultural Research Institute (OARI), Ethiopian Public Procurement and Property Administration Agency, Agricultural Transformation Agency (ATA), Ethiopian Development Research Institute (EDRI) and the World Bank in Addis Ababa to build up networks and gain related information.

The second step consisted of the Local Reporting Workshop and Additional Pilot Study. A delegation of Korean experts headed by Tai-Hyuk Kang, Project Manager of the 2014 KSP with Ethiopia, visited Ethiopia again during January 10-16, 2015, to further discuss details of the consultation topics, gather data and information for more concrete and relevant research, and visit relevant institutions. In the Local Reporting Workshop, Korean researchers and their Ethiopian counterparts presented the Korean experience and Ethiopia's situation, respectively, which enabled the team to discuss the research and its applications further. For the Additional Pilot Study, the Korean delegation, based on the topics, visited the LG Electronics office in Ethiopia, International Financial Institution Cooperation Directorate (IFICD), Adama Science and Technology University, BM Garment, Metal Industry Development Institute (MIDI), the Ethiopian Chamber of Commerce and Sectoral Associations (ECCSA), Adama Agricultural Machinery Industry (AAMI), Addis Ababa City Government Exhibition Centre, Addis Ababa Institute of Technology (AAIT), Sectoral Relation, Consultative Forum and Incentives Directorate of MOI, the Leather Industry Development Institute (LIDI), Ministry of Communication and Information Technology (MCIT), Ministry of Urban Development and Housing Construction (MUDHC), Textile Industry Development Institute (TIDI), Kifiya Financial Technology PLC, African Development Bank (AfDB), International Food Policy Research Institute (IFPRI) and Ethiopian Agriculture Research Institute (EARI) to acquire more data.

From February 22-28, 2015, nine Ethiopian delegations headed by Kokeb Misrak, director of the Bilateral Cooperation Directorate at MOFED, were invited to Korea for the Interim Reporting and Policy Practitioner's Workshop. The Policy Practitioner's Workshop was opened by former Minister of Health and Welfare Jae-jin Byun, the senior advisor to the 2014 KSP with Ethiopia. Then came congratulatory comments from Amb. Dinberu Alemu, minister counselor of the Ethiopian Embassy in Seoul. Afterwards, Korean researchers presented the interim results of their policy consultation paper and received feedback from the Ethiopian delegation. In the Policy Practitioner's Workshop, the KDI invited Ethiopian delegations to visit the most relevant institutions on four research topics to provide first-hand experience and offer networking opportunities with related Korean institutions. The institutions the Ethiopian delegations visited were the Korea Trade-Investment Promotion Agency (KOTRA), Gyeonggi Small Business Center (GSBC), Eco Energy Co., Ltd., Small Business Training Institute (SBTI), National Academy of Agricultural Science(NAAS), the Small and Medium Business Administration (SMBA), Korea Rural Economic Institute (KREI), Korea International Trade Association (KITA), Korea Agricultural Machinery Global Center, KDI Public and Private Infrastructure Investment Management Center (PIMAC) and Center for International Development (CID), Korea Institute for Industrial Economics and Trade (KIET), and a student dormitory at Chungnam National University.

As the final step, the Senior Policy Dialogue and Final Reporting Workshop was held in Ethiopia during April 7-11, 2015, followed by evaluation interview sessions during April 12-16. State Minister of MOI, H.E. Tadesse Haile, delivered a welcome remark in the workshop, followed by an opening remark from H.E. Jae-jin Byun and a congratulatory remark from MOFED. In the workshop, Korean researchers reported the final results of their study and policy recommendations to about 60 participants including Ethiopian policymakers, academics, members of international organizations, professors and students, and public and private media personnel. A diverse range of questions and comments was discussed on the research results and their application to the Ethiopian economy. Comments on the final results were made in the Senior Policy Dialogue, in which the minister and director of MOI and director of MOFED participated. In the dialogue with MOI, the Korea delegation led by H.E. Jae Jin Byun spoke with H.E. Ahmed Abtew on applying the recommended policies as well as the project plan and topics for the 2015/16 KSP with Ethiopia, based on a previously received demand survey form. In the dialogue with MOFED, Kokeb Misrak, director of the Bilateral Cooperation Directorate, discussed MOFED's role as the KSP's coordinating ministry and possible demands from other ministries. After a series of meetings, the End of Project Evaluation and Performance Evaluation Interviews and the Monitoring and Impact Evaluation were conducted to evaluate projects and track the results and performances of ongoing and previous KSPs.

These endeavors by both Ethiopia and Korea enriched this 2014/15 policy consultation report. The KDI sincerely thanks MOFED for its kind cooperation and facilitation and appreciates the heartfelt support from the Korean Embassy in Ethiopia and the Ethiopian Embassy in Seoul for the report's publication.

Executive Summary

Tai-Hyuk Kang (Hankyong National University)

The 2014 Knowledge Sharing Program (KSP) with Ethiopia was agreed on under an MOU signed between the Ministry of Strategy and Finance of Korea and the Ministry of Finance and Economic Development of the Federal Democratic Republic of Ethiopia. The main purpose of the 2014 KSP with Ethiopia was to cooperate in establishing the second stage of the Growth and Transformation Plan, the mid-term five-year plan set to start in the second half of 2015. So the main research topic was accordingly titled "Developing Action Plans for the Priority Agendas of the Second Stage of Growth and Transformation Plan." Under this common main theme, four research topics were conducted on: 1) A Study on Developing Implementation Programs for Industry Sector of GTP2; 2) Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building: 3) Development of Efficient Agricultural Mechanization and Technology; and 4) Public-Private Partnership in the Government Funding Modality.

The first topic, "A Study on Developing Implementation Programs for Industry Sector of GTP2" studied by Prof. Tai-Hyuk Kang, focused on planning methodology and three industrialization issues. The report analyzed the feasibility of Ethiopian industrial policies, per the Industrial Development Roadmap (2013-25) of Ethiopia, mainly for the purpose of extracting better policy measures in planning methodology and strategies for industrial development. Most of the recommendations were developed on the basis of the Korean experience in economic development in the country's industrialization era of 1960-70. For planning methodology, this report

suggested several items as reform agenda: recalibrating the big picture of the roadmap; clarifying the relationship between goals and means; using more specific indicators in setting performance targets; and reshuffling implementation systems. Recommendations for the three aspects of industrial development policies were the main objective of this report: strategies for industrialization, public services delivery system and realignment of organizational frameworks. Among the industrialization strategies, this report highly recommended that the Ethiopian government employ an effective strategy for export promotion as the driving force for economic growth, and put more efforts into boosting export activities of the country's private sector. Other points of emphasis were the critical need for a business-friendly environment to induce foreign direct investment, which is crucial for economic development in Ethiopia, and the wide room for realignment of improvement of efficiency required by government organization and related to the promotion of industrialization.

The second topic, "Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building" studied by Prof. Seungwon Yu, analyzed micro and small enterprises in Ethiopia and suggested a specific policy program for capacity building focused on MSE technology development in manufacturing. This study sought to make Ethiopian MSEs more productive, more profitable and bigger. For this purpose, the focus went to an enterprise training system reflecting the insufficient internal capacity of Ethiopian MSEs. The first thing evaluated was the status of Ethiopian MSE training systems and analysis was done on related issues restricting the MSEs from getting bigger and stronger. To overcome urgent problems, this report suggested the New Triangle Training Program based on domestic and global partnerships, and provided detailed action plans for phased policy implementation, performance targets of each phase and policy tools for higher effectiveness of the action plans. The program's estimated cost was also included.

The third topic is the "Development of Efficient Agricultural Mechanization and Technology" studied by Prof. Nam Ho Lee. This research was conducted by first analyzing the state of Ethiopian agricultural development. Based on the study's results, this paper concluded that agricultural mechanization in Ethiopia is in its early stage with many challenges across the value chain: absence of dedicated institutions to coordinate stakeholders' efforts; lack of incentive packages for the import of agricultural machinery and their distribution; low purchasing power of farmers; no business models for rental, repair and maintenance services; and the unavailability of standards for agricultural mechanization. The Ethiopian government is also recommended to be equipped with qualified institutions with the required capacity to evaluate and certify agricultural machinery. Based on the study's findings, this report proposed recommendations for sustainable agricultural mechanization to the Ethiopian government. Tackling the identified challenges of the country's

agricultural mechanization, this report suggests key success factors deduced from the Korean experience like legal and institutional frameworks, support programs, fundraising and scale of agricultural mechanization. Finally, this report concluded with developing strategies for several key issues: the roles and responsibility of stakeholders; result-based management for agricultural mechanization; strengthening institutional support; developing service and maintenance assistance; machine rental service; standards development for agricultural machinery; pilot project for mechanized farming; joint venture for manufacturing agricultural machinery; and scale of agricultural mechanization.

The last topic is the "Public-Private Partnership (PPP) in the Government Funding Modality" studied by Prof. Kyung-Taik Han. Infrastructure in Ethiopia faces enormous challenges despite its leading role in the country's economic growth over the last decade, mostly from the availability gap of funds, inefficient delivery of services and limited participation of the private sector. In this context, PPP could be an efficient method of funding infrastructure improvement. PPP plans have been recently introduced on an ad hoc basis focused on public services delivery. Consequently, the PPP system in Ethiopia remains in the initial stage, and a myriad of pressing issues about the system needs resolution. PPP should take precedence in getting the required institutional and legal frameworks. In this situation, the existing approach to PPPs has inevitably produced a poor performance, and hence devising a comprehensive legal framework for PPP is Ethiopia's top priority to raise its infrastructure base. This report aimed to explain the process of establishing a PPP model and capacity building with the Ethiopian government, based on Korea's 20-year experience in PPP project initiation and management. In particular, the focus should be on establishing a PPP system in Ethiopia to encourage project implementation. Referring to Korea's experience, the policy implications were largely organized around the following main points: establishing a solid legal framework; building and ensuring a transparent and competitive procurement process; attracting private investment through a variety of incentives such as risk sharing; forming a unified framework for sound fiscal management; building the capacity of private parties; and properly educating and training public officials. In addition, other strategic points stressed included the development of a PPP system, creation of a PPP-dedicated unit, consideration of Ethiopia's unique context and evolution into a well-functioning system.

2014/15 Knowledge Sharing Program with Ethiopia:
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Second Stage of Growth and Transformation Plan

Chapter 1

A Study on Developing Implementation Programs for Industry Sector of GTP2

A Study on Developing Implementation Programs for Industry Sector of GTP2

Tai-Hyuk Kang (Hankyong National University)
Solomon Wole (Freelance Consultant)

Summary

The Ethiopian economy has experienced strong and generally broad-based growth, with real economic growth of around 10 percent per year on average for a decade. The Ethiopian government established an Industrial Development Roadmap (Roadmap, 2013-2015) with the goal of becoming a middle income country by 2025, and is preparing the second stage of the Growth and Transformation Plan (GTP2, 2015-2020), a mid-term plan for economic development. The purpose of this research is to assist the Ethiopian government in establishing the industry part of GTP2 under the auspices of the Knowledge Sharing Program (KSP) of the Korea Development Institute (KDI). This study took about ten months in being conducted between September 2014 and May 2015.

Based on the roadmap, the research team analyzed Ethiopian industrial policies on their feasibility and focused on extracting more efficient policy measures for planning techniques and industrial development strategies. Needless to say, most recommendations have been developed from the viewpoint of the Korean development experience in the industrialization era of the 1960s and 70s.

On the planning techniques, this report suggests a handful of reform agenda items: recalibrating the roadmap's big picture, clarifying the relationship between goals and means, using more specified indicators for performance targets and fortifying implementation systems. On the other hand, this report includes recommenda-

tions for three aspects of industrial development policies: strategies for industrialization, service delivery system and realignment of organizational frameworks. Among industrialization strategies, this report especially recommended that the Ethiopian government use export promotion strategy as its driving force for economic growth and put more efforts into boosting exports. Other recommendations are that building a business-friendly atmosphere for inducing foreign direct investment is critical, and that government organization related to the promotion of industrialization remains a necessity for realignment for efficiency improvement.

1. Methodology of Approach

Facing the expiration of the first stage (2009/2010-2014/2015), the Ethiopian government is designing the second stage of the Growth and Transformation Plan (2015/2016-2020/2021). In the first stage, the Ministry of Industry recognized industrialization as one of the top priorities of the Ethiopian economy to eradicate poverty, and based on this, devised the Ethiopian Industrialization Development Roadmap (2013-2025) in September 2013. The roadmap provides the national vision of emerging as a middle income country by 2025, and provides fundamental guidelines in developing programs to implement the second stage of the Growth and Transformation Plan (GTP2).

The Ethiopian government also had Korea International Cooperation Agency (KOICA) conduct collaboration work with Korea International Development Institute (KIDI) and Dalberg under the auspices of the Korean government's ODA program. In August 2013, KOICA released the final report titled "Project for the Establishment of the Detailed Action Plan Strategy to Implement Ethiopian National Economic Development Plan Strategy," through which on the basis of overall analysis of the environment and potential for industrialization, a set of detailed and tangible policy recommendations for Ethiopian industry was suggested.

The tasks for the researcher in charge of developing implementation programs for GTP2's industry part are to ensure achievements based on the goals and targets of the first-stage GTP (GTP1), analyze the feasibility of the Industrialization Development Roadmap (2013-2025) amid economic reality and identify the policy proposals of KOICA's work applied throughout the policy cycle.

Collecting performance data on each index of the goals and targets of GTP1 is a prerequisite for developing programs to implement GTP2. This is because implementation programs for GTP2 devised without checking and analyzing achievements against the goals and targets of GTP1 will not work as expected. For this purpose, checking the performance of GTP1 against the annual targets presented

in Volume II: Policy Matrix of the GTP1 is expected to play a significant role.

Due to the limits of research collaboration, which chiefly depends on existing research papers and reports, interviews with restricted figures of government institutions and limited relevant data despite the devoted contributions of Ethiopia-based consultants, the researcher had no choice but to depend mainly on the Annual Progress Report of GTP for fiscal 2009 to 2012; KOICA's work on Ethiopia's industrial potential and policy recommendations; interviews conducted two times in a week in a visit as shown in <Table1-1>; a kick-off pilot study from October 5-10, 2014, and an interim pilot study from January 10-16, 2015, and existing papers and reports

〈Table 1-1〉 Interviewees

Date	Institutions	Interviewees		
		Department	Position	Name
Oct. 6, 2014	MOI	Policy & Program Study, Monitoring & Evaluation	Director	Ahmed Nuru
	MoFED	Bilateral Cooperation Directorate	Director	Kokeb Misrak
Oct. 7, 2014	Ethiopian Investment Commission	Information & Investment Promotion Directorate	Director	Aklilu Woldemariam
	Federal Micro & Small Enterprises Development Agency	Facilitation Division	Deputy Director General	Bekele Mengistu Tesema
	Ethiopian Development Research Institute	-	Researcher	Berihu Assefa
Oct. 8, 2014	World Bank	Ethiopia Country Office	Lead Economist & Program Leader	Lars Christian Moller
Jan. 13, 2015	Metals Industry Development Institute	-	Director General	Workneh Delelegn
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	Textile Industry Development Institute	-	Director General	Seleshi Lemma

released by international institutions like the World Bank, OECD, EIU, AfDB and the UNDP and Korean institutions like KOICA and KOTRA.

Needless to say, the working papers prepared by local consultants Ahmed Nuru and Solomon Wole were highly informative, and their analyses on the recent Ethiopian economy were the cornerstone of this report. Three seminars held in Addis Abba and one in Seoul were also effective in narrowing gaps in views on Ethiopia's economic reality between the Korean researcher and Ethiopian consultants.

This paper begins with an overview of the Ethiopian economy, tracing the trajectory of major macroeconomic indexes to ensure the economic performance of the Ethiopian government over the GTP1 period "Section 2. Overview of Ethiopian Economy". This will be particularly useful for understanding the country's economic reality.

Explaining the GTP system and Industrial Development Roadmap (2013-25) will follow in the next chapter "Section 3. Snapshot of Ethiopia's Industrial Policy". This section will review the two planning systems, focusing mainly on the causality of goals and means, logical consistency between the two plans and probability of improving the plans' feasibility and economic rationality.

To facilitate a comparative study between Korea in the industrialization era and Ethiopia today, "Section 4. Korea's Industrialization Experience" will provide the background of Korean industrialization policy in the 1960s and 1970s, and the results of that policy. And in "Section 5. Policy Issues Compared to Korea's Experience", comparisons of particular issues between the two countries will be covered. These issues were selected using the researcher's point of view.

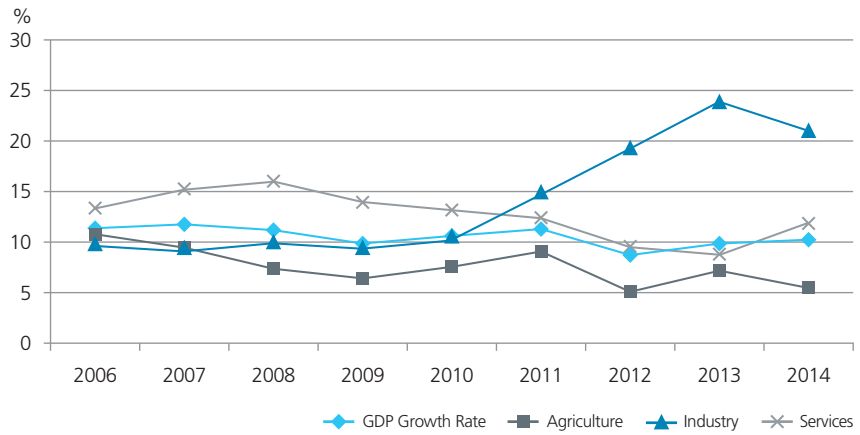
And the final "Section 6. Conclusion" will start with a review of the policy environments of both countries and several aspects considered the key factors for economic growth. It covers not just production factors such as capital, human resources, natural resources and infrastructures but also institutional arrangements like government organization and socioeconomic systems. On this basis, the Korean experience, particularly the success factors behind industrialization in the early 1960s and 70s, were scrutinized for their potential adoptability in Ethiopia. And finally, this research proposed applicable policy ideas for accelerating industrialization of the Ethiopian economy.

2. Overview of Ethiopian Economy

2.1. Growth

The Ethiopian economy has experienced strong and generally broad-based real growth of around 10 percent a year on average, more than double that of Sub-Saharan African countries (SSA),[3] as seen in [Figure1-1] Growth came mainly from government-led development investment, strong global commodity demand and increased exports of new sectors. Yet recent growth rates have failed to meet targets by a small margin, but remain at high single-digit levels (World Bank, 2012).

[Figure 1-1] GDP Growth Rates by Sector in Ethiopian Economy



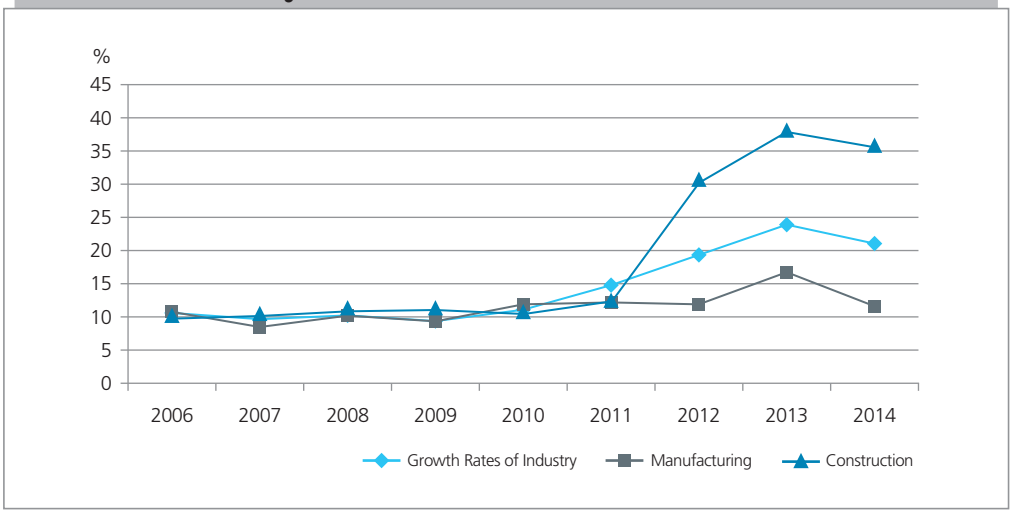
Source: Ministry of Industry, Federal Democratic Republic of Ethiopia.

Amid Ethiopia's favorable economic growth, the astonishingly steep rate of growth is noteworthy considering the Ethiopian government's effort to boost industrial sectors as growth engines. Economic growth saw high levels for three years from 10.8 percent in 2010 to 15 percent in 2011, 19.6 percent in 2012 and 24.1 percent in 2013. It finally ran out of steam in 2014, yet still maintained a rate of above 20 percent. Unfortunately, industry as a part of GDP did not grow big enough, so the high industrial expansion could not compensate for sluggish growth in agriculture and the service sectors, and so overall economic growth remained almost flat.

3) According to the World Bank Report (2012), Sub Saharan 5 countries recorded 5.6 percent in annual growth rates on average from 2005-11.

Another development was the growing deviation of growth rates among subsectors of industry. The Ethiopian government started to heavily boost construction from 2011, and accordingly, the sector's growth reached nearly 40 percent in 2013, a rate that had stayed around 10 percent until 2011 as seen in [Figure 1-2]. On the other hand, growth of the industrial sector marked 14.3 percent in 2014, contrary to the expectation to reach 20 percent double the base year's 10.1 percent. Consequently, industry's share of GDP did not expand as much as expected.

[Figure 1-2] Growth Rates of Industrial Subsectors



Source: Ministry of Industry, Federal Democratic Republic of Ethiopia.

The next issue is the demand side of GDP. For this purpose, capital formation sources must be identified through analyzing the expenditure structure and balance of trade. As seen in <Table 1-2>, final consumption including those of the private sector and government marked 82.3 percent of GDP in 2012-2013, a decline from 94.8 percent in 2009-2010. Gaps between the ratio of capital formation and gross domestic savings did not significantly narrow.

The ratios of capital formation to GDP, which reflect the GoE's effort to expand investment in economic development, continued to rise from 24.7 percent in 2009-2010 to 27.9 percent in 2010-2011, 33.1 percent in 2011-2012 and 33 percent in 2012-2013. The ratio of gross domestic saving to GDP stayed at 17.7 percent in 2012-2013, though this was a huge leap from 5.2 percent in 2009-2010. The big gap between capital formation and gross domestic savings is accordingly expected to be filled with net exports. Yet net exports remained in deficit at 15.3 percent of GDP in 2012-2013, with the target ratio of 13.1 percent of deficit set for 2014-2015.

〈Table 1-2〉 Demand Side GDP: Major Components as Ratio to GDP at Current Prices[4]

(Unit: %)

	2009/10	2010/11	2011/12	2012/13		2010/11-12/13	2014/15
	Actual	Actual	Actual	Plan	Actual	Average	Target
Total Final Consuption	94.8	87.2	85	87.6	82.3	84.8	85.0
Government	8.6	8.6	7.2	-	7.3	7.7	-
Private	86.2	78.6	77.8	-	75	77.1	-
Total Capital Formulation	24.7	27.9	33.1	28.1	33	31.3	28.2
Export of Goods and Non-Factor Service	13.6	17	13.9	19.2	12.7	14.5	22.5
Import of Goods and Non-Factor Service	33	32.1	32	34.9	28	30.7	35.7
Resource Balance	-19.4	-15.1	-18.1	-15.7	-15.3	-16.2	-13.1
Gross Domestic Savings	5.2	12.7	15	12.4	17.7	15.1	20

Source: Ministry of Finance and Economic Development.

2.2. Trade

Considering the Ethiopian government's development strategy, however, a sticky matter could be reducing trade deficits. Growth of goods and service exports rose to an average near 10 percent per annum in 2000-2010. Major foreign exchange earners were agricultural products, accounting for about 90 percent of Ethiopian exports over the past decade on average. Despite Ethiopia's considerable progress in growing and diversifying processed exports, its economy remains heavily dependent on primary products like coffee (World Bank, 2012).

On top of the voluminous import of consumer goods due to major emphasis on importing capital goods as part of a government-led growth strategy, imports overall grew 15 percent on average per year in 2000-2010 (World Bank, 2012). The trade balance saw consecutive years of deficit, and accordingly, the current account balance was in the red, though it showed temporary improvement in 2010-2011 by posting a deficit of US$210 million as seen in <Table 1-3>. The current account deficit

4) Growth and Transformation Plan Annual Progress Report for Fiscal 2012-2013, Feb. 2014, Ministry of Finance and Economic Development, Federal Democratic Republic of Ethiopia

is likely to stay at a considerable amount given the import requirements of the GTP and rising demand for imported consumer goods (World Bank, 2012).

Similarly, manufacturing exports also saw disappointing results. Initially, GTP1 planned to achieve US$1.8 billion of manufactured goods at the end of the plan year, or 5 percent of GDP. But the Ethiopian economy failed to achieve the 5-percent target. Export revenue from manufactured goods amounted to US$398 million, or just 22.1 percent of the target. Export revenue from manufacturing also accounted for no more than 12 percent.

〈Table 1-3〉 Balance of Payments

Accounts	2010-11	2012-13	2010/11-13				2010-11 to 12-13
			Plan	Performance		Growth over Previous Year's Figure	
				US$ mil.	% of Plan		
Trade Balance	-5,506.2	-7,908.5	-9,289.7	-8,392.1	90.3	6.1	-7,268.93
Goods Export	2,747.1	3,152.6	3,872.9	3,075.2	79.4	-2.5	2,991.63
Goods Import	8,253.3	11,061.0	13,162.6	11,467.3	87.1	3.7	10,260.53
Non-factor Service, Net	688.1	74.9	120.2	476.9	396.7	536.7	413.30
Private Transfer	2,746.7	3,245.8	4,175.2	3,889.2	93.2	19.8	3,293.90
Current Account Balance Exc. Off Transfer	-2,071.4	-4,587.8	-4,994.3	-4,026.0	80.6	-12.2	-3,561.73
Official Transfer	1,860.7	1,787.9	1,588.1	1,267.6	79.8	-29.1	1,638.73
Current Account Balance Inc. off Transfer	-210..6	-2,799.9	-3,406.2	-2,758.4	81.0	-1.5	-1,922.97
Capital Account	2,535.5	2,119.8	3,406.1	3,226.4	94.7	52.2	2,627.23
Errors & Omissions	-940.7	-292.7	0	-582.2	-	98.9	-605.20
Overall Balance	1,384.2	-972.8	0	-114.2	-	-88.3	-
Financing	-1,384.2	972.8	0	114.2	-	-	-
Reserves	-1,375.8	980.8	0	123.2	-	-	-
Debt Relief	-8.4	-8	-	-9	-	-	-

Source: National Bank of Ethiopia.

Looking forward, the Ethiopian economy has to be vigilant against the fatigue stemming from a long period of high growth. Another risk is negative economic impact from a prolonged slowdown in the European Union and other high-income

countries, mainly through reduced remittances and slowing export demand. Though Ethiopian exports took up just 12.7 percent of GDP in 2012-2013 (MoFED), they could be vulnerable due to their high concentration in primary goods and limited commodities as seen in <Table 1-4>. Major export commodities except gold are agricultural primary goods and processed agricultural products. The top three commodity items are coffee, gold and oil seeds, which account for around 60 percent of overall exports.

〈Table 1-4〉 Export Products as Percentage of Overall Export Value

Item	2010-11	2011-12	2012-13	Average(2010-11 to 2012-13)
Coffee	30.6	26.4	24.3	27.0
Oil Seeds	11.9	15.0	14.2	13.8
Leather & Leather Products	3.8	3.5	3.9	3.7
Pulses	5.0	5.1	7.6	5.9
Meats & Meat Products	2.3	2.5	2.4	2.4
Fruits & Vegetables	1.1	1.4	1.6	1.4
Flower	6.4	6.2	6.1	6.2
Gold	16.8	19.1	19.0	18.4
Live Animals	5.4	6.6	5.4	5.8
Chat	8.7	7.6	8.8	8.4
Textile & Textile Products	2.2	2.7	3.2	2.7
Subtotal	94.3	96.1	96.5	95.7
Total	100.0	100.0	100.0	100.0

Source: Ethiopian Revenues & Customs Authority (ERICA).

2.3. Industry

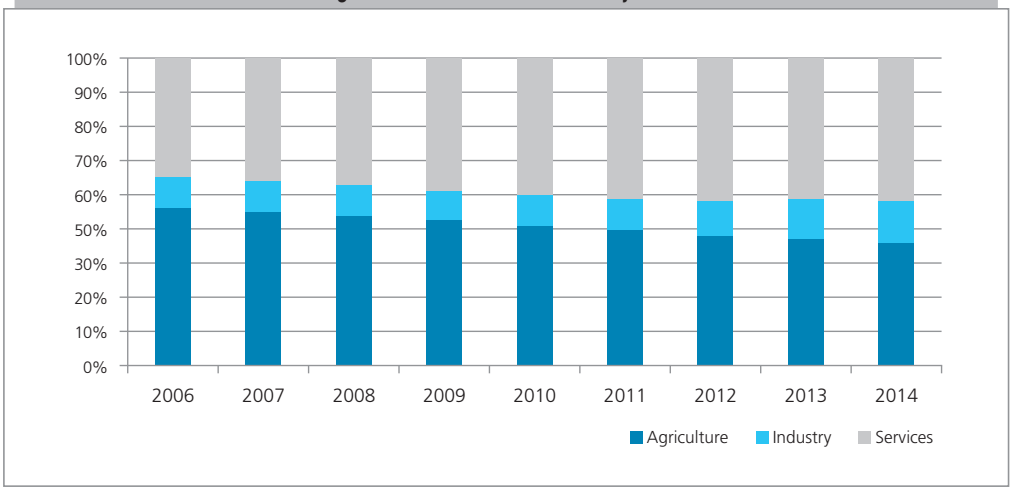
Agriculture remains the cornerstone of the Ethiopian economy and its most important source of growth. The sector's share of GDP has dramatically dropped from more than half in 2006 to under 40 percent in 2014, as seen in [Figure 1-3]. Nonetheless, agriculture is the main income earner, livelihood and way of living for 85 percent of Ethiopians living in rural areas, and 85 percent of export earnings (World Bank, 2012).

Principal crops include coffee, maize, teff, wheat, sorghum and other cereals, pulses, seed oil, potatoes, sugarcane and vegetables. From 2009-10 to 2012-13, ag-

riculture is known to have grown 7 percent a year on average. According to official statistics, agricultural productivity of wheat, teff and sorghum increased an average of 14 percent,[5] due to investments in agricultural extension, increases in inputs (especially fertilizer), improvements in land tenure security and management and significant rises in the area farmed (more than 2 percent annually). Agriculture remains a major earner of foreign exchange, with coffee, oilseed, qat, flowers, pulses, live animals, and hides and skins making up the bulk of Ethiopia's exports (World Bank, 2012).

Industry has grown at high speed since 2010; however, the sector's contribution to GDP remains at a tenth of the total due to the fundamental weakness of industrial bases. While the growth rate of industry has accelerated, partially due to increased FDI, the service sector saw growth fall to 6.7 percent from 11.7 percent (IMF, 2012). The output structure reflects a developing economy in early transition, with agriculture accounting for 39.9 percent, industry 14.2 percent and services 45.9 percent in 2014 as seen in [Figure 1-3].

[Figure 1-3] GDP Contribution by Sector



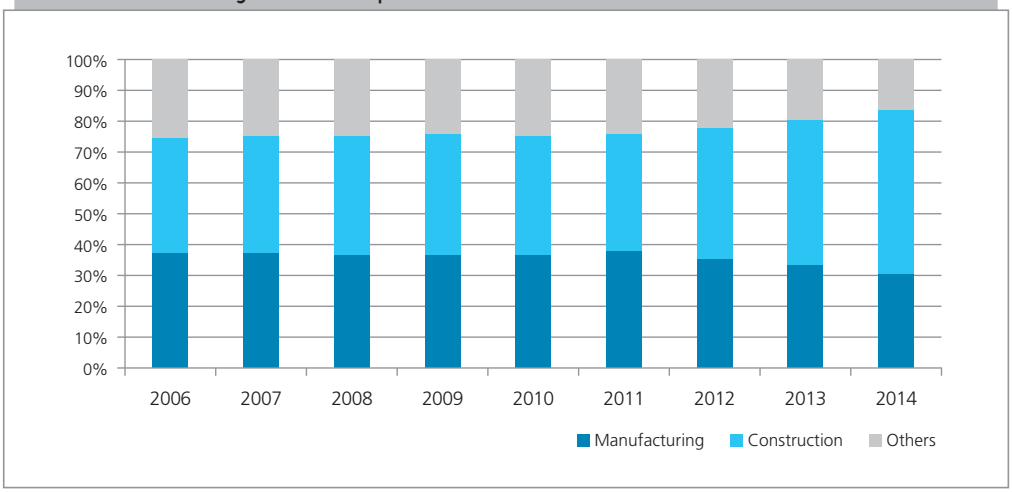
Source: Ministry of Industry, Federal Democratic Republic of Ethiopia.

Manufacturing has been growing in value terms at a similar rate to GDP, and was a small contributor to GDP at 4.4 percent in 2014. Just 13 percent of the employed in urban areas were in manufacturing (World Bank, 2012). Due to heavy investment

5) Several independent studies have shed doubt on the reliability of official statistics. For instance, according to the FAO/WEF Crop and Food Security Assessment Mission to Ethiopia (2010), "national cereal and pulse production in 2009-2010 is some 4.7 percent below the all-time record harvest in 2008-2009 but still about 7 percent above the previous five years average. Sorghum and maize crops have been most adversely affected, while production of teff and barley is less affected and production of wheat is expected to increase."

from the Ethiopian government construction's weight against industrial output has continuously gone up, while that of manufacturing has slightly contracted since 2006 as is seen in [Figure 1-4].

[Figure 1-4] Composition of Industrial Sector in Value Terms



Source: Ministry of Industry, Federal Democratic Republic of Ethiopia.

2.4. Major Sectors

2.4.1. Textile and Garments

The textile and garment industry in Ethiopia has enjoyed comparative advantages in labor, cotton as raw material, and utilities like water and electricity. Despite a favorable environment for the textile and garment industry, its export performance has not been impressive. Textile and garment exports reached a little more than US$1 million in 2009-2010, accounting for just 1.1 percent of overall exports. The main export items were men's shirts, men's non-woven suits, men's undergarments, women's shirts, women's non-woven suits, women's undergarments and T-shirts.

Textiles significantly fell short of GTP targets, especially in exports, due to poor investment. Though possessing fairly good advantages like low wages and other factored costs like those for electricity, land, and water, investment activity in this sector has been sluggish over the GTP 1 period. Inappropriate transportation and logistics, and the poor management of customs are known as the most significant factors that curtail productivity throughout the value chains. Over the GTP1 period, annual export targets were not meet for a number of years and created huge gaps as shown in <Table 1-5>.

〈Table 1-5〉 Foreign Currency Earnings by Textile and Garment Industry

(Unit: US$ million)

	2010-11	2011-12	2012-13	2013-14	2014-15
Planned (A)	100	200	450	700	1,000
Achieved (B)	61.1	84.7	97.4	110.2	-
B/A (%)	61.1	42.4	21.6	15.7	-

Source: Ministry of Finance and Economic Development.

The Ethiopian textile sector has 71 major companies: 31 CMT (Cutting-Making-Trimming) factories, 26 textile producers, eight vertically integrated textile and garment plants and six handmade goods producers. The competitiveness of the industry could be analyzed like the following [Box 1-1]:

[Box 1-1] Competitiveness of Ethiopian Textile Industry

[Strengths]

Ethiopia has huge potentials to boost exports through price competitiveness as seen in its low costs for labor, land and facilities. On top of that, Ethiopia has a comparative advantage as a producer of quality cotton, and also enjoys a strategic geographic location between fabric sourcing markets in the East and garment consumption markets in the West.

[Weaknesses]

The most pressing issue is technological progress. The promising business models for Ethiopia will be a garment producer by CMT manufacturing and a textile producer taking advantage of affluent raw material-cotton at reasonable price. Underdevelopment of logistics and transportation is another weakness that leads to weaker price competitiveness, and low quality of workers and lack of international recognition are other negative factors of the Ethiopian textile industry.

[Opportunities]

Ethiopian goods could continue to enjoy duty-free and quota-free export to the U.S. and European markets under the African Growth and Opportunity Act (AGOA), the Everything but Arms (EBA) agreement and preferential tariff rates in the Eastern and Southern African markets through the Common Market for Eastern and Southern Africa (COMESA).

[Threats]

Most textile companies are of small and medium size, and large-scale investors are needed to raise productivity of textile production. The other threat is outdated technology and aging machines that severely limit quality and productivity.

2.4.2. Leather and Leather Products

The development stage of the leather industry in Ethiopia is much similar to that of textiles and garments. Despite its enormous potential to lead economic development, the Ethiopian leather industry remains in the rudimentary stage of the value chain. The sector has 47 companies comprising 26 tanneries, 15 leather footwear companies and six leather products makers, and all of them participate in export activity (KOICA, 2013). The 26 tanneries produced fully-processed leather and export 80 percent of their products. Fifteen medium and large mechanized companies make men's and children's shoes, most of which are exported.

For export promotion, cooperation with global brands as well as raising quality is critically important, but accounting for inappropriate quality control in leather products export was not achieved as was planned in GTP1. With the sluggish increase in the export value of leather products, the Ethiopian economy failed to meet annual targets, which were perhaps set too high as shown in <Table 1-6>. Over the GTP1 period, annual export targets were not met by big margins without exception.

〈Table 1-6〉 Foreign Currency Earnings by Leather Industry

(Unit: US$ million)

	2010-11	2011-12	2012-13	2013-14	2014-15
Planned (A)	190.5	296.2	352.0	416.8	496.9
Achieved (B)	103.8	109.9	121.1	129.8	-
B/A (%)	54.5	37.1	34.4	31.1	-

Source: Ministry of Finance and Economic Development.

Another drawback is that facility operation rates in recent years have been stuck around 55 percent (KOICA, 2013). Chiefly because of poor infrastructure and technological development, investment in the Ethiopian leather industry fell short of expectations. Leather goods are produced by just six exporters with small capacity. General analysis on the competitiveness of the Ethiopian leather industry is shown in [Box 1-2].

[Box 1-2] Competitiveness of Ethiopian Leather Industry

[Strengths]

Thanks to its cost advantage Ethiopia enjoys profits from the export of many leather products like processed skins and hides, footwear and gloves.

[Weaknesses]

The leather industry, especially tanneries, suffers from low capacity utilization linked to hide and skin supply, which is highly seasonal. On the other hand, makers of leather products have failed to build strong enough relations with buyers to operate at a scale that makes them competitive in sourcing quality leather locally. They have also struggled with long lead time related to customs and logistical challenges in importing inputs, as well as low technological capacity.

[Opportunities]

Export markets are open to Ethiopia, which has a low share of the global market. Furthermore, major exporters of finished leather, Italy and Hong Kong, could be promising importers of fully-processed leather from Ethiopia.

[Threats]

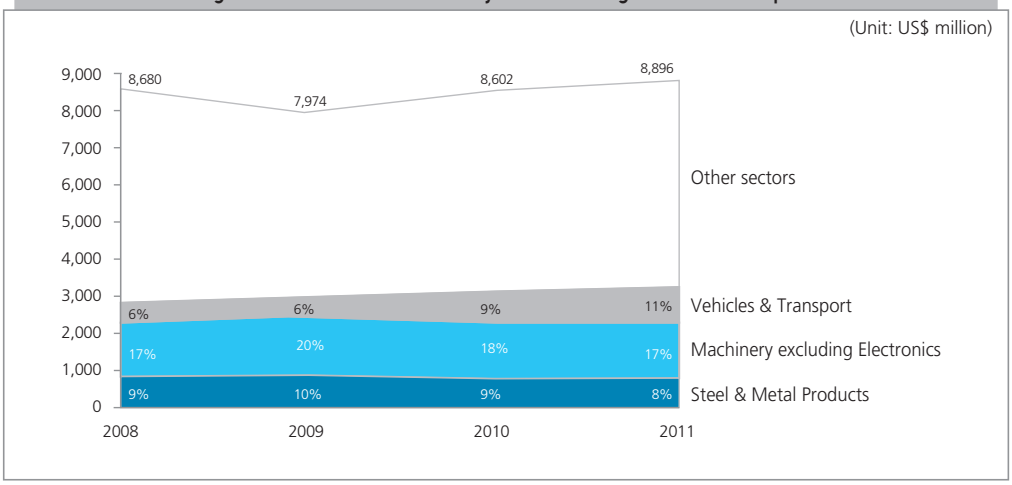
For Ethiopian tanneries to produce fully-processed leather, developing new export markets and building relationships with new buyers are essential. Many tanneries in developing countries (e.g., India and China) that used to import semi-processed leather from Ethiopia will not remain buyers of Ethiopian tanneries. In this sense, the business environment for Ethiopian tanneries, which suffers from overcapacity, could deteriorate further.

2.4.3. Metals Industry

The metals industry in Ethiopia can be divided into two sectors; base metal and engineering. Fabricated metal products are especially important to the Ethiopian economy because they represent the largest portion of the metals industry. In certain cases, machinery, despite its minimal share of products, is also included in discussions of the metals industry because of its important role in developing the sector.

Developing the metals industry is especially important for Ethiopia for import substitution. In 2011, metal product imports accounted for 36 percent of the country's total of US$8,896 million as shown in [Figure 1-5]. Higher domestic production of steel and fabricated metal products contributes a little to decrease imports, but the overall opportunity for import substitution remains untapped (KOICA, 2013).

[Figure 1-5] Metal & Machinery as Percentage of Overall Imports



Source: UN Comtrade $SITC_4$ trade data.

The summarized analysis on the competitiveness of the Ethiopian metals industry is illustrated in [Box 1-3]. Generally speaking, the metals industry in Ethiopia is burgeoning, and for the Ethiopian economy, a huge investment in infrastructure is needed to develop the metals industry.

[Box 1-3] Competitiveness of Ethiopian Metals Industry

[Strengths]

Ethiopia's low labor and power costs, considering the relatively higher shipping costs of pre-made components, points to competitiveness in producing structural components domestically. Large fabricated steel products that require welding are labor intensive. Much of Ethiopia's recent acceleration in metal products output has been driven by large fabricated metal products.

[Weaknesses]

The primary reason cited by metals companies for their under capacity in production is insufficient supply of raw materials. They also complain of poor quality steel from domestic traders. Shortage of skilled workers is another problem, from store workers and welders to engineers.

[Opportunities]

Massive investment in construction, transportation, power and communication infrastructure creates strong demand for galvanized fabricated steel products, including engineered steel structure, water tanks and pipes, telecommunication transmission poles, towers and plant accessories, and electrical sub-stations and transmission pylon structures. These products are also in high demand in neighboring countries reachable by land (Kenya, Djibouti, Somalia, South Sudan) creating an opportunity for regional export.

[Box 1-3] continued

[Threats]

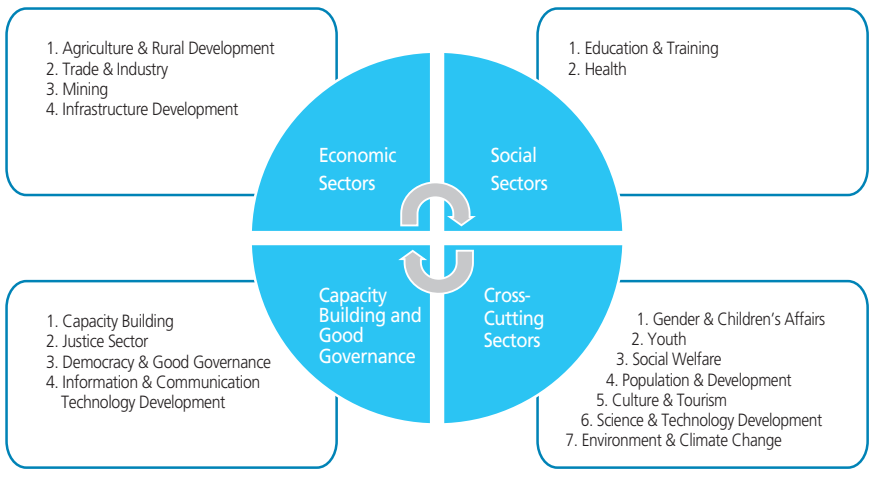
Uncertainty of demand is a problem, particularly related to government procurement. A significant portion of metal products spending passes through the government and public corporations. Accessibility to working and investment capital is the more critical challenge.

3. Snapshot of Ethiopia's Industrial Policy

3.1. GTP System

Ethiopia's GTP is a mid-term strategic national development framework that aims to sustain and deepen rapid economic growth to ensure that it is broad-based and equitable, and eventually end poverty in the country. Built on the four pillars of economic, social and cross-cutting sectors and capacity building and good governance, GTP has set ambitious goals across a wide range of indicators, with particularly high targets for export growth and industrialization as shown in [Figure 1-6] (KOICA, 2013).

[Figure 1-6] Four Dimensions of GTP and Their Components



Source: Growth and Transformation Plan 2010/11-2014/15, Ministry of Finance and Economic Development (MoFED), September 2010.

Initially the Ethiopian government established and implemented Sustainable Development and Poverty Reduction Program (SDPRP), a three-year plan (2002-2003 to 2004-2005), and PASDEP (Plan for Accelerated and Sustained Development to End Poverty), a five-year development plan (2004-2005 to 2009-2010) to achieve broad-based, accelerated and sustained economic growth to eventually eradicate poverty. PASDEP performed fairly well, with the Ethiopian economy growing on average 11 percent per annum, which was followed by Growth and Transformation Plan, GTP as a mid-term development plan (2010-2011 to 2015-2016), and accordingly carried forward the important strategic directions pursued in PASDEP.

In preparing GTP, the performance of the previous plan and lessons learned in implementation were considered within the context of the long-term development vision. Many consultative meetings were held at the federal, regional and local levels with government bodies, private organizations, institutions of higher education, professional groups, women's and youth associations, religious and civil organizations, opposition political parties and development partners (MOFED, 2010).

GTP's main objectives, strategies and targets were set out in the document. The first stage of GTP put emphasis on agricultural and rural development, industry, infrastructure, social and human development, good governance and democratization. Two alternative scenarios were discussed: a base case and high case. The base case scenario assumed that the average annual growth rate of the last five years, 11 percent, would continue through the planned period, while the high case scenario assumed that GDP of 2009-2010 would be doubled in five years, 2014-2015. As the planned period of the first-stage GTP (2009-2010 to 2014-2015) is coming to a close, the Ethiopian government is trying to work out the second-stage GTP (2015-2016 to 2020-2021).

3.2. Industrial Development Roadmap (2013-2025)

3.2.1. Overview

The Industrial Development Roadmap (2013-2025) was established as a long-term plan to lead the national vision of becoming a middle-income country by 2025 through industrialization and transformation. A study of the roadmap was conducted by the team of experts from Korea, Adama Science and Technology University (ASTU) of Ethiopia and the Ministry of Industry under an ASTU proposal.

The roadmap was reportedly completed after a long period of studies, document analyses, in-depth interviews, focus group discussions, workshops and observations. In-depth interviews were conducted with carefully selected strategic leaders and stakeholders including those from ministries, agencies, associations, chambers of

commerce and trade associations, and professionals from each sector. Participants of focus group discussions included core sectoral directorates and experts from the Ministry of Industry, industrial development players from the public and private sectors, private company owners, managers and technical staff from each sector. Workshops were used by the study team to get feedback from stakeholders, enriching the study.

The study's basic objectives were to develop a roadmap for growth direction of Ethiopian industry, a strategic plan offering strategies to realize the vision of becoming a middle-income country by 2025, and an implementation plan covering the necessary institutional setup and governance system to undertake industrial transformation processes. Under these objectives, the study started with analysis of industrial growth achievements of the GTP period's first two years.

According to the analysis, overall performances in fiscal 2011-2012 were deemed unsatisfactory compared to GTP targets, though the outputs had been improved from the previous fiscal year. Overall GDP growth recorded 8.5 percent per year with the considerable gap from the planned target which was initially set 11.4 percent. Although a poor agricultural harvest was the major factor behind sluggish growth in 2011-12, industry also slightly underperformed below GTP targets. Contrary to fiscal year 2010-2011, when industrial growth hit 15 percent, exceeding the target of 14 percent, growth in fiscal year 2011-2012 reached 13.6 percent, falling short of the target of 16 percent.

The roadmap also ignored the last three years of the GTP1 period, 2013 to 2015. Over that stretch, the Ethiopian government focused on raising productivity of existing priority industries. Under this condition, the roadmap was developed in three parts:

i) Objective, philosophy, and pillars of industrial development
ii) National development vision, goals, and targets
iii) Industrial development vision, direction, strategic objectives and development phases

3.2.2. Goals and Targets for Industrialization

Under the vision of becoming a middle-income country by 2025, the roadmap assumed 13.1 percent in annual average growth for more than a decade up to 2025, as seen in <Table 1-4>. Encouraged by the economic performance over the PASDEP period, MOI set the targets for structural change to GDP contributions by economic sector, in which the GDP share of industry is scheduled to rise from 15 percent in 2013 to 27 percent in 2025, along with manufacturing's share of industry rising from 33

percent to 67 percent over the same period.

Given Ethiopia's industrial structure being heavily reliant on agriculture and the service sector with a weak industrial base dominated by construction, the roadmap's goals and targets are likely to be deemed too high to be realized as planned. According to the roadmap, the Ethiopian government assumed the industrial sector would grow 18.7 percent per year as seen in <Table 1-7> to achieve the target GDP ratio of manufacturing in 2025. To realize this target of explosive growth as described in the roadmap, deep government intervention to pursue higher priority sectors is inevitable.

〈Table 1-7〉 Contribution of Industrial Sectors to GDP

(Unit: US$ million)

	2013	2015	2025	Avg. annual growth
Agriculture	18,048.43	21,776.58	67,526.15	11.6%
Industry	7,210.86	11,211.52	56,488.81	18.7%
Services	22,025.05	26,864.56	82,697.31	11.7%
GDP	47,284.34	59,852.66	206,712.30	13.1%

Source: Ethiopian Industrial Development Roadmap (2013-2025), 2013.

Neither the annual average GDP growth rate of 13.1 percent nor the industrial growth rate of 18.7 percent over 12 years can be easily achieved by an ordinary economy. In this context, for the Ethiopian government to achieve such ambitious goals and targets, highly effective policy tools incorporated with sophisticated development strategies are needed to invigorate private companies.

3.2.3. Industrialization Strategies

To pursue its ambitious goals, the Ethiopian government must take use an audacious but well-aligned economic development strategy by concentrating national capacity into what it does best, that is, using a comparative advantage strategy. For this purpose, a KOICA team has studied the competitiveness of major Ethiopian industries and proposed a variety of recommendations, but unclear is whether those were properly reflected on the roadmap published in September 2013, a month after the KOICA team released its report.

According to the roadmap, the Ethiopian government put emphasis on setting the key directions of industrialization rather than determining straightforward strategies to mobilize resources and efforts to promote industrialization. "Industrial

Development Key Pillars" are described as:

i) Sustaining manufacturing's contribution to industry and economic growth
ii) Ensuring balanced regional industrial development
iii) Integrating Ethiopian industries into the regional and global markets and development arena
iv) Pursuing export-led and import substitution industrialization

In the absence of resource allocation targets and policy tools for industrialization, the four strategic pillars for industrialization described above are unlikely to be realized despite their necessity. Conflicts among the policy directions could arise in the course of policy implementation unless prioritization is set ahead. A more selective approach is required for accelerating industrialization given restrictions on resources. Otherwise Ethiopia's economic development will run out of steam due to fragmentation of national capacity. Efficient economic development could be obtained through sacrificing other values like balanced regional development.

3.2.4. Benchmarking Methodology

Developing a vision and goals is an important planning process that aims to create big changes. For this purpose, the roadmap applied the Model of Middle Income Country (MMIC) developed by researchers from the International Growth Center (IGC, 2012) to help developing countries attain the growth and structural transformation required to reach the level of a middle-income country. This approach entails analysis of the economic structures of countries that achieved middle-income status and draws lessons to apply them to a specific country.

Depending on World Bank Development Database Indicators (WDI 2010), the roadmap selected 15 countries that have passed the middle-income threshold since 1960, and chose socioeconomic variables to benchmark in the year of their transition to middle-income level. The average of these variables formed the expected structure of a typical MMIC. The roadmap selected nine variables to compare Ethiopia's status with the MMIC, in the hope that the gap of variables between the MMIC and Ethiopia will indicate the structural transformation necessary to achieve middle-income status as shown in <Table 1-8>. The nine variables are the GDP share of agriculture, industry, manufacturing, services, exports, imports, gross fixed capital formation, FDI net inflow and gross domestic savings. On the basis of the comparisons, the roadmap drew the conclusion that more resources have to be allocated to manufacturing to have the sector account for 17 percent of GDP as high as the MMIC level from 4 percent as of the Ethiopian level in 2012.

〈Table 1-8〉 Key Macroeconomic Indicators

(Unit: % of GDP)

Key Indicators	MMIC	Ethiopia (2012)	Gap
Agriculture	20.7	44	21.3
Industry	30.7	11.1	-19.6
Manufacturing	17	4	-13
Services	48.6	45.6	-3
Exports	30.5	14	-15.5
Imports	37.4	32.1	-5.3
Gross Fixed Capital Formulation	26.6	NA	-
FDI Net Inflow	4.5	NA	-
Gross Domestic Savings	21.6	16.5	-5.1

Source: Ethiopian Industrial Development Roadmap (2013-2025), 2013.

This approach, however, sets the median level of the 15 countries' GDP ratio of manufacturing (17 percent) as the target for structural transformation by 2025, and its logical robustness is debatable. This is because in economic efficiency, the median value ignores the comparative advantages of each country. Benchmarks irrespective of core competencies could lead inefficiency. The GDP ratio of manufacturing of the 15 countries has a wide spectrum from 9.75 percent for Syria in 2004 to 32.37 percent for China, coincidentally in the same year. In this context, benchmark targeting in this way is not economically rational. The MMIC approach cannot reflect Ethiopia's economic comparative advantage, and is thus likely to prevent the use of core competencies.

3.2.5. Export as Driving Force for Industrialization

Given Ethiopia's poor natural resources, underdeveloped infrastructure and deficiency in skilled labor, the roadmap's goals and targets were thought to be set higher than what could be achieved in the pursuit of joining the group of middle-income countries in the near future. On the other hand, the roadmap said the Ethiopian government put heavy emphasis on balanced development among regions and industrial sectors, which is a trade-off for efficiency in economic development. Rapid growth for the purpose of eradicating poverty will be hampered if balanced development is overemphasized.

To promote growth and transformation as fast as projected by the roadmap, Ethiopia needs to create a driving force to lead the whole economy. The roadmap keeps emphasizing necessity and the importance of promoting investment,

but for the Ethiopian economy to induce private investment, a more urgent task is expanding investment for building a proper business environment given underdeveloped social overhead capital, scarce natural resources and unskilled labor. Beefing up infrastructure is important not just for promoting manufacturing, but also for raising the competitiveness of agriculture, for which the Ethiopian government aims to increase both production and productivity. To do all of these things, earning foreign exchange for funding infrastructure construction, which requires huge funds, is essential to achieve the roadmap's goals through manufacturing-led industrialization.

From this viewpoint, identifying export promotion as the driving force of economic development is a natural consequence. This discussion eventually drew the conclusion that a reinforced policy for export promotion could be an indispensable option considering that the national budget is heavily dependent on foreign grants, with the ever-growing pressure of foreign debt. In this context, the Ethiopian government must put forth a more sincere and substantial effort toward promoting exports.

3.3. Major Policy Vehicles

3.3.1. Introduction

Industrial policy is, as other public policies, a complicated set of measures to promote changes in industrial activity, and in essence, industrial structure. But policy measures for industrialization differ from one country to another in reflecting ideology, political bent and other policy environments of the time. Adversely, the same policy measure could produce different results according to the environmental context.

Looking into the environment of industrialization for the Ethiopian Ministry of Industry; organizational structure, number of staff, mandated mission, political empowerment and functions provided is totally different from those of Korea; accordingly, it could be dangerous to tackle those matters by simply comparing the limited factors of the two countries. But comparison and identification of differences, if any, will prove useful for the researcher to get insight into formulating implications.

Under this presumption, this section was prepared to discuss issues closely related to industrial policy measures of the Ethiopian government, namely promotion of companies ranging in size from micro to medium, inducement of foreign direct investment, export promotion, development of industrial sites, assistance in technological development, and training and education systems for fostering a skilled work-

force. Fortunately, the promotion of micro-small-medium enterprises, and training and education systems for fostering a skilled workforce are being studied by another researcher, so this report will discuss the remaining four topics.

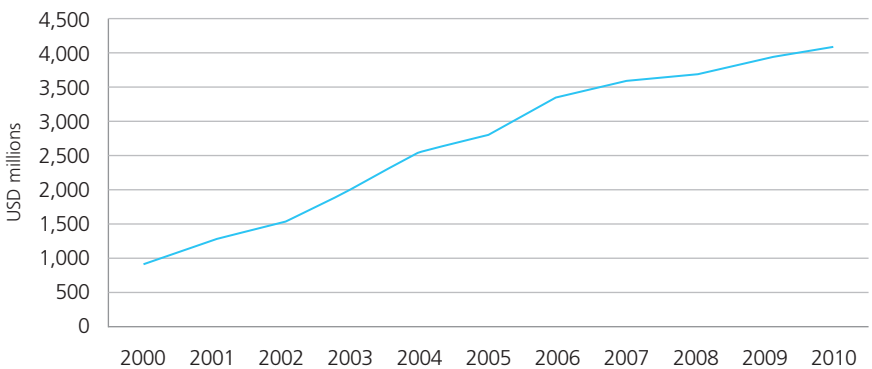
3.3.2. Inducement of FDI

In Ethiopian the FDI attraction policy was recognized as an efficient industrialization strategy earlier than in other peer countries. The Ethiopian Investment Agency (EIA) is the primary institution for offering investors one-stop services irrespective of nationality; it serves both foreign and domestic investors. To induce foreign investment, the Ethiopian government offers a variety of incentives as other countries do. The government has lowered barriers for FDI to build a business-friendly environment, from administrative regulations to financial incentives. Guarantees are offered against expropriation or nationalization according to the Ethiopian constitution; privileges guarantee full repatriation of profits, dividends, principal and interest payments on external loans; expatriate managers and experts can be hired; and double taxation is avoided with 18 countries under treaties.

The Ethiopian government also confers fiscal incentives like exemption from customs duty on imported capital goods, construction materials and spare parts up to 15 percent of the value of the imported capital goods; income tax exemption up to nine years; and loss carry forward for half the income tax exemption period.

Thanks to such efforts to induce FDI, inward FDI stock gradually rose from 2000 to 2010 as is seen in [Figure 1-7].

[Figure 1-7] FDI Inflow



Source: Ethiopian Investment Commission, Sept. 2014.

3.3.3. Export Promotion

Exports are crucial for earning foreign currency, but no single government agency or institution specialized in export promotion exists in the Ethiopian government. The Ethiopian Export Promotion Agency (EEPA), which had been under the Ministry of Trade and Industry (MoTI), was dissolved when the ministry was split into MOI and MOT. Contrary to expectations, the Ministry of Trade (MoT) is chiefly responsible for trade promotion covering negotiation, management and promotion of Ethiopia's bilateral and multilateral trade agreements, but less focused on promoting manufactured goods due to their minimal significance.

With all of its policy direction emphasizing industrialization based on manufacturing for growth and transformation, the Ethiopian government has failed to develop effective policy vehicles for export promotion, which is essential to promote manufacturing. Complementary efforts toward export promotion are simply conducted by MoI and MoFED in policy formulation to incentivize manufacturing industries with relevant institutions like Ethiopian Revenues and Customs Authority (ERCA) and technology development institutes like the Textile Industry Development Institute, the Leather Industry Development Institute and Metals Industry Development Institute.

Instead of a specialized export promotion agency, the Ethiopian government established the National Export Coordination Committee under the Prime Minister's Office. The committee reportedly convenes once a month, with technical subcommittees to coordinate and formulate policy among competent government units involved in export promotion. Not surprisingly, members of the National Export Coordination Committee comprise representatives from related government ministries, industries, trade, customs, transportation and sectoral institutes.

Comparing to the Korean experience, the organizational frameworks in Ethiopia with respect to the industrialization policy driven by export promotion may prove costlier in developing policy tools and coordinating among related government ministries. This might partly cause the Ethiopian economy to heavily depend on export of agricultural products due to sluggish development of export commodities in manufacturing, which might be more lucrative in gaining foreign currency.

3.3.4. Development of Industrial Sites

Recognizing the importance of land supply in industrialization, the Ethiopian government has continuously developed industrial land. A combined 3,537 hectares were prepared for development at industrial zones in Addis Ababa, Kombolcha, Dire Dawa and Hawassa. Of five industrial sites, Bole Lemi Industry Zone in Addis Ababa was selected for construction first. Privately owned industrial zones are also

under development around the Dukem and Finfinne areas of Oromya Region. These include the Eastern Industrial Zone around Dukem owned by a Chinese investor and Sendafa Industry Zone around Finfinne owned by a Turkish investor. On top of these, Huijian International Shoe City has requested 320 hectares to establish an industrial zone.

In addition, the Ethiopian government is planning to develop more industrial sites in Dire Dawa, Hawassa and Kombolcha. To accelerate development of industrial sites, the Ethiopian government is in the process of setting up a government agency to develop industrial land as planned with respect to schedule, employment targets and industry types.

Nonetheless, considering the wide area of 1,221,900 km^2, or more than ten times that of Korea, a handful of industrial sites of any size are not enough to expedite industrialization. To promote industrialization using enormous idle labor in rural areas, many small-scale industrial parks shall be developed by local governments with support from the central government.

3.3.5. Technological Development

The Ethiopian government is operating three institutions for promoting industries under MOI: Metal Industry Development Institute (MIDI), Leather Industry Development Institute (LIDI) and Textile Industry Development Institute (TIDI).[6] The three have the identical mission and functions in separate industrial sectors that are highly comprehensive. <Table 1-9> depicts TIDI's functions: assisting policy development that is complicated with manufacturing (textiles and apparel) and agriculture (cotton farming), investment promotion (from selection of technology to factory construction), business services (from data collection to leadership training and productivity consulting) and technological assistance (from quality control to waste water treatment).

To intensify the national capacity for accelerating deepening industrialization, each government agency is advisable to get more specialized to evade overlapping and achieve a reshuffle based on specialization. The overburdening of TIDI, as well as LIDI and MIDI, is causing fragmentation of its capacity, and control functions will eventually crowd out bothersome support functions. A better alternative is to cut policy formulation and investment promotion functions, and shift them to MOI and the Ethiopian Investment Commission, respectively. And their capacities in each area should be beefed up. Or if necessary, setting up another institute such as EDRI for

6) On top of the three think tanks, the Ethiopian government recently established the Institute for Food, Institute of Beverages and Pharmaceuticals, Institute of Chemicals and Construction Input Materials, Institute of Meat and Dairy, and Institute of Kaisen.

〈Table 1-9〉 TIDI's Duties and Responsibilities

Area	Duties and Responsibilities
Assisting Policy Formulation	• Formulate policies strategies and programs that assist cotton development and textile-apparel industries and conduct implementation upon approval • Conduct study on assisting policy formulation for cotton development and marketing; upon approval, prepare and enforce implementation manuals and facilitate conditions necessary to ensure sustainable growth • Run problem-solving studies and research related to sectors • Study, implement and scale up best practices and benchmarking
Promoting Investment	• Advise investors with technology selection, negotiations, construction, erection and commissioning • Provide support through project implementation processes and facilitate them • Advise mechanized large-scale farming of cotton focusing on arable land, irrigation and consulting on financial matters for expanding farm size or modernizing technology
Business Services	• Collect, organize, analyze, transfer and disseminate data for users • Prepare and conduct training on techniques, marketing and leadership • Offer support and consulting services in production process, productivity, quality and human resource management • Provide assistance in creating input-output linkage, market destination, linking buyers and sellers, and promoting value-added export • Develop market infrastructure and build capacity of market centers
Technological Assistance	• Run testing service and quality evaluations of cotton, textile and apparel production • Practice technical assistance in waste water treatment • Provide quality control and consulting services for input materials for cotton production

Note: Area was divided based on researcher's decision
Source: Ethiopian Textile Industry Development Institute (Brochure).

industrial policy development is another option.

Considering the development stage of the Ethiopian textile industry, technological advancement is more urgent for quality products, and hence for higher value-added. This will increase overseas demand for Ethiopian textile products and cotton, and eventually promote agricultural products including cotton. Thus, technological advancement in manufacturing will lead to agricultural development.

In this sense, it will be the better choice for TIDI to develop into the tech-intensive institute focused on developing technology and quality products, raising quality and conducting performance tests, as well as helping industry with common technological difficulties. TIDI's core competence should be strengthened as a technological institute. Otherwise, each government organization will continue to suffer from overload caused by overlapping and redundant tasks, which will lower

the efficiency of such organizations.

3.4. Organizational Arrangement

3.4.1. Ministerial Organization for Industrialization

Designing government organization highly influences performance of the public sector because organizational output is closely interrelated with organizational design. Organization is not just a chart delineating bureaucratic relations among units, but a structure implying the mechanism of interactions among them. In this context, the existing ministry structure of the Ethiopian government is considered unfavorable for export promotion.

The export promotion function, which had been under the Ministry of Industry, was transferred to the Ministry of Trade (MOT), which was established in 2011. According to those interviewed in the midterm pilot study, the Ethiopian government split MOI into MOI and MOT for strengthening the function of export promotion. So the only functions related to export promotion retained by MOI are those related to the tariff drawback process and stamping documents for assuring the quantity of raw materials necessary to import to produce export products.

From the perspective of the importance of export promotion as the driving force of industrialization, separation of the export promotion function from MOI is deemed undesirable. Existing incentive systems for export promotion are maligned for lack of substantiality. More than a few trading companies are known to be trying to evade export obligations and turning to rent-seeking opportunities in domestic markets instead.

Certain export corporations are complaining about the credibility of government policy. They are known to be often irritated with long lines at government windows for licenses, permission, technology support services and even tariff refunds. Systems that allegedly for promote industrialization deter or even distort industrialization. Higher tariffs on finished products are common policies in developing countries to promote assembly operations, but this policy will eventually fail and create economic distortions if unnecessarily extended.

All of these issues are occurring because competent government units forget or ignore the raison d'être of their organization, especially when isolated from higher goals and targets. The two functions should be managed under smooth coordination between units, and integrating them in the same ministry is highly recommended. Industrialization policy should be controlled from the point of view of export promotion, and reversely, export promotion policy should be established from the per-

spective of industrialization so long as Ethiopia seeks to restructure the industry by beefing up manufacturing and promoting exports.

3.4.2. Agency for MSEs Promotion

According to the roadmap, industrialization is strategically designed to be driven by promoting Micro-Small Enterprises (MSEs) in manufacturing. Apart from this vision, the goals and targets of the roadmap, the organizational framework to be used to implement it, is considered inappropriately devised.

On the government agency in charge of developing micro and small business is expected to be specialized in manufacturing sector. It is because that the roadmap proclaimed business cultivation as one of its industrialization directions, and added that all-around support will be provided across the country to establish Small-Medium Enterprises (SMEs), links between SMEs and Medium-Large Enterprises (MLEs) will be formed, and continuous support will go to transform SMEs to MLEs.

For the government agency for promoting MSEs, SMEs and MLEs to implement related policies in line with those of ministerial level, the agency and ministry should have close interactions. Because for the agency under the Ministry of Urban Development and Construction (MUDC), business orders, policy directions and related information released by MOI would not be taken as seriously as those by the MUCD. Under this organizational framework, industrial policy to promote MSEs cannot be as effective as planned.

From this viewpoint, the Federal SMEs Development Agency will be better to ally itself with MOI so long as the Ethiopian government is willing to provide MSEs with a streamlined policy that eventually raises productivity of the public sector.

4. Korea's Industrialization Experience

4.1. Background

Soon after the Korean War (1950-1953) ended, the Korean economy was left in utter ruin. Korea was left as the world's poorest nation with no industrial facilities in operation, and had to depend on Relief supplies from abroad. More than a half of the national budget throughout the 1950s was covered by U.S. assistance.

Korea had been under extreme political turbulence until the military coup led by Gen. Park Chung-hee broke out in 1961. His military faction came on the stage amid the political turmoil. When the faction took over the government, the Korean

economy could hardly afford to support its population of more than 25 million, with GNP of around US$20 billion. As seen in <Table 1-10>, the Korean people had to live four days on less than a dollar, because their government could hardly sustain normal functions with an annual budget of just KRW 57 billion.

〈Table 1-10〉 Major Economic Indexes (1961)

GNP	GNP per capita	Export	Budget size	Pavement	Phones penetration rate
US$ 21 bil.	US$ 82	US$ 41mil.	KRW 57 bil.	4.1%	0.4%

Source: Koh (2008).

In such a miserable situation, economic development became the first and foremost priority for the military government to legitimize its takeover. For the world's poorest country escaping from poverty was its top goal, and was the remaining only option for the junta to obtain public support. Economic development was, in a sense, a consequential destination for Korea, which had proclaimed anti-communism a national tenet to cope with its communist neighbor up north, which was then far ahead in industrialization. Park's government, in this context, hurriedly established an economic development plan for accelerating industrialization earlier than his official inauguration with the hope of jumpstarting an economy on the verge of tumbling down.

4.2. Major Aspects of Achievements

4.2.1. Explosive Export Expansion

Under government-driven industrialization policy incorporated with that of export promotion, the Korean economy achieved remarkable performance in a number of aspects. In the wake of the pro-export policy, export volume expanded at remarkable speed. As seen in <Table 1-11>, exports grew conspicuously in the first five-year economic development plan. While GDP nearly doubled from US$2.3 billion in 1962 to US$4.2 billion in 1967, exports increased 5.8-fold from US$54.8 million to US$320.2 over the same period.

As [Figure 1-8] shows, the ratio of exports to GDP also increased at breakneck speed, with an average rise of 20 percent in the early 1970s from 2-3 percent in the early 1960s. As exports increased over time, imports also grew, and the ratio of overall trade to GDP neared 60 percent in the mid-70s.

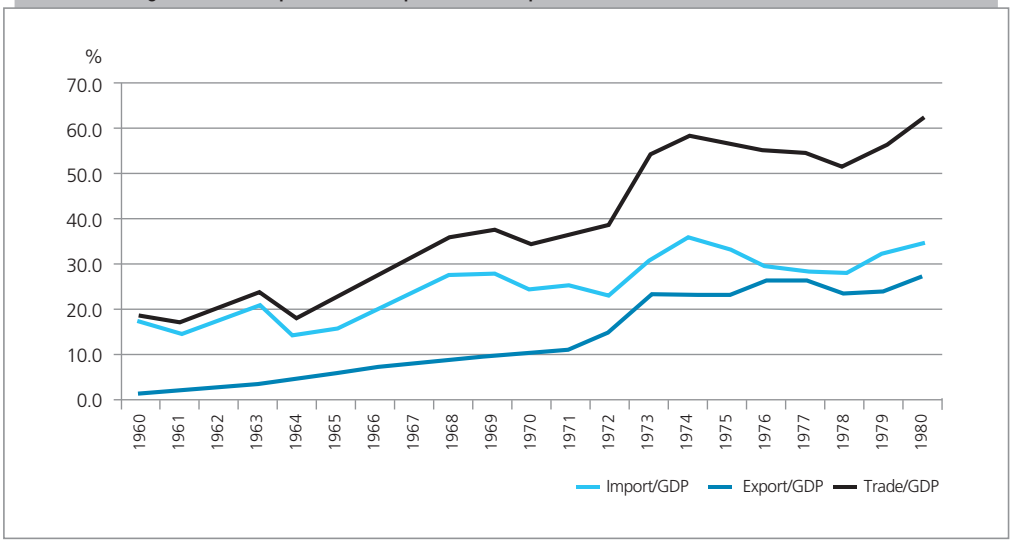
〈Table 1-11〉 GDP, Import, and Export Growth in Initial Phase of Industrialization

(Unit: US$ million)

Year	1962 (A)	1963	1964	1965	1966	1967 (B)	B/A
GDP	2,300	2,700	2,900	3,000	3,600	4,200	1.8
Exports	54.8	86.8	119.1	175.1	250.3	320.2	5.8
Imports	421.8	560.3	404.4	463.4	716.4	996.2	2.4

Source: Bank of Korea's economic statistics system (ecos.bok.or.kr), Koh (2008).

[Figure 1-8] Proportion of Exports and Imports in National Income (1960-1980)



Source: Bank of Korea's economic statistics (ecos.bok.or.kr).

The structure of export items was also dramatically transformed. The top ten exports had significantly changed over time as shown in <Table 1-12>. In 1961, nine of the top ten exports were non-manufacturing products, mostly minerals like iron ore, tungsten, anthracite and graphite, and the remainder was agricultural products and fisheries. After ten years of industrialization, the top ten list was totally changed as manufactured products dominated with an astonishingly increased weight of export value. Nine of the top ten items were manufactured products: textiles, plywood, wigs, electronics, crackers, shoes, cigarettes, steel goods and metal products. They accounted for more than 70 percent of Korea's exports in 1970, and products of heavy industry also began appearing in ships carrying exports.

〈Table 1-12〉 Export Products' Export Amount Ratio of Top 10 Items

(Unit: ratio to overall exports, %)

Rank	1961		1970		1980		1990	
	Item	Ratio	Item	Ratio	Item	Ratio	Item	Ratio
1	Iron	13.0	Textiles	40.8	Textiles	28.6	Electronics	27.4
2	Tungsten	12.6	Plywood	11.0	Electronics	11.4	Textiles	22.6
3	Silk	6.7	Wigs	10.8	Steel goods	10.6	Shoes	6.6
4	Anthracite	5.8	Minerals	5.9	Shoes	5.2	Steel goods	6.5
5	Squid	5.5	Electronics	3.5	Ship	3.5	Ships	4.3
6	Fish	4.5	Crackers	2.3	PVC	3.3	Chemicals	3.6
7	Graphite	4.2	Shoes	2.1	Metal Goods	2.5	Cars	3.3
8	Plywood	3.3	Cigarette	1.6	Plywood	2.0	Machinery	2.7
9	Rice	3.3	Steel Goods	1.5	Marine items	2.0	Marine items	2.3
10	Bristle	3.0	Metal Goods	1.5	Electronics	1.9	PVC	2.0
Total	-	62.0	-	77.1	-	71.0	-	81.3

Source: Koh (2008).

Structural changes in export items gradually occurred again after ten years. In 1980, the top ten items for export were converted into higher value-added products of heavy industry. Heavy industrial products continuously beefed up their weight in exports, and the top ten exports were those of manufactured goods, going from representing 71 percent of exports to 81 percent in 1990.

〈Table 1-13〉 Exports by Industry

(Unit: %)

Year	Total	Food, animals	Non-food, raw materials	Manufactured goods	Transportation machinery	Others
1960	100.0	29.6	48.2	12.0	0.3	9.9
1965	100.0	16.1	21.2	37.9	3.1	21.7
1970	100.0	7.8	12.0	26.4	7.4	46.4
1975	100.0	11.9	3.0	29.2	13.8	42.1
1980	100.0	6.6	1.9	35.6	19.7	36.2

Source: Bank of Korea.

<Table 1-13> shows structural changes in export products. Exports of food and animals combined with non-food raw materials accounted for 77.8 percent of exports in 1960, but this rate plummeted to 8.5 percent in 1980, while that of manufactured goods, including transportation machinery, shot up from 12.3 percent in 1960 to 55.3 percent in 1980.

4.2.2. Rapid Changes in Industrial Structure

Economic growth moved around 5 percent until full-fledged industrialization was put on track, and the GDP contribution of manufacturing remained under 15 percent, of which more than three quarters were from light industries as seen in <Table 1-14>.

〈Table 1-14〉 Annual GDP Growth and Industrial Composition (1953–1961)

(Unit: %)

Year	GDP growth	Industrial Composition			
		Agriculture, forestry & fisheries	Manufacturing		
			Total	Light	Heavy & chemical
1957	7.6	45.2	11.2	(80.5)	(19.5)
1958	5.5	40.7	12.8	(78.6)	(21.4)
1959	3.9	33.8	14.1	(78.4)	(21.6)
1960	1.2	36.8	13.8	(76.6)	(23.4)
1961	5.9	39.1	13.6	-	-

Source: Koh (2008).

After decades of industrialization efforts, however, the Korean industrial structure had been remarkably changed in employing an export-driven development strategy, opposite to the method of other developing countries using import substitution. Given scarce natural resources and capital formation, the Korean government aggressively enforced export-driven industrialization focused on manufacturing labor-intensive products.

Under the auspices of such an export-driven industrialization policy, the share of industry in GNP increased at amazing speed. As seen in <Table 1-15>, the GNP share of primary sectors like agriculture, minerals and fisheries gradually decreased from 31 percent in 1970 to 15 percent in 1985, while that of manufacturing increased from 17.8 percent in 1970 to 27.3 percent over the same period.

In the wake of the promotion of the policy of heavy and chemical industries by the Korean government, structural changes within manufacturing also occurred simultaneously. The Korean government elected six heavy and chemical industries as promising sectors to be fostered based on the dynamic comparative advantage theory, and also selected private corporations with potential to support their growth as national champions. The government poured restricted resources into these selected industries and companies by way of preferential bank loans and tax breaks.

The ratio of light industry to GDP decreased over time, whereas that of heavy industry gradually filled the gaps. The GNP structure changed from one based on agriculture one based on manufacturing, and from the light industry to the heavy and chemical industries.

〈Table 1-15〉 Changes in Value-added Production

(Unit: %)

Year	Agriculture, minerals, fisheries	Manufacturing			Other
		Total	Light	CHI	
1970	31.0	17.8	10.6 (59.4)	7.2 (40.6)	51.2
1975	29.0	21.6	10.9 (50.4)	10.7 (49.6)	49.3
1980	18.1	24.4	10.2 (41.9)	14.2 (58.1)	57.4
1985	15.0	27.3	9.9 (36.3)	17.4 (63.7)	57.7

Source: Bank of Korea.

With the industrial structure changing over time, employment structure by industrial sector followed suit. As seen in <Table 1-16>, labor in agriculture and fisheries moved to higher value-added areas like manufacturing, construction and services. The share of agriculture and fisheries of national employment saw a meteoric drop from 58.6 percent in 1965 to 34 percent in 1975, whereas that of manufacturing increased from 9.4 percent to 18.6 percent over the same period.

〈Table 1-16〉 Trends in Labor Population by Industry

(Unit: %)

Year	Total	Agriculture & fisheries	Minerals	Manufacturing	Construction	Services
1965	100.0	58.6	0.9	9.4	2.9	28.1
1970	100.0	50.4	1.1	13.2	2.9	32.3
1975	100.0	45.9	0.5	18.6	4.3	30.7
1980	100.0	34.0	0.9	21.7	6.1	37.3

Source: Bank of Korea.

4.2.3. Socioeconomic Reshuffling

Intensified efforts toward export-driven industrialization resulted in economic development that was later praised as the miracle on the Han River. After three decades of industrialization, GNP grew 113-fold, per capita GNP 68-fold and exports 1,585-fold as seen in <Table 1-17>. Development of social overhead capital followed suit. The ratio of paved roads to the national road grid took off from 4.1 percent in 1961 to 67.4 percent in 1990, the telephone diffusion ratio from 0.4 percent to 36.1 percent, and the waterworks diffusion ratio from 17.3 percent to 77.8 percent over the same period.

〈Table 1-17〉 Changes in Major Indicators

Major Index	1961 (A)	1990 (B)	B/A
GNP	US$2.1 billion	US$237.9 billion	113
GNP per capita	US$82	US$5,569	68
Export	US$41 million	US$65 billion	1,585
National budget	KRW 57 billion	KRW 27,456 billion	482
Pavement ratio	4.1%	71.5%	67.4%p
Telephone diffusion	0.4%	36.1%	35.7%p
Waterworks diffusion	17.3%	77.8%	60.5%p

Source: Eun Joo Hong et al. (2013).

In spite of these brilliant achievements, the government-led development policy also created a handful of side effects like overinvestment in the 1960s and 1970s, resulting in the insolvency of major corporations and excessive foreign debt in the wake of global economic turbulence like the two oil crises in the 1970s. Such difficulties in the transition period were resolved, however, and Korea's export-driven industrialization outperformed other developing countries.

5. Policy Issues Compared to Korea's Experience

5.1. Introduction

This part seeks to explain differences considered useful to get insight into developing implementation programs for GTP2. Because many Korean cases were the results of interactions among stakeholders and environment-specified factors,

Ethiopia cannot adopt previous Korean practices without ecological considerations. In this context, this chapter begins with discussion of the differences in overall policy environment between the Ethiopian economy of today and the Korean economy in its industrialization era.

5.2. Overall Policy Environment

In this section, environmental factors presumably influential to economic development are compared between Korea and Ethiopia. Comparisons were conducted on data of 1960s Korea to that of Ethiopia in the early 2010s. Indicators are selected from existing data sources considering availability of comparison. Comparing the two countries at different ages could produce meaningless results in the sense that even the same numbers would not guarantee the same results. Nevertheless, using major indicators to do comparisons will be informative in inferring the applicability of the Korean industrialization experience to Ethiopia. This attempt is summarized in <Table 1-18>.

Indicators in <Table 1-16> can be reclassified into three groups with respect to overall perspectives of economic development: indicators in which Ethiopia is superior to Korea, those even between the two and those in which Ethiopia is inferior to Korea. For convenience purposes, the discussion starts with the group of indicators that both countries are tied in. This attempt was tried with the hope of gaining strategic insights for policy recommendations.

Generally speaking, the indicators that show similar patterns between the two countries, irrespective of their absolute values, are those related to economic figures of poverty and industrial structure based chiefly on agriculture simultaneously.

The indicators of which Ethiopia is superior to Korea are mainly potentiality factors not yet developed: arable land, the potential of hydro-electric power, and the size and average age of the population. On top of these advantages to Ethiopia's economic development, Ethiopia has natural resources like gold and has a certain degree of development, especially in agriculture. For example, the country is one of the world's top five coffee producers. All of these are important assets for the Ethiopian economy that will greatly contribute as strategic resources.

〈Table 1-18〉 Comparisons of Major Indicators

Major Index		Korea (industrialization age)	Ethiopia[1]
Capital resources	GDP	US$2.1 bil. (1961)[3]	US$41.6 bil. (2012)
	GDP per capita	US$82 (1961)[3]	US$442 (2012)[2]
	Current acct. balance	-11.7% of GDP(1962)[3]	-7.2% of GDP (2012)[2]
	Foreign debt stock	4.0% of GDP(1962)[3]	25.2% of GDP (2012)[2]
	FX reserves	US$214 mil. (1962.2)	US$3.3 bil. (2012)
	FDI	0.2%of GDP (1962)[3]	2.1% of GDP (2012)[2]
	Foreign grants	10.1%of GDP (1962)[3]	4.3% of GDP (2011-12)
Human resources	Population	25.0 million (1960)[5]	94.1 million (2013)
	Rural population	56.7% (1960)[5]	77.6% (2012)
	Illiteracy	17.8% (1960)[5]	57.3% (2009)
	Primary school	81.8% (1960)[5]	83.0% (2009)
	Secondary school	37.2% (1960)[5]	13.5% (2009)
Natural resources	Land	100,188 km^2	1,221,900 km^2
	Farm land	4.9 mil. ha	18 mil. ha (arable 73.6 mil.)
	Agricultural products	Rice	Rice, Wheat, Coffee, Oil
	Minerals	Cement	Gold, Marble, Tantalum
	Energy	Coals	Hydro power
Infra-structure	Roads	1,005,259 km (1962)[2]	4,700 km (asphalt road)
	Railways	3.120 km (1962)[5]	781 km (single line)
	Electric Power	306 MW (1962)[5]	2,000 MW
Industry	Agriculture	36.8% of GDP (1960)[4]	44% of GDP (2012)
	Manufacturing	13.8% of GDP (1960)[4]	5.0% of GDP (2012)
Government	Form of state	Centralized republic	Federal republic[2]
	Political stability	Strong dictatorship	Stable federal gov't
	Fiscal balance	-2.9% of GDP (1962)[3]	-4.1% of GDP (2012)[2]
	Central gov't. debt	13.9% of GDP (1962)[3]	49.4% of GDP (2013)
Culture	Recent history	Japanese colony	Transition from Communism
	War experience	Korean war	Civil war
	Nation	Single ethnicity	Multiracial (80)
	Religion	Confucianism/Buddhism	Ethiopian Orthodox/Islam

Source: 1. Economist Intelligence Unit Limited (2014).
2. HIS (July 24, 2014).
3. Koh (2008).
4. KOICA (2013).
5. Korean Statistical Information Service (kosis.kr).

The indicators in which Ethiopia is inferior to Korea are mostly related to human resources and infrastructure, including social and physical. Amongst distinguished factors are Ethiopia's high rural population[7]; high illiteracy, relatively low level of education and insufficient vocational schools to supply a skilled workforce, which is indispensable for industrialization; and infrastructure. This group of factors is the area that the Ethiopian government has to strive for development.

The remaining factors that cannot be compared in this straightforward way, or indicators in the political, cultural and geographic categories, would be far more decisive for economic development. Nonetheless, we can summarize that the starting points of the two countries for economic development are almost identical except that Ethiopia has richer natural resources.

5.3. Industrialization Strategies

5.3.1. Economic Growth Strategy

Given Ethiopia's economic environment, its agricultural base, broad arable land, sizable rural population and its entrenched international markets could also be strategic resources for economic development. The Ethiopian government has carried out a strategy of agriculture-based growth, and on this account the Ethiopian economy heavily dependent on agricultural production with voluminous portion of population is beginning to suffer from losing steam for economic growth.

On top of limited cultivation acreage per household despite spacious land, major agricultural products such as coffee, oil seeds, maize, teff have suffered from unpredictability in harvests and prices in international markets, and that has caused high volatility of the Ethiopian economy. Also, a huge amount of investment is needed for developing farm land, irrigation and mechanization and for the Ethiopian economy to maintain an economic development policy of agriculture-based growth.

Under this circumstance, the Ethiopian government cannot avoid the question of what strategy will be preferable for the economy when it comes to discussion of economic development. As far as the GTP1 is concerned, the Ethiopian government

7) Many experts familiar with the recent Ethiopian economy worry about high unemployment in the urban population stemming from those who moved from rural areas to the cities for jobs but remain unemployed and suffering from poverty. On this basis, the experts said a policy for reducing the rural population is not an appropriate alternative. But considering the low economic productivity of agriculture and limited farmland for household with low fertility, simply containing the large population in rural areas cannot achieve the national goals of GTP: poverty eradication, growth and transformation. A better direction to achieve these policy goals will be putting more efforts into developing a growth engine to absorb the idle workforce of rural areas, for the sake of creating more labor-intensive and higher-paying industrial sectors like manufacturing.

has emphasized agriculture-based growth as well as broad-based growth policies.

In retrospect, however, the Korean government selected neither a broad-based nor agriculture-based growth policy. This does not mean that the Korean government gave up balance among ranks or discarded development of agriculture, but it put priority on manufacturing over agriculture. Despite its existing industrial bases being concentrated heavily on agriculture, Korea took the path of economic growth driven by manufacturing and aggressively created a dynamic imbalance by pouring its scarce resources into selected sectors first. Over the period, this strategy incited a lot of political dissidents protesting unfairness.

5.3.2. Goal Setting for Industrialization

The goals for industrialization determined on the basis of the MMIC methodology should be reviewed on if they functioned efficiently enough to be pursued for economic development. This is because such goals set by MMIC methodology failed to properly reflect Ethiopia's own competencies.

Looking at the Korean case, the directions for industrialization taken in the industrialization era were basically based on dynamic comparative advantages. In the 1970s, the Korean government selected electronics, shipbuilding and machinery as promising industries to nurture. They were selected based on the logic that the Korean economy could achieve competitiveness in international markets with affluent labor force with minimal skills, and could prop up those industries with skilled labor-intensive characteristics. Of course, the remaining industries were selected for strategic considerations.

Nonetheless, the strategy of concentration on competencies is a success factor behind Korean industrialization. A handful of laws were enacted to provide the government with the necessary tools to promote the industry sectors, and all government efforts went toward mobilizing resources to support the selected industries to meet export targets set at challenging levels. But the Korean government did not set the goals in terms of GDP share of industry ahead because this was not considered an independent variable.

[Box 1-4] Enactment of Special Laws for Promoting Specific Industries

The Korean government enacted laws to promote six selected industries toward the end of the 1960s and the beginning of the 1970s. The main contents of the laws were almost the same: devise promotion plan, form government fund for long-term, low-interest rate loans to the six industries, establish promotional committee and pass regulations and preferred treatment to protect industry as per the following table.

Law	Enacted	Key Points
Law on Machinery Industry Promotion	March 30, 1967	• Establish promotion & implementation plans • Set up machinery industry registration system • Replace outdated facilities • Offer long-term, low-interest fund for machinery industry • Support training for technical workforce • Form machinery industry committee
Law on Shipbuilding Industry Promotion	March 30, 1967	• Establish promotion plan for shipbuilding industry • Offer long-term, low-interest fund for shipbuilding industry • License shipbuilding • Approve building & modifying ships • Form shipbuilding industry committee
Law on Electronics Industry Promotion	January 28, 1969	• Establish electronics industry promotion plan • Register & check quality of electronics • Offer long-term, low-interest fund for electronics industry • Build electronics industrial complex • Establish electronics industry committee
Law on Steel Industry Promotion	January 1, 1970	• Designate steel industries and facility standards • Offer discount on public utilities • Approve and support raw material imports o Set up steel industry growth fund • Form steel industry committee
Law on Petrochemical Industry Promotion	January 1, 1970	• Devise petrochemical industry promotion plan • Register or cancel businesses • Build & operate complex • Order management rearrangement & price control • Form petrochemical industry committee
Law of Non-Iron Steel Refining	January 22, 1970	• Devise refining industry promotion plan • Approve terms of sale for mines • Offer long-term, low interest fund for refining industry • Supervise refining business • Form refining business committee

Note: 1. Transformed to Law to Encourage Modernization of Textile Industry (Dec. 28, 1979).
Source: National Records Archive, Korea.

5.3.3. Export as Driving Force for Industrialization

Export promotion, in many aspects, is important to the Ethiopian economy. Considering the ever-growing import and fiscal deficits, Ethiopia needs to promote exports to earn foreign currency required for investing in ambitious development plans. On top of this export promotion is effective leverage for manufacturing-based industrialization, creating demand for domestic products. In this sense, export promotion policy could function as an excellent vehicle for industrialization. In reality, however, the Ethiopian economy failed to meet the export targets of major export commodities over the GTP1 period, as seen in <Table 1-19>. Accordingly, the Ethiopian economy's vulnerability to foreign reserves deficiency eventually deters investment in national projects

〈Table 1-19〉 Export Targets and Achievements of Major Commodities in GTP1 Period

(Unit: US$ million)

Major Export Items		2010-11	2011-12	2012-13	2013-14
Coffee	Plan	906.0	1,187.0	1,555.0	2,037.0
	Real	841.8	833.1	746.6	714.4
Oil Seeds	Plan	450.0	565.0	710.0	892.0
	Real	326.6	472.3	443.5	651.9
Leather & Leather Products	Plan	190.5	296.2	352.0	416.8
	Real	103.8	109.9	121.1	129.8
Textile	Plan	100.0	200.0	450.0	700.0
	Real	61.1	84.7	97.4	110.2
Total	Plan	GDP*16.6%	17.7%	19.2%	20.8%
	Real	2,747.1	3,152.7	3,081.2	3,254.8

Source: Ministry of Finance and Economic Development, Federal Democratic Republic of Ethiopia.

Looking at the Korean case, the government in the industrialization era persistently pushed export promotion policy and set targets higher year after year. Initially, the policy was particularly enforced for procuring foreign exchange reserves. The Korean economy was also in dire need of funds to invest in base industries like fertilizer, cement and textiles for use in daily life. In this sense, the government's first industrialization strategy, in essence, can be considered that of import substitution that lasted until Korea achieved its export target of US$1 billion in the latter half of the 1960s.[8] But Seoul also selected export promotion strategy as the driving force for

8) Some economists say Korean industrialization policy in any period cannot be classified as that of import substitution. But in the initial stage of economic development, the Korean government tried to invest

economic development.

5.4. Policy Tools for Industrialization

5.4.1. Indicators Presenting Goals and Targets

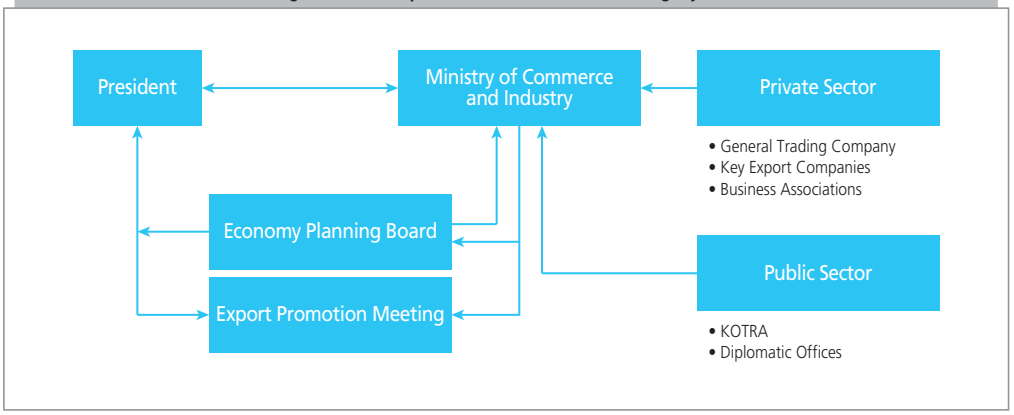
For the purpose of implementing the plan, top leaders used to set goals higher than what an organization was capable of and push it to achieve such goals. This also seems true for the Ethiopian government, but upgrading planning techniques is inevitable to achieve the goals. Despite the plan having many indicators representing annual targets, low legibility of the targets entails an efficacy problem. For instance, most targets were set vis-a-vis GDP percentage, which prevented readers not only from grasping the picture of the plan but also from evaluating the achievement of each target. This methodology could also cause weakening in the sense of responsibility to achieve targets due to its blurred nature.

The Korean government of the industrialization era was also similar to Ethiopia's in its pattern of goal setting, as in the goals and targets were set higher than capability level. To enhance a sense of participation in the goals and targets set by its own decisions, the Korean government provided practitioners at each level with chances to get involved in policymaking. A two-way form of decision-making flows was used as showed in [Figure 1-9]. For instance, the future vision and goals of the long-term plan were commonly initiated by the president, whereas targets in the mid-term and annual plans to realize presidential initiatives were extracted by MCI practitioners interacting with stakeholders in both the private and public sectors. Using their creativity this way, the probability of successful implementation was remarkably improved.

On the other hand, for the purpose of enhancing a sense of responsibility, goals and targets were set in real figures if possible and distributed to each corresponding individual practitioners, organizational units and ministries. The overall export objective was distributed by ministry, industry and overseas market, and especially in MCI, major export items were managed by their progress in meeting targets by designated staff almost every day. Under this well-aligned export management system, allocated export targets were considered duties that must be achieved. Economic incentives were offered as rewards for performance. This type of export management system was called the Export Responsibility System in Korea.

in base industries like fertilizer, cement and textiles not for export but for domestic consumption. Furthermore, Seoul at first even tried to invest in the automotive industry for domestic consumption, which eventually proved to be a failure. In this sense, the initial industrial policy of the Korean government in the 1960s could well be classified as of import substitution.

[Figure 1-9] Export Goal Decision-making System



Source: Dong Kyu Choi (1992).

Korea used to fail to meet export targets of an annual plan despite desperate efforts because the goals used to be set higher than those of mid- and long-term plans at President Park's request. But in reality, Korea outperformed without fail the export targets of the long-term plans as well as those of mid-term plans.

5.4.2. Development of Sectoral Plans

Ethiopia's Industrial Development Roadmap (2013-25) was developed to play a fundamental role in industrialization from a long-term perspective. Since only three years have passed, it is too early to assess the roadmap's performance. For better results, developing sectoral implementation plans with more detailed government activities is essential. Planning detailed activities and a well-aligned time schedule increases the likelihood of implementation. Every activity of competent government organizations will be covered to achieve the goals and targets of both the Roadmap and the GTP.

Looking at the Korean experience, the Ministry of Commerce and Industry (MCI) established its own plan for major industrial sectors. These plans enumerated projects and programs to achieve the goals and targets assigned by the five-year economic development plan. When developing sectoral plans, MCI used to invite Economic Planning Board (EPB) staff in charge of budgeting to a coordination meeting for the purpose of reviewing the resources required and raising the probability of fiscal support.

[Box 1-5] Korean Experience in Sectoral Plan for Industrialization

Mechanic Industry Promotion Plan (March 9, 1973)	Electronic Engineering Promotion Plan (March 10, 1976)	Shipbuilding Industry Promotion Plan (March 1973)
• Construction of Changwon Machine Industry Complex - Affordable for large machine factory, small $ medium specialized factory, general & auto parts factory, specialized machine factory, defense industry factory • Construction of steelworks, nuclear power plant, petrochemical plant, cement factory - To produce transportation & mining equipment by utilizing facilities for large-scale dye forging, heat treatment & machine processing • Clustering relevant front and rear industrial facilities - Basic infrastructure to produce higher value-added precision machine industry, mechatronics and high-tech machinery • Establishment of production system for defense industry products, fostering heavy chemical and mechanic engineering industries	• Push 9 base plans to achieve US$2.5 billion in exports by 1981 - Pursuit of leading export type - Stimulate technological development, advance quality, strengthen international competitiveness - Develop own models & innovate design - Reduce prime cost & stimulate standardization - Enhance manufacturing technology & improve processing - Set up integrated production system & stimulate localization of raw materials - Form joint development system of relevant areas - Introduce world-class technology	• Achieve self-sufficiency in domestic demand & export US$3.2 million (US$1 billion) in ships - Build nine shipyards from 1973-80 (two deep sea fishing vessel shipyards, two medium shipyards, five large-scale shipyards) - Designation of Chungmu Industrial District * Build three super-scale, three large-scale, two medium-scale shipyards by 1985

Source: National Archives of Korea.

5.4.3. Management of Implementation

To achieve the GTP's goals and targets, the Ethiopian government is operating coordination committees chaired by the prime minister, including the Export Promotion Coordination Committee. Because the prime minister, as in Korea, used be occupied with highly complicated political matters, and hence the economic issues over the long term is deemed difficult to be seriously considered by the prime minister. Commonly such issues are brushed aside because the priority of national

agenda is given to more urgent daily issues. Accordingly, a more sophisticated management system for policy implementation is always a matter of success everywhere.

Looking at the Korean experience, the government introduced two distinguished institutions: the rolling plan system and the Presidential Monthly Meeting for Export Promotion (PMMEP). The rolling plan system was especially convenient when the external and internal economic environments varied unexpectedly. In reality, most assumptions applied to mid- and long-term plans were proven false immediately after the plans took effect, and so adhering strictly to the their goals and targets is irrational. In this context, the rolling plan system, under which a mid-term plan's goals and targets are annually revised reflecting changes in economic environment, will improve the plan's reliability.

The other prominent institution is the Presidential Meeting for Export Promotion. This was convened every month and chaired by the president almost without exception as seen in <Table 1-20>. Once the government's industrialization plan was finalized to proclaim in public, implementation was practically reviewed in the meeting. This gather had been launched initially for the purpose of export promotion, but was used fairly well to accelerate industrialization policy. The

〈Table 1-20〉 Calendar Day for Presidential Meeting for Export Promotion

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
65	-	5	-	-	-	21	-	-	13	-	15	15	5
66	24	-	28	25	21	23	18	16	19	17	21	19	11
67	23	13	15	17	15	19	24	21	25	25	20	29	12
68	22	19	18	23	28	7.1	29	19	27	21	18	16	12
69	20	17	24	21	19	16	28	29	27	27	17	15	12
70	27	23	23	20	25	22	27	24	21	26	23	21	12
71	25	22	22	-	31	21	26	23	20	25	29	27	11
72	24	21	27	24	30	28	-	30	27	25	27	28	11
73	30	28	28	25	30	28	-	29	26	31	-	28	10
74	30	27	27	24	29	7.1	-	28	25	30	27	27	11
75	-	26	31	30	28	25	-	29	24	31	26	24	10
76	28	25	4.7	29	26	30	-	25	29	27	-	29	10
77	26	25	25	27	31	28	-	25	23	25	25	-	10
78	27	27	29	27	30	29	-	25	29	27	-	-	9
79	24	8	-	27	24	-	12	-	7	-	-	-	6

Source: Kang (2008).

dominating issues discussed at the meeting were industrialization, progress of construction at specific industrial complexes, operating rates of major corporations, the quality level of specific products and competitiveness, and solutions to problems that arose.

5.4.4. Financing and Incentive System

A variety of incentive systems have been in operation covering things ranging from tax reductions to financial loans at preferential interest rates. The Ethiopian government also provides much administrative support such as customs clearance assistance and one-stop service for investors. To improve these incentive systems, Ethiopia could face a lot of management issues. For instance, certain exporters are known to have tried to expand domestic sales instead of those abroad. To prevent this kind of misbehavior, continuous efforts for fine tuning managerial issues in incentive systems are required.

So far as the Korean experience is concerned, the cross-cutting principle of government incentive systems was performance basis. Among policy devices for promoting development of the selected industry in the early part of the 1960s, the Export-Import Link System and Export Promotion Compensation Policy had economic incentives focused simply on export activities. Export industries also received more tax incentives like cuts in business, income and corporate taxes, and a handful of advanced financing systems were introduced like the foreign currency quoted loan and export usance as illustrated in [Box 1-6].

On top of these, the most distinguished policy tool for industrialization in the development era was the National Investment Fund (NIF). The Korean government desperately tried to promote the selected heavy-chemical industries. Under severe budget constraints, the finance minister under order from the president created the NIF, which could provide industries with long-term loans at low interest rates. In 1974, the Korean government enacted the National Investment Fund Law, a symbolic policy measure of Park's regime that mobilized all national resources.

Under the law, the fund was designed to be established with deposits from commercial banks, insurance companies and other government funds. Initially, 10-30 percent of increased bank deposits, 40-50 percent of revenues of insurance companies, and 90 percent of the surplus in other government funds were to be deposited into the NIF. During 1974~93, contributions to the fund broke down to 74 percent by commercial banks, 14 percent by insurers and 12 percent by government funds. As seen in <Table 1-21>, the NIF played a significant role in expanding investment in the heavy and chemical industries for two decades.

[Box 1-6] Major Industrialization Promotion Policy Tools in 1950s and 1960s

		1950s		Early 1960s	
Export/Import Link System		Preferential FX policy Export Dollar Incentive Policy	51.5-55.8 55.8-61.5	Export-import link system	63.1-65.3
Budget Support	Export incentives	Export Promotion Compensation Policy	'54, '60	Export promotion compensation policy	60.8-65.3
	Domestic tax	Commodity tax exemption	50.4-	Commodity tax exemption Income/Corporate tax reduction Business tax reduction	50.4- 61.1-72.12 62.1-
	Tariff	Import tariff exemption on raw materials for export	59.10-	Import tariff exemption on raw material for export Import tariff exemption on capital goods for export	59.10-75.6 64.3-73.12
Financial support	Short term	Trade Finance (cargo, shipping finance) Export Promotion Fund loan system	50.6-61.2 59.11-	Export financing Export promotion fund loan system Foreign currency quoted loan Import finance for raw materials Export industry fund loan system Export usance	61.2- 59.11- 62.9- 63- 64.7-69.9 64-
	Mid term	-	-	Loan for Transition of SMEs to Exporters	64.2-
Etc.	Apply export records	Trade business approval system Apply export records to competition	50.2- 53.1-	Trade business approval system Apply records for import competition	50.2- 53.1-
Others		Railroad fare discount	58.3-	Railroad fare discount	58.3-

Source: Kang et al. (2008), The Policy Decision-Making System of the Rapid Economic Growth in Korea: Economic Planning Board and Inter-Ministerial Committees, Korea Development Institute.

All of these incentives focusing on exports and industrialization were given on a performance basis. The amount of tariff refund was determined by a formula articulately set based on the size of products exported and raw materials imported. The tax cut for facility investment was also determined proportionately to investment amount. Needless to say, the amount and terms of bank loans for imports were also determined according to import amount for exporting goods, and loans for building factories were tightly controlled as well. In the event of failure to meet the principle, the relevant individuals or organizations were audited by the General Audit Office and severely punished.

〈Table 1-21〉 National Investment Fund's Financing to HCI

(Unit: %)

Period	Loan by NIF / Total loan	Facility loan by NIF / Total facility loan
1974-81	18.4	56.8
1982-91	14.4	37.0
1974-91	16.2	45.8

Source: Koh (2008).

5.4.5. Assistance for Technological Development

For the purpose of assisting industry with developing manufacturing technology, the Ethiopian government is operating three major institutes: the Textile Industry Development Institute, Leather Industry Development Institute and Metals Industry Development Institute. The three's functions, however, are highly complicated and thus naturally limits their technological competence.

On the contrary, the Korean government in the industrialization era, to expedite development of industrial technologies, launched Korea Institute of Science and Technology (KIST) in 1966 to assist corporations with technological innovation. The Ministry of Science and Technology was also established in 1967 as the world's first independent ministry for managing policies for science and technology development. It continued to establish government-funded think tanks in major industrial areas to promote the heavy and chemical industries in the late 1970s.

In the 1970s, the Korean government started to aggressively expand technological think tanks as shown in <Table 1-22>. The Law on Promoting Specific Research Institutes was enacted in 1973, and this launched Korea Research Institute for Standards (KRIS) in 1975, Electronics Technology Research Institute (ETRI), Korea Institute of Machinery and Metals (KIMM) and Korea Research Institute of Chemical Technology (KRICT) in 1976. All of these contributed a lot of advice to the government in the formulation of technological development policies and assistance in industrial development technologies (Young Rack Choi, 2008).

〈Table 1-22〉 Major State-funded Think Tanks Established in 1960s-70s

Institute	Date of foundation	No. of Staff (2008)
KIST (Korea Institute of Science and Technology)	Feb. 1966	655
KIOST (Korea Institute of Ocean Science & Technology)	Oct. 1973	414
KRIS (Korea Research Institute for Standards)	Dec. 1975	398
KIGIM (Korea Institute of Geo-science & Mineral Resources)	May 1976	423
KRICT (Korea Research Institute of Chemical Technology)	Sept. 1976	318
ETRI (Electronics Technology Research Institute)	Dec. 1976	1,901
KIMM (Korea Institute of Machinery & Metals)	Dec. 1976	294
KERI (Korea Electro-technology Research Institute)	Dec. 1976	361
KIER (Korea Institute of Energy Research)	Aug. 1977	359

Source: Lee & Hwang (2008).

On the other hand, the Korea Development Institute (KDI) was established as a think tank assigned with the task of research on overall economic policies. The institute started work in joining the formulation of the fourth five-year economic development plan and, was in charge of developing the three-year rolling plan and annual economic management plan as well. In the late 1970s, the KDI released the Long-term Socioeconomic Development Plan 1977-1991, an inclusive long-term vision for national development. To induce ethnic Korean scholars abroad to return home, the government promised extravagant compensation packages that had never been imagined before.

5.4.6. Ministerial Organization for Industrialization

MOI of Ethiopia has an organizational setting focused mainly on promotion of manufacturing. Frankly, however, the government's own policy tools for promoting industrialization are highly restricted despite its ambitious goals and targets. A more striking issue from the perspective of the Asian industrialization experience is that the export promotion function is not under MOI. Both Japan and Korea which developed their industries under government leadership, combined the functions of industry and export promotion.

Initially, the Korean government just hurried to look for available funds for investing in core industrial facilities, and export was decided as the last resort. As export promotion policy was made the top national priority, the Ministry of Commerce and Industry (MCI) hammered out incentives for exports, and under the recognition that manufactured products outperformed other industrial sectors, MCI took the lead in promoting export-led industrialization.

Looking at the minutes of the Presidential Meeting for Export Promotion, most policy measures reported to the meeting as export promotion policies were manufacturing issues, operating rates of major corporations, bottlenecks for export or technological development and progress in building industrial complexes, free export districts, bonded factories, transportation systems like ports, roads and railroads, and big government projects like POSCO.

The export promotion activities of MCI staff were focused on checking bottlenecks in industries to ensure the meeting of export targets, and insurmountable obstacles confronted on the way were taken to the presidential meeting attended by the minister of the Economic Planning Board (EPB), in charge of the government budget, and the finance minister, in charge of the treasury, taxation, customs and banking. Under the auspices of presidential sponsorship, MCI could reach solutions in an efficient way by extracting resources from both the EPB and Finance Ministry.

5.4.7. MSEs Promotion Agency

The government agency responsible for promoting MSEs in Ethiopia is the Federal MSEs Development Agency, which is under the Ministry of Urban Development and Construction. But despite being in charge of developing micro and small enterprises, the ministry is expected to specialize in manufacturing. The roadmap proclaimed business cultivation as one of Ethiopia's industrialization directions and all-around support for the entire country to establish SMEs, links between MSEs and MLEs, and continuous support to transform SMEs into MLEs.

Needless to say, the agency for promoting SMEs in Korea is under the MCI's jurisdiction. But the initial function of SME promotion was carried out by the MCI itself, and later, the Agency for SME Promotion was spun off from the ministry as the importance of this function grew.

6. Conclusion

6.1. Implications of Korea's Experience

6.1.1. Political leadership was a decisive factor in Korea, but the Korean style of political leadership is difficult to be generalized.

Looking at the success factors behind Korea's industrialization, the most decisive factor was the strong political leadership of President Park Chung-hee, similar to what Lee Kuan Yew did in Singapore. Many scholars familiar with the Korean history of economic development, though some might blast Park's poor human rights record, almost unanimously acknowledge that he was largely responsible for Korea's economic development.

Park's leadership in export-driven industrialization was exceptional in many respects; he initiated a long-term vision and goals in advance and asked his staff to develop plans to implement them. He incessantly ordered his officials to set higher goals and targets, repeatedly checked their progress, encouraged people both in the government and private sector with performance-based incentives, and maintained all of these practices for 18 years. In this respect, discussion of Korean industrialization is impossible without mentioning Park's leadership.

Despite its significance, his leadership gave birth to a set of problems that cannot be ignored. Furthermore, Park's extremely peculiar leadership cannot be discussed as a matter of institutionalization.

6.1.2. State intervention in industrialization incorporated with a market-driven system is preferable for efficiency improvement.

Despite Park took the lead in industrialization policy in every respect, his government was heavily restrained from intervening in the markets in a way to compete with private corporations. In the initial industrialization era, the government partially invested in capital-intensive industrial facilities to produce items like fertilizer and steel, bureaucracy did not meddle in the management of corporations. Park nominated qualified candidates for executive positions, and simply asked them for their committed devotion to performance.

When he had a national big project in mind, like the Gyeongbu Expressway, he would consult major figures in the relevant industry to utilize their entrepreneurship and creativity, and allowed them proceed with the project under their own responsibility. Faced with enormous economic threats caused by overinvestment in

the heavy and chemical industries in the 1970s, the Korean government initiated M&As of large corporations in trouble, but the government would not publicize them. The corporations were put under new management instead.

6.1.3. The strategy of concentration on core competences is effective in exceeding performance goals.

In the industrialization era, the Korean government persistently pursued a strategy of dynamic comparative advantage. Mobilizing national capacities and pouring them into export promotion to drive industrialization was the national tenet. Manufacturing was chosen as the driving force to relieve crushing poverty rather than agriculture, which was then the major base of production, under the recognition that the dynamic comparative advantage of the Korean economy did not lie with agriculture.

Furthermore, Korea pursued an export-oriented industrialization policy and kept at it for decades despite a scarcity of products for the domestic market. Under this strategy, people both in urban and rural areas initially suffered from low income. Urban workers had to deal with the low wage policy and farmers in rural areas faced the same policy for farm produce. The Korean government sustained these low price policies for a long time to maintain export competitiveness in manufactured commodities.

In the early 1970s, Korea selected six heavy-chemical industries as its strategic industrial sectors to promote. Korea fiercely concentrated national resources on these industrial sectors, and consequently caused itself to be involved in painful reshuffling of industries throughout 1980s. But it was a great fortune for the Korean economy that big changes in global economic environment[9] provided favorable export markets. Any way the prosperity of the Korean economy in 1980s was the consequence of the Selection and Concentration Strategy.

6.1.4. Organizational reshuffling on a specialty basis is a required trajectory to trace.

Immediately after coming to power, Park established the Economic Planning Board (EPB) to supervise and implement economic development. The agency was responsible for institutional reforms for improvement of economic efficiency on the basis of a free market system. The EPB had been berated for its stiff adherence to economic efficiency, but served as the captain of the Korean economic team in the industrialization period. On the other hand, the Ministry of Commerce and

9) This used to be called the "Three Lows" in the international market: low interest rate, low exchange rate against the Japanese yen, and low oil prices.

Industry (MCI) is highly reputed for achieving export expansion and industrialization. Integrating the functions of promoting exports and industrialization among others, the MCI achieved an amazing performance of export-driven industrialization.

The Korean government incessantly developed new institutional arrangements at need, and reformed them responding to the changing environments, and mandated them with clear missions to implement.

6.2. Recommendations for Industrialization Programs for GTP2

6.2.1. On Planning

6.2.1.1. Recalibrating Big Picture

The micro approach focused on improving efficiency of sectoral segments could entail macro inefficiency. To avoid this pitfall, the basic strategies for industrialization, particularly under the constraint of limited resources, require deep study to determine if they go along with the pursuit of higher goals. From this perspective, design of the GTP2 through diagnosis of existing goals and roadmap targets, if in line with higher national goals for development, will prove extremely valuable for ensuring better performance. It is particularly recommendable if MoI is going to maintain the strategy of Growth and Transformation paralleling with the principles of broad-based and agriculture based growth.

For pursuing a suppressed growth strategy, careful scrutiny is advised on which sectors should be selected as leverage for prompting industrialization, and on this basis, resources should be intensively poured into the selected sectors. While a broad-based growth policy cannot be neglected for nation building, creation of a dynamic disequilibrium by promoting driving forces is also essential to accelerate development. Increasing agricultural production and productivity is important, but no less important is economic efficiency of investment under resource constraints. Industrial sectors that receive advantageous resources shall be emphasized to be strategically used, and more intensive efforts and resources should be allocated in upgrading industrial infrastructure all the more.

The other issue needs serious examination is the priority of resources allocation. To upgrade the industrial structure and strengthen competitiveness, a sufficient transportation system and stable power supply are essential; however, government investment projects, which are waiting in a queue for huge amounts of funds, are likely to create financial stress. To avoid this, such projects on the table will be safer for careful reexamination of their feasibility, and on this basis, to reconsider their

investment schedules.

6.2.1.2. Causality Between Goals and Means

The overall performance of the Ethiopian economy has fared well, and has stayed not far from the trajectory predicted in both the GTP1 and roadmap. Despite unprecedented events unfavorable to the economic environment, growth goals are expected to be achieved. Yet deviations in details have been found between the plan and reality, which could hurt the reliability of the planning system. This stems partly from an economic structure that is heavily dependent on agriculture, which can experience harvest volatility depending on the weather and in export revenues due to swings in international prices. The government-led boom in construction could be a source of deviation. In manufacturing, the GDP share of industrial products, contrary to expectations, grew much slower in GTP1. Especially exports, a prospective engine for industrialization, have remained far below target levels each year.

The cause could be lax causality consideration between goals and means, and accordingly, a more careful alignment between them is recommended in the GTP2's planning stage. For this purpose, fortifying infrastructure for planning is crucial, like upgraded confidentiality of the statistics. In the absence of reliable data the goals and the targets of plan are nothing but numbers on the table

6.2.1.3. Indicator of Targets

More than necessary, indicators of targets were represented as a percentage of GDP rather than real figures. In certain cases statistically processed data help understand the reality, but this is not always the case to the contrary. It could prevent readers from grasping the reality of the numbers, which results in difficulty of understanding what the gorals really are, and accordingly, the goals were probably not expected to be met. For indicators of which annual targets were set in processed data, the grounds on how the numbers were extracted is hard to fathom. Some indicators especially represented in percentages were difficult to understand, what were numerators and denominators, and how they were measured.

To raise transparency and legibility, and enhance the likelihood of goals and targets being met, the simpler the better, and real figures are better than processed data except in certain instances. The emphasis should be to select fewer indicators and choose those with more reliability that better depict the goals and targets of the plan in the process of formulating the GTP2.

6.2.1.4. Implementation-focused Planning System

The ultimate goal of planning is to achieve what is expected. For this purpose, a more systematic planning process should have practitioner levels that allow both the government sector, including local governments, and private sector, including NGOs, to participate in the entire planning process, from formulation and implementation to performance evaluation. In the formulation and implementation processes, they will contribute with their creativity that enhances the likelihood of plan implementation. They will suggest more feasible alternatives at less expense, and will strive to achieve the goals suggested. And finally, their role of watchdog will prevent inefficiency in public management.

Introducing a rolling plan system is another option to evade unnecessary debate over the efficiency of the planning system and if the government performed satisfactorily. The system is especially useful to enhance the reliability of the planning system under the ever-changing economic environment by modifying and revising the assumptions, goals and targets employed in the existing plan.

The other option is an annual implementation plan system which under the GTP system, as the overall guideline, allows each ministry to formulate an annual short-term plan within their work scope. These complementary planning systems will help train the planning staff in extracting optimal solutions that will eventually increase the probability of successful GTP implementation.

6.2.2. Industrialization Strategies

6.2.2.1. Development of Export-priority Strategy

Since the Ethiopian government began government-led economic development, eradication of poverty has been its utmost goal. Consequently, development strategies and economic policies have put emphasis on the supply side, stressing increased production and productivity that is conceivable under an economic domain suffering from scarcity of products.

For the Ethiopian economy, however, a huge amount of capital is desperately required to invest in public projects for economic development. From this perspective, more efforts for procuring foreign currency are required due to lack of domestic capital formation.

For this purpose, an export promotion strategy shall be more emphasized. Such a strategy will promote both procurement of foreign currency to invest in core public projects for energy development, SOCs and constructions, and create demand for

domestic products, especially those manufactured. Export promotion policy is sure to be an efficient engine for industrialization and hence economic development. From this standpoint, an institutional arrangement for progress management of export targets, like the Korean Export Responsibility Management System, could produce significant results. The establishment of a government agency that promotes exports and investment like KOTRA of Korea could also be a policy option to boost SME exports.

6.2.2.2. Introducing Competition Among Local Governments

Contrary to Korea, Ethiopia has a federal government system under which, from the perspective of other similar systems, coordination among local governments commonly result in gridlock. Adversely, this type of system could contribute to economic growth by introducing competition among local governments.

Less cost will be needed when the competition mechanism works from the point of view based on Korea's Saemaul Movement of the 1970s. The Korean government under Park's presidency had every level of locality compete with one another on a performance basis. The central government rewarded better performers with more resources so that every localities strove for outperforming to get more resources from the central government. This strategy eventually inspired the entire nation to pursue economic development, and could be considerably effective in countries with diverse ethnicities like Ethiopia.

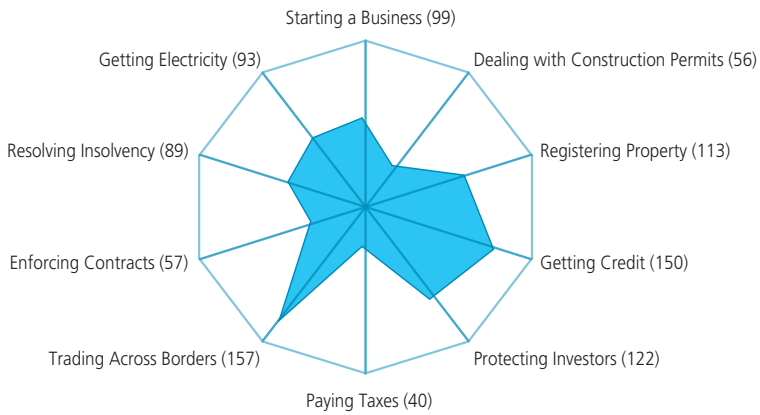
6.2.3. Service Delivery System

The Ethiopian government uses advanced systems for promoting industrialization. No better incentive system can be recommended from tax to financial incentives to administrative services. Despite all of these well-furnished incentive systems, however, their outputs are perceived a little bit less than satisfactory, partly due to bureaucratic processes and partly from the country's short history of market economics.

In this context, scrutinized review of the service delivery system of the Ethiopian government, down to the frontier organizations, is recommended to uphold the effect of diverse incentive arrangements over the GTP2 period. And on this basis, related incentive delivery systems should be fixed and streamlined.

In the Ethiopian economic system, wide room for reform toward a more business-friendly environment remains. Proliferation of MSEs as well as SMEs is subject to the business environment, not much to government involvement. That a market economy system carries defects is undeniable, but it is also unavoidable to take advantage of this system to raise efficiency and productivity as crucial tools to accelerate industrialization.

[Figure 1-10] Doing Business in Ethiopia (2012)



Source: World Bank (2012).

6.2.4. Realignment of Organizational Frameworks

From the perspective that forces export-driven industrialization focused on manufacturing, strengthening MOI's functions incorporated with export promotion comes first in discussions on organizational issues. Given that most pecuniary incentive tools are given to MoFED, pro- industrialization policies are unlikely to be easily developed. Little leverage is given to MOI to prompt private corporations to invest in manufacturing. To make export efficiently drive industrialization, the export promotion function, which was shifted to MoT, should be given back to MoI despite the initial purpose of the separation.

The other issue to be tackled is the organizational location of the Federal MSEs Development Agency, also proposed from the perspective that emphasizing industrialization focused on development of MSEs and manufacturing, whose share of GDP remains minimal. Under the umbrella of ministries other than MOI, the Federal MSEs Development Agency cannot be expected to implement policies for promoting MSEs in line with industrialization policies initiated by MOI.

The third organizational issue is related to the three institutes, which were established basically for technological assistance to MSEs. Their functions are too complicated, however, to concentrate their competencies on technological development, which is critical to higher competitiveness in export markets. Near half of staff are engaged in developing policies and handling managerial chores. From this point of view, the three should be specialized in technological development. And for developing industrial policy, EDRI needs more experts in industrial policy. For this purpose,

having foreign policy advisers in each ministry to work with EDRI faculty will be more productive. A handful of economists in EDRI are not enough to develop competent policies.

The fourth issue is the important role of a specialized agency for developing industrial sites.[10] Developing industrial complexes for certain purposes is a favorable policy tool in many countries. The Ethiopian government is not different. Plans for developing industrial sites are under consideration, and several are in operation. Of the five industrial sites, two of them are being developed by foreign entities and the rest by the Ethiopian government. To efficiently promote a policy for developing industrial sites, Ethiopia should formulate a government agency responsible for developing and managing public industrial complexes, which will also help accelerate industrialization that induces foreign as well as domestic investors. This will also be useful in avoiding bureaucratic inefficiency if managed in a business-like pattern.[11]

The fifth issue is related to export promotion. From the standpoint of the Korean experience, setting up a government agency for export promotion is profitable. Its major functions are developing export markets for small exporters through overseas marketing for strategic industries and tailor-made activities for export promotion, information collection on overseas markets and dissemination to domestic exporters, support for small companies with overseas investment and project participation, and attraction of FDI to Ethiopia. In Korea's industrialization era, KOTRA grew famous for its excellent performance in export promotion. With 119 overseas branches, KOTRA continues to emphasize the role of infrastructure for overseas business activities of Korean companies, especially assisting SMEs to participate in exports.

The last issue is the organizational framework for monitoring implementation of export promotion policy. The Ethiopian government operates the Coordination Committee chaired by the prime minister. To make the meeting more effective, more active involvement of MoI in export promotion functions is recommended. Given the separation of the export promotion function for MoT and that of industrialization for MoI, MoI will find it comfortable to use the export promotion function as leverage to promote industrialization. Whatever the circumstance, using the export promotion function as leverage for industrialization seems crucial for the Ethiopian economy.

10) In reality, the Industrial Sites Development Corp. was established in 1974 from a reshuffle of the Korea Water Resources Corp., which was founded in 1966. Initially the latter was established for development of water resources, but reshuffled into the industrial sites company in the wake of a policy of heavy and chemical industrialization was proclaimed in 1973. But the water corporation had been deeply involved in the development of industrial sites like the Gumi Manufacturing Complex.

11) The Ethiopian government is establishing an agency for developing industrial sites in recognition of the importance of the agency's roles.

6.2.5. Comments on Sectoral Issues

6.2.5.1. Textiles

Taking everything into consideration, the textile industry could play the role of cash cow for the Ethiopian economy. More efforts are needed to promote this industry as a profit-making center. Inducing large-scale FDI with new technology will be an excellent policy option to accelerate higher production capacity and technological advancement. The sector can also facilitate the globalization of Ethiopian garment products, particularly an original equipment manufacturing (OEM) production model with global brands. The OEM model will also facilitate the participation of high-end products through technology transfer from multinationals.

To stimulate the textile industry to move toward high value-added downstream sectors, education and training must be upgraded to supply a skilled workforce. Beefing up SOCs, especially for export purposes, is also a priority project for the national budget. Given the underdevelopment of logistics and transportation, Ethiopia's low cost advantages cannot be exploited efficiently.

6.2.5.2. Leather

Capacity building to shift this industry from being based on semi-processed to one based on fully processed leather is essential despite the required time and efforts. Building its own brand as a finished leather producer will command a higher price. For this purpose, attracting FDI and facilitating domestic and international investment are a must for policy directions. This will increase production capacity and capabilities to fully take advantage of global market opportunities. On the other hand, for manufacturers of leather gloves and footwear, quality improvement and stable procurement of raw skins are key factors to expand export markets. Developing new buyers of global brands is also important for them to participate in the OEM production model, and hence to grow as international players.

6.2.5.3. Metals

Capacity building led by METEC, Ethiopia's largest player in metal products, will be key to promoting the industry. METEC is the most critical player for building capacity for greater performance by increasing exposure to international best practices and skills. For this purpose, top management is expected to have international experts to introduce advanced management skills and adopt technological reforms.

MIDI can also play an important role in facilitating interactions between METEC and the private sector, and transferring information and technology to private producers.

6.2.5.4. Emerging Industries

Adopting an industrial targeting policy like Korea did in the 1960s and 70s might be an appetizing option to accelerate industrialization using specific sectors as the Ethiopian government wishes to push. But from the perspective of the Korean experience, this strategy will incur cost high if incorporated with government failures. In sum, the preferable way of industrialization is allowing private companies to select sectors with reinforced government support that is industry neutral. Industry is not a thing to be selected but to emerge.

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Chapter 2

Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building

Transition into Big and Strong Manufacturing Enterprises – Evaluation, New Triangle Training System and Action Plans Focused on Capacity Building

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Summary

While Micro and small enterprises (MSEs) provide subsistence for a large number of families across the developing world, employment circumstances remain precarious with low wages and poor working conditions, and so improvements in living standards have been unimpressive. This study was conducted to foster Ethiopian MSEs into becoming more productive, profitable and bigger. To do so, the focus went to a business training system considering the insufficient internal capacity of Ethiopian MSEs. First, the status of existing Ethiopian MSE training was evaluated in a qualitative way and chronic problems hampering the transition into bigger and stronger entities was analyzed. Second, Korean experience in capacity building is reviewed as a guide. As a way to tackle the Ehiopian problem, the New Triangle Training Program is suggested based on domestic and global partnerships with action plans such as those for phased implementation, policy implementation strategy and cost information.

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I would like to give warm thanks to Haejin Hwang, a smart YKSP (young KSP member) for her constant endeavors and great help as a research assistant.
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1. Introduction

The arts of blacksmithing, wood crafting, pottery, hand looming, clothing, garment and shoe production, and agro-based foodstuff manufacturing have been widely practiced in Ethiopia for centuries on a small scale. These MSEs[14] have often been main sources of livelihood by people with limited access to agricultural land and formal sector employment. As a result, MSEs have often been treated as businesses established out of desperation and are rarely considered to be able to move beyond meeting basic household needs and requirements. This is further exacerbated by a long history of policy neglect by succeeding regimes. For example, the import substitution strategy that laid greater emphasis on investments in large-scale heavy and chemical industries worked against MSE growth under the socialist Derg regime (1974-87).

Recently, however, a seismic shift in policy outlook has occurred in the role of MSEs in the Ethiopian economy. Recognition is growing of MSEs' considerable potential to create jobs and offer livelihood for unskilled workers with limited employment opportunities in the non-agricultural sector. MSEs are also increasingly considered important instruments through which the benefits of economic growth can be transmitted more evenly to the poorest segment of the population. The recognition of such potential led to the 1997 introduction of the first national strategy for MSE development strategy, and its immediate implementation ushered in a new wave of policy support for MSEs as major sources of urban employment and incubators of light manufacturing technologies. In 2011, the strategy was revised to further strengthen support systems by making policy tools available not only in a more comprehensive and accessible manner to MSE operators, but also for facilitating the size transition enterprises.

The benefits accrued from MSE growth are broad based. Higher MSE growth has direct and indirect benefits to economic growth. Direct effects are growth in employment, increased output and added value. MSE growth also impacts GDP indirectly through more innovation and macro-economic resilience of the overall economy. Of all direct and indirect benefits, MSEs' contribution toward employment appears highly appealing to many governments (e.g., Harvie, 2004; Beck, 2007; Bouri et al., 2011). This is because in growing economies with high unemployment, MSEs provide jobs that require limited production and marketing skills as well as formal labor experience. In Ethiopia, for example, high urban unemployment led to the first

14) The term "MSE" will be used mainly in parts of introduction and Ethiopia's status in this paper, reflecting the tendency of Ethiopians to use the word more than SME (small and medium enterprise). Both terms, however, will be used separately when they need dividing in the meaning. In parts of the Korean experience and policy recommendations, SME will be used with MSE separately as the context of each word is different in Ethiopia and Korea. The Ethiopian government also wants to make its MSEs transition into bigger and stronger SMEs.

national strategy for MSE development.

Relatedly, jobs created by MSEs are also considered to eventually lead to poverty reduction. Agyapong (2010), in his discussion of the role of MSEs in poverty alleviation in Ghana, claimed that town and rural-based MSEs help create jobs and substantially increased personal income. Higher incomes associated with participation in MSEs led to significant welfare improvements as manifested by better education and health facilities, which will empower people to break out of the vicious cycle of poverty. Because of these poverty-reducing impacts, many countries, especially in Sub-Saharan Africa, have prioritized MSE promotion as a key ingredient in their poverty reduction strategies. According to Gebreyesus (2007), governments and donors have increased involvement and assistance in providing credit facilities, vocational training and market services, among others.

To what extent this support system has benefited MSEs to attain their potential remains largely an empirical question. The paucity of comprehensive and reliable data has often precluded substantive discussion on major constraints faced by MSEs. For example, MSEs rarely grow into large companies that can offer quality jobs to their workers. The wide array of problems that prevent MSEs from growing sustainably and developing into larger companies ranges from institutional constraints to limited entrepreneurial capacity. On the latter, the importance of idiosyncratic elements of businesses is stressed, including knowledge assets and human capital in determining MSE growth prospects and performance. This research attempts to review formal training as a major aspect of MSEs' capacity acquisition in Ethiopia to grow on sustainable basis and growth.

2. Why Capacity Building of MSEs?

Available literature generally identifies three types of technological capacity based on the activity they facilitate: production, innovation and investment capacity (Bell and Albu, 1999; Romijn, 1999). Production capabilities encompass a simple task of making minor adjustments in the production process for smooth function of existing technology and complicated expertise required to maneuver a certain production technology efficiently in MSEs (Ca, 1999; Romijn, 1999). Innovative capacity refers not only to the skill and knowledge required to maintain, improve and modify existing technology but also to the ability to create a new technological process (Romijn, 1999). Investment capacity, on the other hand, is the ability to choose the appropriate technology in accordance with circumstantial factor endowments (Romijn, 1999).

While the three types of technological capacities are highly complementary, by their very nature, innovative and investment capacities often require commitment of

additional resources and knowledge acquisition efforts on the part of the business. Production capacity, on the other hand, is relatively easier to acquire and hence appears the more relevant and prevalent type of capacity among MSEs in many developing countries. Furthermore, empirical evidence suggests that production capacity is the first type toward developing businesses, and a fairly long time is needed to take an evolutionary acquisition in phases of the other capacity (Ca, 1999; Romijn, 1999). Since many businesses in Ethiopia are in the early stage of technological development and operating with unsophisticated hardware, capacity development will mainly take the form of production capacity.

Business capacity determines growth prospects and the direction and magnitude of existing and future technological changes. While no unified theory called "capacity Theory" exists, the capacity approach implies that the development of internal business capacity needs a firm level of human capital either through the introduction of formal or informal training or simply by employing people possessing the knowledge being sought (Bell and Albu, 1999). According to Ca (1999), formalized training can be a good source of active technical and managerial learning and constitutes a kind of explicit venture in technological capacity acquisition. Abebe and Sonobe (2012), for example, found that MSE performance can be enhanced by building greater internal capacity through management training.

Production capacity is thus important at least for three key reasons: 1) higher capacity improves the chances of business survival; 2) businesses with better internal capacity grow faster and; 3) greater capacity acquisition leads to higher productivity and the onset of transformational change in MSEs. Studies, for example, find that raising production capacity of MSEs in the Jua Kali cluster of machinery and stove makers in Kenya and metal working companies in Ghana led to significant improvements in business performance (e.g., Romijin, 1999).

2.1. Overview of Ethiopia's MSEs

Bouri et al. (2011) argue that MSEs are crucial contributors to job creation both in developed and developing countries. Using World Bank data (2011), they estimated the contributions of MSEs in generating employment across countries of different income groups, and found that MSEs contribute 78 and 67 percent of employment in low income and lower middle-income countries, respectively, while 66 percent of employment in high income countries is generated through MSEs. The same holds true for countries in Southeast Asia, where MSEs play a larger structural role by contributing to more than 70 percent of employment (Harvie, 2004). Moreover, they are sources of entrepreneurship from which big startups are conceived. The small size of MSEs makes them very dynamic and innovative, whereby they serve as fertile ground for new business ideas.

MSEs can potentially drive growth that significantly raise sales, output and added value of low income economies (Gomez, 2008; Harvie, 2004). According to Hall (2002), he guess-estimates that MSEs contribute between 30-60 percent of GDP, though precisely calculatingsuch contributions is difficult. This varies across regions. High income countries have, for example, benefited a great deal from dynamic MSEs, which have contributed up to 60 percent of GDP, while in most African countries, MSEs contribute less than 20 percent of annual gross production.

Research on MSEs in Ethiopia is characterized by a paucity of data. The country's national account is framed in a manner that fails to register the added value of MSEs, which are found in all subsectors of the economy. But small scale and cottage industries, which fall under the umbrella of MSEs, reported their value additions. Accordingly, manufacturing MSEs grew on average 6 percent in the PASDEP (Plan for Accelerated and Sustained Development to End Poverty) years (2005-2010). Despite heavy promotion and active support, manufacturing MSEs grew at a slower rate of 4.8 percent in the first three years of the latest Growth and Transformation Plan (GTP) (EEA report, 2014).

In 2012-2013, the Ethiopian Ministry of Construction and Urban Development (MoCUD) conducted a national survey on MSEs. Based on that sampling frame, Ethiopian Development Research Institute (EDRI) conducted a sample survey of MSEs in Addis Ababa. This data is a subsample of the national survey on MSEs drawn randomly from an MSE list found in Addis Ababa. Of 521 MSEs in the sample, nearly

〈Table 2-1〉 Profile of MSEs

		No.	Pct.
Size Classification	Micro	416	79.85
	Small	62	11.90
	Medium	43	8.25
Ownership	Sole Proprietorship	426	81.77
	Cooperative	73	14.01
	Share Company	7	1.34
	Other	15	2.88
Subsector	Manufacturing	156	29.94
	Construction	67	12.86
	Retail & Services	294	56.63
	Urban Agriculture	4	0.77
Total		521	100

Source: EDRI MSE Sample Survey in Addis Ababa (2013).

80 percent were micro enterprises, while small (11.9 percent) and medium (8.25 percent) companies formed the remainder.

More than 80 percent in the sample were owner-operated, while the remaining were cooperatively owned. Few shareholding MSEs exist in Ethiopia, with just seven in this sample. The majority of the companies are in retail and service industries (56.63 percent) while manufacturing and construction make 30 percent and 13 percent of the sample, respectively.

〈Table 2-2〉 Seed Capital Sources for Startups

	No.	Pct.
Personal Savings	310	59.5
EQUIB (ROSCA)	9	1.73
Loans from Friends or Relatives	117	22.46
Loans from MFI	42	8.06
Loans from Government	16	3.07
Loan from NGOs	18	3.45
Loan from Banks	1	.19
Others	3	.58
Total	521	100

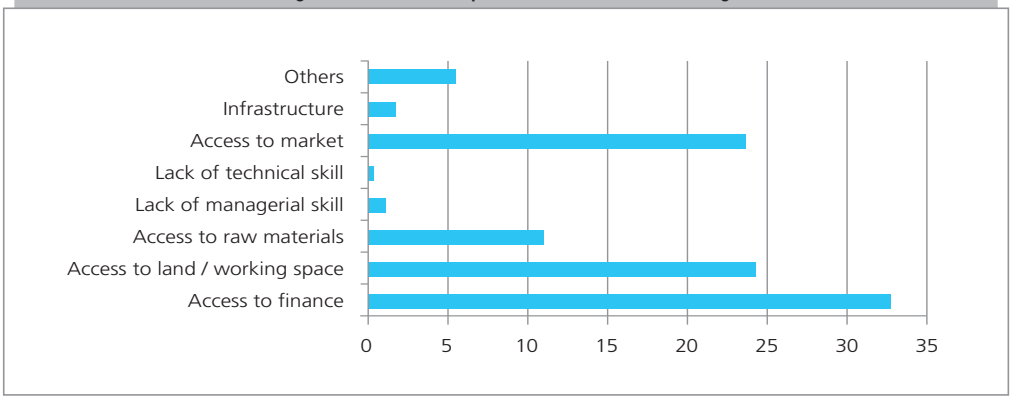
Source: EDRI MSE Sample Survey in Addis Ababa (2013).

Businesses need financing to invest in new equipment and machinery, reach out to new markets and products, cope with temporary shortages of cash flow and innovate and expand. Lack of finance is a critical impediment to MSE growth in Ethiopia. According to Ageba and Amha (2004), half of companies in the informal sector said their main problem was lack of sufficient initial capital. The same problem was also cited by about 35 percent of small manufacturers.

In Ethiopia, potential sources of finance include conventional banks, microfinance institutions, cooperatives, government and non-government projects, and semi-formal and formal lenders. <Table 2-2> says 60 percent of the sampled MSEs were started using the founder's personal savings, followed by loans from friends or relatives (23 percent). Micro Finance Institutions (MFI), which are especially suited for lending to MSEs, are literally absent, with only 8 percent saying they got their seed money from Micro Finance Institutions (MFI).

Concurrent with the international and MSE experiences in Sub Saharan Africa, access to finance is rated the biggest business challenge by more than 30 percent of the sample's respondents. As shown in [Figure 2-1], access to land and working space was the second biggest challenge to business, and third was market access.

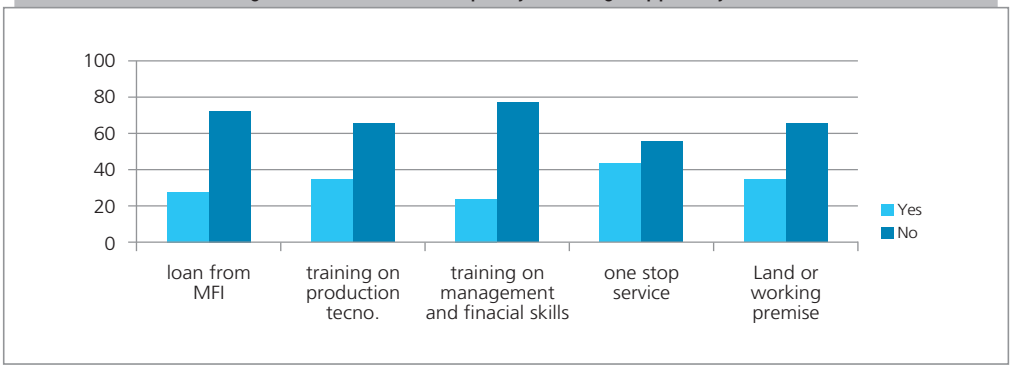
[Figure 2-1] Most Important Business Challenge



Source: EDRI MSE Sample Survey in Addis Ababa (2013).

In access to capacity building activities, the majority of respondents said they had benefited yet. MSE operators were asked if they had received services in capacity building support including access to MFI loans, training in production technology, management and financial skills training, and land and working premises. Only 27 percent said they had access to MFI loans, 30 percent said they had received training in production technologies and 23 percent said they underwent training in management and financial skills. One-stop service was reported by close to 44 percent in the sample, while just a third had access to land or working premises as depicted in [Figure 2-2].

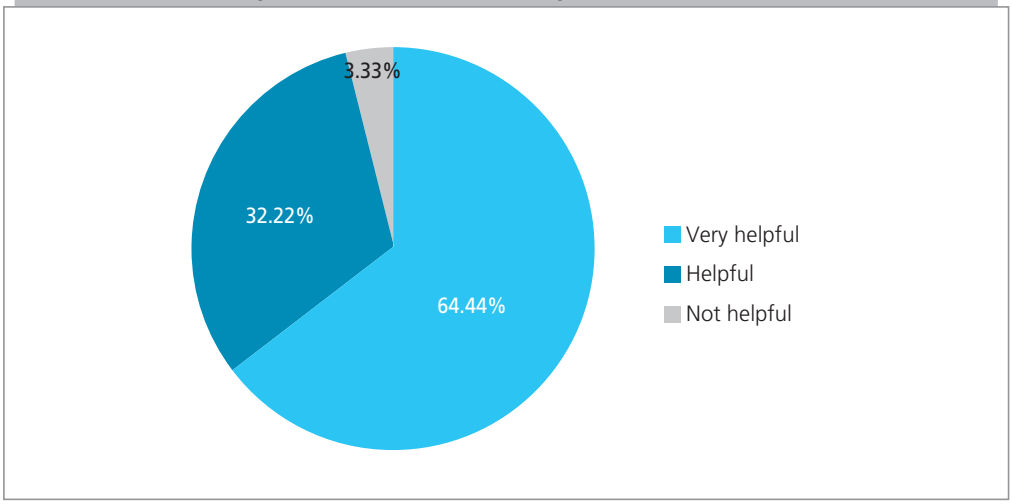
[Figure 2-2] Access to Capacity Building Support Systems



Source: EDRI MSE Sample Survey in Addis Ababa (2013).

Unlike classroom-based programs of theoretical education, short term training directly or indirectly affects MSE performance. Participants of MSE operators who underwent training in production or skills were asked to rate how useful the training was in meeting their needs. Of MSEs who benefited from the training, a large proportion found the training helpful (64.44 percent) and useful (32.22 percent), which strengthens the finding of Ageba and Amha (2004), who reported that beneficiaries of short-term training considered all such training useful.

[Figure 2-3] Evaluation of Training on Production / Skills



Source: EDRI MSE Sample Survey in Addis Ababa (2013).

2.2. Prospects and Challenges of MSEs Transiting into SMEs

A fast-growing economy and a population exceeding 90 million is a big market for MSEs in Ethiopia. Growth creates rising demand for consumer goods. In addition to favorable market opportunities, MSEs receive active government support. According to a report by Ethiopian Economic Association (2014), four main reasons point to a bright future for MSEs in Ethiopia. First, more MSEs are growing into medium and large businesses, and this will strengthen the various link created. Second, the government is building and supplying working and sales premises, allowing businesses to settle at one permanent location and thus raising growth prospects. Third, the government will learn from the weakness of existing support measures and improve on future efforts by providing support on a larger scale. Finally, the presence of a large domestic market for the low income population will offer an incentive for further output expansion by MSEs.

Despite their growing prospects, MSEs are besieged by a number of problems that have hampered their growth. Access to finance, inadequate technical skills, deficiencies in managerial accounting and marketing skills, and lack of market are few of the challenges MSEs face. In a survey sponsored by the World Bank (2010) that polled more than 100,000 MSEs in 123 countries, MSEs were asked to identify the most important obstacles to business performance. Among the most important factors found were the critical roles of access to credit and availability of crucial infrastructure such as water and electricity. Electricity and access to finance were considered by far the biggest hindrances for businesses in Sub-Saharan Africa (Fjose et al., 2010). Other studies indicated that about half of small and medium businesses surveyed did not receive external finance, while 77 percent mentioned lacked of access to financial resources (Ayanda and Laraba, 2011). Thus, many MSEs in developing countries fail to develop into medium and large companies. Brown et al. (2004) and Ab Manna (2011) show that half of MSEs perish within their first five years, while only 5-10 percent of young companies survive, thrive and grow to maturity.

Ageba and Amha (2006) classified barriers to MSE development in Ethiopia in three major categories. The first is strategies and policies related to challenges, anddespite a concerted effort in Ethiopia to support MSEs through policy packages, a major survey of MSEs in six Ethiopian towns showed that predictability of policy was quite low. The sector lacks a business environment conducive for MSE operators. The main challenge is not merely the design of economic policies and strategies and the legal and regulatory framework, but rather their proper implementation, and this requires an enabling environment to promote MSEs. The second category is expensive and cumbersome regulatory requirements that MSEs need to fulfill before and during operations, including registration, licensing and land/premise allocation procedures, a discriminatory tax structure and distorted incentives. Finally, MSEs blame capital shortage, credit constraints, inadequate business premises and an uncertain market as major constraints.

In a recent diagnostic study of MSEs in Ethiopia, Assefa et al. (2014) called the major constraints facing the sector "multifaceted." Access to finance topped the list of problems, closely followed by challenges related to having adequate collateral. Problems related to markets for MSE products have limited their growth. Most MSEs work in rented premises far from the markets for their products. Lack of adequate capital goods and their finances have hindered expansion. Many MSEs remain informal mainly because of problems in licensing and registration such as high transaction costs during licensing. MSEs need permanent addresses to get licensed. Finally, though many stakeholders are in the sector, there is a critical coordination failure. Duplicate activities and lack of proper reporting mechanisms between regional bureaus for micro and small business development and the federal

government are critical drawbacks to MSE growth.

Both the government and many stakeholders in the sector have tried to solve these problems. After establishment of the federal agency for micro and small business development (FEMSEDA) in 1997, a wide range of policies, strategies and specific manuals aimed at solving these problems were passed. A number of initiatives were taken, especially toward achieving the targets of the growth and transformation plan (GTP). By the end of the GTP period in 2015, the government expected the creation of an estimated three million jobs by MSEs. In the GTP's last three years alone, MSEs have created 3.96 million temporary and permanent employment opportunities nationwide, meeting the GTP target well ahead of time (MoFED, 2014).

To achieve the targets, support mechanisms were introduced by FeMSEDA and its regional affiliates. Save for anecdotes, however, no proper evaluation on the effectiveness of the support mechanisms was made available to MSEs.

2.3. Capacity Building Intervention for MSEs

According to FeMSEDA, support programs are primarily aimed at creating the proper conditions for MSEs and ensuring correct implementation of the development directions as set in the strategy. Under this general objective, support measures have the following objectives. The first is creating a direction that enables the provision of industrial extension services based on the interests and results of MSE operators and the sector's priorities. The second is setting up competent and productive MSEs. And the third is meeting the needs of technology, finance, market, and working premises for MSEs by better integrating them to main service providers in the sector such as Technical and Vocational Education and Trainings (TVET), MFI and bureaus responsible for micro and small business. A brief discussion will cover common types of capacity building efforts observed in Ethiopia in relation to the development of MSEs.

2.3.1. Internal Capacity Building

The development of a business depends partly on the human capital behind it. As such, a major focus of capacity building programs is enhancing the skills and quality of entrepreneurs and workers in MSEs through establishing training programs conducive for promoting growth. While several training courses offer skills in general business and management, the majority are specifically designed to upgrade human resource skills as needed in certain industries.

Human resource development for MSEs requires a comprehensive approach

including 1) social structures and systems such as broad educational reforms; 2) encouragement of entrepreneurship, business skills acquisition and innovation in society; 3) mechanisms for self-learning and continuous training and enhancement of human resources; and 4) complementary governmental support programs. Training applies to any transfer of knowledge, skills or attitudes organized to prepare people for more productive activities or change their working environments.

Education and training play an important role in human resource development. With this in mind, the Ethiopian government introduced the new Education and Training Policy (ETP) in 1994. A salient feature of the new policy was the significant increase in TVET institutions. Between 1994-5 and 2004-5, the number of TVET institutes ballooned from 3,000 to 106,305 (Ministry of Education, 2005), resulting in a larger outreach of TVET institutes to more students. TVET developments, however, still has gaps in creating TVET-industry links. First, most TVET institutes are geographically concentrated in few areas, resulting in skewed access to technical education given the exclusion of certain regions. Secondly, the lack of formal way of tracking TVET graduates makes it hard to evaluate the impact of the institutions on industrial needs. Finally, formal interactions between TVET institutions and MSEs are limited. (Munzwa et al, 2009)

Recently, however, the Ethiopian government is trying to link TVET institutes with MSEs. According to a FEMSEDA strategy (2011), capacity support will go to MSEs through TVETs. Towards this end, TVET should be organized, have the proper capacity and should deliver skills, training and consulting/advising after being sufficiently equipped with improved technology. The number of TVET centers is increasing as they are considered incubators of essential practical knowledge where education, training and development are provided to MSEs. They serve two purposes: provide crucial support for MSE development and offer personnel for medium and higher institutions. To the extent possible, the strategy was designed based on international best practices.

2.3.2. Access to Technology

Technology competency is an important determinant of a business's fate in globalized, fast changing and competitive markets. According to Romijn (2001), the capacity approach sees technological constraint primarily in the lack of adequate human capital as manifested by both technical and organizational skills rather than machines and equipment, and endogenizes technological progress to companies and emphasizes the need for technological change from within MSEs themselves.

Keeping up with technological advancement is thus vital if MSEs are to raise efficiency and productivity. Although upgrading technological processes can mean

an expensive upfront investment, the positive effects can include shorter production time, improvement in product quality and the overall lowering of production and marketing costs. Embracing technology is no longer an option but a necessity for MSEs if they are to remain competitive. In the case of many MSEs, however, lack of resources and knowhow can hamper technology adoption.

Access to new technologies is one of the most important ways to enhance MSE competitiveness. Without access to new technologies, MSEs in developing countries will continue to use outdated modes of production and cannot meet international quality requirements. This support system carried out by FEMESDA and TVET entails the provision of proper technology, output and distribution and production of project profiles that aim to support MSEs.

2.3.3. Finance and Credit Service Support System

Because of the disadvantage of being small and informal, MSEs cannot easily raise credit from the capital market. As a result, studies show that MSEs in developing countries are highly constrained because of limited access to finance and credit services (e.g., Ageba and Amha, 2006). Numerous collateral requirements, higher interest rates and limited access to formal banking institutions discourage MSEs from accessing the credit market. Even when funds for loan are available, MSEs rarely apply or express interest for credit primarily because they are often operated by entrepreneurs with a low level of financial literacy. As a result, they seldom understand the value of getting credit upfront to run businesses. Such entrepreneurs will then report that their credit needs are limited simply because they heavily discount the importance of accessing credit, and thus appear to be less credit constrained than small businesses, which are run by relatively more educated and hence more financially literate entrepreneurs.

The 2011 National MSE Development Strategy of Ethiopia names mechanisms through which MSEs' financing problems would be alleviated. Part of the seed capital of MSEs usually has to come from personal savings, of course. Yet if funding comes solely from personal savings, the speed of an MSE's growth will be naturally limited. Because of this, the government facilitates credit access for MSEs. To minimize the initial investment cost, working premises and market centers are offered free of charge or at nominal prices. Provision of credit takes on three forms: initial capital credit for young graduates with innovative ideas; cheap loans for MSE projects consistent with government policy and strategy; and leasing of machines and provision of raw materials for MSE operators.

MSE financing is not without its challenges. The National MSE Development Strategy (2011) enumerates a few bottlenecks encountered in furnishing MSEs

with greater access to finance. A considerable gap appears to exist between demand and supply of credit, with demand outstripping supply invariably. Further, implementation of the financing programs appears difficult.[15)]

2.3.4. Access to Markets

Marketing capacities of MSEs remain weak, as they are often unable to fully utilize local and regional market opportunities. Most MSEs might understand the need to properly market and promote their products and services, but few have the appropriate insights into the process of achieving it. Fewer still have the funds to pursue a marketing campaign. With access to a larger market, individual companies can benefit from economies of scale and generate additional revenue. In efficiency, companies that expose themselves to more intense competition in global markets can acquire new skills, technology and marketing techniques. FeMSEDA aims to create market access by strengthening the systems of subcontracting, outsourcing, (National MSE Development Strategy, 2011).

The strategy aims to link raw material-producing MSEs with larger companies by providing credit for the latter. By joining forces in a collective endeavor, the problem of access to raw material supply would be alleviated through cooperatives, unions and government development organizations. A new system of raw material import that reduced the hard currency burden on MSEs was also planned in the National MSE Development Strategy (2011). The government is also expected to actively participate in building and organizing market centers, exhibitions and bazaars of MSE and preparing a business website and directory. However, the apparently good performance has not been reported from Ethiopian government yet.

3. Evaluation of Existing Policies on MSE Capacity Building

Ethiopia has several training providers for MSEs. FeMSEDA, Japan International Cooperation Agency (JICA) and Entrepreneurship Development Center (EDC) are said to be the key institutions for training for MSEs. While the number of projects assisting MSE growth in Ethiopia is not said to be too small, they seem disorganized and sporadic. The scope of operations is also limited compared to the challenges faced by MSEs in the country. No coordinated strategy exists for offering training or filling training gaps (as each supplier is focused on their individual mandates) in a consistent and sustainable manner. This section has a brief review of the types and contents of training offered by TVET, JICA and EDC.

15) Problems associated with implementation include the limited capacity of microfinance institutions (MFI) in loan disbursement and savings mobilization, and poor screening of MSEs based on creditworthiness. Similarly, MFIs have high default rates and low rates of loan collection and recapitalization.

3.1. TVET Training

After the National Technical and Vocation Training strategy was introduced in 2008, TVET colleges have received more attention as centers for producing young graduates fit for the demands of the labor market. As a result, the number of TVET colleges in Ethiopia has rapidly expanded. Yet the TVET program in Ethiopia remained largely supply-driven, centrally planned and directed by the state. This is manifested in how the curriculum and training manuals are prepared and how the field of study is selected. This, however, does not imply that the training system is isolated from the workings of the market. For example, more than 180 technologies have been identified for training based on an analysis of a market-oriented value chain.

The main objective of the TVET system is to produce young experts proficient in skills demanded by the industrial sector. In this sense, TVET, while instilling the skills required for industrial growth, largely aims to feed the wage employment sector as opposed to the self-employment sector. This, however, appears to be gradually changing as the formal labor market appears congested with too many young graduates, resulting in lower real wages and unattractive employment conditions.

Recognizing the increasing saturation in the labor market, young TVET students are slowly changing their perceptions of the importance of self-employment. In parallel, TVETs are progressively revising their teaching systems to produce young aspiring entrepreneurs capable and ambitious enough to start their own businesses. Due to large capital and knowledge requirements, these entrepreneurs are more likely to start out in the MSE sector. Indeed, anecdotal evidence suggests that technical skills acquired through TVETs are increasingly translated into entrepreneurial acumen in wood and metalworking, machinery services and construction.

The Micro and Small Enterprise Development Strategy (2011) also clearly acknowledges the importance of TVETs as seedbeds of MSE transformation. The following points discussed in the strategy indicate the scope of TVET involvement in assisting MSE growth.

a) Providing training tailored to the needs of MSEs with the objective of enhancing production, productivity and delivery of services
b) Offering training that can better link up MSE product and process development efforts to market demands
c) Improving information on MSEs' products and service quality through a certification arrangement.
d) Presenting relevant training, advice and support conducive for penetrating the export market, and even getting internationally recognized certificates such as

ISO.

This study is not aware of a rigorous study that attempted to explore the link between TVET and MSE performance. Most studies on TVET examine the issue from the perspectives of analyses of wage employment and educational systems (e.g., Irina and Krishnan, 2012). A possible exception is the mapping work of TVET by Edukans Foundation (2009). The study provides a detailed overview of TVET in Ethiopia, though it still falls short of connecting TVET with MSEs (this is understandable as this was not the objective of the mapping exercise). Below the main shorts of TVETs based on the Edukans Foundation (2009) are analyzed.

TVET Trainer Capacity: Trainer capacity is a major determinant of quality of training for TVET. Since TVET mostly teaches practical skills to be used directly in production or the quality control process, the teaching capacity of trainers is determined by their own experiences not only in the knowledge they acquired from school but also in being involved in real production-related tasks. A challenge, however, is the practical expertise of trainers at many TVET colleges in Ethiopia. Many trainers are also from an earlier generation of teachers with low flexibility to work with new curricula, equipment and advanced teaching styles.

However, it has recently been said that younger and more capable trainers have been recruited to teach at TVET colleges. But often due to low incentive levels, labor turnover appears to be a problem.

Availability of Training Materials: As discussed above, training materials are usually prepared on the basis of a TVET curriculum. The most important issue in training materials is their ability to easily communicate scientific knowledge to trainees and being up to date and accessible to all. The materials are often prepared with market demand in mind. Training materials also appear to have a good reach across TVET centers across the country. Content-wise, however, the materials are designed based on teaching skills that might be suited for wage employment but less so for operating a start-up. In particular, the existing TVET system fails to provide training in complementary skills in entrepreneurship, management and financial literacy. For example, a TVET course teaches technical skills that are vital for young graduates to understand what and how to produce, but without adequate managerial skills, whether TVET graduates can efficiently lead MSEs is in question.

No. and Quality of Training Facilities: The mapping report by Edukans Foundation (2009) argued that the number of training facilities in Addis Ababa was insufficient. Quality-wise, such institutions seem to suffer from the absence of basic services that would make training more pleasant and possibly highly productive. In addition, parts of the building where the training is conducted appear old and unsafe, and

often devoid of basic amenities. For example, a report said "most institutions lack ventilation and safety features, workshops, and in some cases latrines for trainers and trainees. There are problems in relation to maintenance and security of equipment."

3.2. JICA Training

Drawing from the East Asian experience the importance of multifaceted innovation for industrial transformation and linking such innovations with better and established management practices, JICA and EDRI offered training for MSEs operating tailoring services, ready-made clothing stores and shoe manufacturing in 2008.

The training program was designed and delivered by highly experienced business consultants from Japan. The trainers had vast experience delivering similar training to MSE operators in other developing countries including Kenya, Indonesia, Vietnam, India, Malaysia and Thailand. Ethiopian advisers were employed to provide translation and facilitation. Through the training, the hope was that MSEs would acquire basic skills necessary to run operations more efficiently.

Before the training began, advertisements on the training were posted and flyers distributed in major market places in Addis Ababa. An orientation session was held in November 2008 to explain the aim and contents of the training to interested MSE operators. Willingness to participate in the training was solicited using a registration form, which also served as an application. Training was subsequently offered in December 2008. Participants were drawn from MSEs active in shoe and garment production.

Of all potential applicants, only 110 entrepreneurs registered, and under 90 showed up for the orientation secession. Despite the low turnout, the participation rate for those who attended at least one session remained high. For example, the average attendance rate among shoemaking MSEs was as high as 85.7 percent and about 85 percent for those in garment producing MSEs (Abebe and Sonobe, 2012). This high attendance rate was achieved without extra incentives, suggesting that participants were not disappointed in the training sessions and continued showing up day after day. For example, certain participants initially thought that the training might be one of several activities funded by aid agencies as a show with no practical relevance for trainees. After attending a few sessions, however, they realized that the instructors were teaching useful and practical management practices, so they changed their minds and continued attending.

MSE entrepreneurs who received the training were taught three modules on entrepreneurship, production and financial management. The main objective of the training was to equip entrepreneurs with basic skills required to run their businesses

efficiently Entrepreneurs were mainly taught entrepreneurship, business strategy and marketing management conducive for a better understanding of their businesses in the first module. The second module on quality and production management mainly taught how to improve the workplace and raise business competitiveness through the widely used tool 5S. The last module on financial management emphasized the importance of bookkeeping on all financial transactions and introduced the concept of inventory management. Entrepreneurs were trained to take regular physical inventory and keep timely information on inventory and changes in it, and the manufacturing cost per each product unit.

Abebe and Sonobe (2012) evaluated the effectiveness of this training and reported three major findings in relation with micro and small enterprises (MSEs). First, MSE operators are reluctant to participate in management training even if the latter is offered free of charge. More educated and experienced entrepreneurs, who are better suited to understand the training's substance, were more willing to attend. Second, training participation contributed to better business practices such as recordkeeping, advertising and arranging machines in the order of the production process. This suggests that the training significantly changed the way a business was operated. Third, the training's effects on productivity and sales volume were less visible across MSEs, either from the lag effect whereby training benefits on financial indicators could appear after some time or from the result that the training's nature was inappropriate for MSEs.

3.3. Entrepreneurship Development Program

The Entrepreneurship Development Program (EDC), financed by the U.N. Development Program, supports MSE growth in Ethiopia and appears to be the biggest initiative aimed at implementing strategies that speed up the growth of MSEs into medium and large-scale operations. Achieving a transformational impact is predicated on the notion that strengthening institutional capabilities in implementing entrepreneurship and business development will greatly enhance private sector capacity in general, MSEs in particular. This objective, in turn, will to be met through a new organization for implementing entrepreneurship training and provision of customized services in business development to startups and existing MSEs in the country.

The business development center or entrepreneurship training center has its national headquarters in Addis Ababa and five regional offices (Addis Ababa, Amhara, Oromia, Tigray and Southern Nations). These regional offices are tasked with facilitating and coordinating training for and provision of business advisory services and report to headquarters.

The EDC is a quasi-government entity headed by a CEO who manages the centers.

The activity is coordinated with FeMSEDA and management directly reports to the Ministry of Urban Development and Construction (MoUDC). This is intended to complement and consistently align the activities of the entrepreneurship development centers with existing goals and initiatives of the public sector as well as existing private sector activities in entrepreneurship. Under the overall guidance of the MoUDC, the CEO receives and utilizes advisory support from international experts or consultants on the setup and operations of the appropriate model at the center.

The CEO runs the project daily under the guidance of the MoUDC and reports to FeMSEDA on behalf of the project steering committee within the constraints laid down by the Steering Committee (SC). The SC has a technical committee appointed from development partners, key government ministries, the private sector, academia and other non-state actors. This committee reviews the policies and operations of the project, provides regular reports to the overall SC and ensures project quality assurance. In this capacity the technical committee supports the project SC in monitoring functions. Additional specific responsibilities will include ensuring that beneficiary needs and expectations are being met or managed; risks are being controlled; the project remains viable; internal and external communications are working; quality management procedures are properly followed; and the project steering committees are followed and revisions are managed in line with the required procedures. As stakeholders, the Ethiopian chamber of commerce and sectoral associations, MFI representatives, professional associations with strong links to entrepreneurial traders, and universities and trade schools will be involved in several stages of the project's implementation.

The EDC business assistance framework targets both new and existing MSEs with high growth potential. Those operating in manufacturing, import substitution, exports, construction, agro-processing, textiles and leather are considered priority sector businesses and receive more EDC support.[16)]

It might not be proper to evaluate the EDC program at the moment as it is in an inception period. However, a few comments can be heard from many Ethiopian MSE experts: There is room to be developed in analysing the status of MSEs before the launch of the program. It has not developed in the training differentiation for each industry and has not met the demands of the industrial fields.

16) EDC announces that EDC's services are broadly divided into five categories such as followings (undated): Entrepreneurship Trainings, Training of Trainers, Training of Local Business Development Service Advisors, Business Development Service (BDS) at different stages of interventions, and Supplementary Business Development and Management Trainings.

4. Main Challenges in Transiting into Large and Strong Companies in Ethiopia

Ethiopian MSEs may face several challenges that prevent them from developing into large and successful companies. The following four major challenges are worth analysis:

a) The training systems reviewed by this research do not seem to discriminate between businesses run by growth-oriented and capable entrepreneurs and those motivated by survivalist strategies in Ethiopia. The universally same policy has been carried out on the two groups. But Ethiopian policies and support services have not differentiated between more dynamic businesses with the potential to grow to medium and larger companies and those that are simply implementing a self-survival strategy. To facilitate such a business transition, a coherent set of strategies is needed to respond to different constraints faced by the two distinct groups of businesses at different stages of development. In other words, capacity building policies targeting survivalist MSEs will be different from those for dynamic MSEs, but they are also likely to differ based on varying dimensions of business evolution over time and across enterprises.

b) This study's review also found no adequate programs of specialized training tailored to the particular needs of MSEs in Ethiopia. As a result, the capacity-building support system fails to reach the right group of businesses with potential for import substitution and even export. As in many countries, employment growth and job creation are concentrated in large companies in Ethiopia, and so the greatest benefit from MSEs can be obtained when they can grow and develop into larger-size companies or act as sub-contractors for large companies.

c) The provision of training both at the regional and federal levels appears similar in intent and content. The lack of providers of specialized training services and centers for different types of entrepreneurs will continue to pose a challenge in this regard. Since low income economies like Ethiopia have a domestic demand structure that skews production toward simpler and low quality commodities, the right strategy for business development should be selected to serve as an impetus for expansion and growth.

d) Lack of links between MSEs and larger companies is also problematic. Large companies plausibly employ more advanced levels of technology and managerial practices. The possibility of diffusion of technology and managerial practices from large companies to micro and small businesses is abridged

in the absence of supply links and worker mobility between both business types. Practicum and internship programs can fill in this missing link and thus stimulate MSEs to get practical knowledge through observation of production and management arts. Except for internships at TVET institutions, this study is not aware of other training and non-training intervention adopted to offer opportunities to MSEs.

While these support programs are important to expand business growth and transition opportunities, a dilemma arises in providing unfettered and indefinite support to MSEs. In the Ethiopian context, for example, businesses whose capital reaches 1.5 million birr are considered to have moved out of the MSE category. This change in their business status automatically excludes them from continuing to benefit from MSE support programs. In principle, their transition is to be rewarded with new working premises and relevant training. Other anecdotes, however, suggest that MSEs are increasingly reluctant to part with their support system even if they have moved up to the larger size category, like the medium size group.

For example, the Addis Ababa Micro and Small Enterprise Development Bureau in 2014 reclaimed land and working premises from more than 400 micro and small businesses that were presumed to have graduated to the next size category up. The appropriated working premises and land were redistributed to novice entrepreneurs on the basis of equity considerations. According to the bureau, the entrepreneurs had benefited from strong public support over the last five to seven years, and have developed into medium-size industrialists. This success, however, means that they must return their working premises and land to the government. To the government's credit, most entrepreneurs are made aware of the conditions to move out of state-provided working premises once they graduate to a bigger size category a priori. Nevertheless, fears remain over the decision to terminate state support for businesses once they graduate. A brief review of these issues is below:

Medium companies Require Larger Plants and Working Premises: Larger size means a greater demand for working premises. In an increasingly congested city, land located in close proximity to the industry's input and output market at reasonable price requires strong political will and implementation capacity.

Agglomeration Effects: Several benefits can be derived from co-location or agglomeration associated with lowering transaction costs and information asymmetry. Social ties built on the basis of geographical proximity over a long period of time can suffer when businesses involuntarily have to move out of their clusters. Relocation implies the need to reestablish networks that would incur higher transaction costs associated with raw material procurement and product marketing. One way of attenuating the negative impact of relocation is forming clusters and industrial

zones. While such zones are increasingly being built by the Ethiopian government, it is doubtful that medium companies that transited from the MSE sector can meet the criteria for joining the zones, including lease payments and export requirements.

Training Relevancy: As in any form of knowledge, the availability of information about content and quality of training often determines acceptance of or demand for the training. While a greater scope for acquiring knowledge is apparent in Ethiopia, it is not clear what forms of training are more suitable for MSEs that are moving up to the medium size category.

Niche Markets: Competing in a congested market by producing low quality consumer goods is hardly an indicator of growth and graduation prospects of MSEs. The ability to find niche markets, in contrast, holds significant growth potential and the possibility of developing into a medium size company. Penetration into niche markets does not necessarily imply the production of innovative products. While product improvement is beneficial on its own, niche markets might be conquered by selling the same product using alternative marketing channels and joining new and larger business networks. Businesses able to sell in niche domestic and export markets will enjoy rapid growth and transformation potential. While successful transitions of Ethiopian businesses from micro to large corporations are few and far between, anecdotes show that those embedded in niche markets might move up to larger groups.

Subcontracting for Large Companies: Selling to large and stable companies present greater potential for growth and expansion. This allows for diffusion of technological and managerial knowledge and practices from the larger to smaller company, and induces an orientation toward a growth strategy rather than one for survival. The business landscape in Ethiopia is characterized by low levels of interaction between a few large companies and countless micro and small businesses.

Responsive Public Policy: Facing such new challenges, transiting businesses require a new way of thinking on the side of policymaking and implementing agencies. Since such companies are not large enough to qualify for all subsides and support systems provided to large exporters, an innovative way of providing reasonable incentives is needed to enhance their growth. On the other hand, since the companies are not small enough to operate outside of the radar of authorities, caution must be exercised in administering rules and regulations on business operations in the country. For example, care is needed in taxation as taxing too much and too quickly can send transiting enterprises back to the MSE sector or informal business operation.

5. Korean Experience in SME Capacity Building[17)]

The Korean experience in training micro, small and medium companies can serve as an example of internal capacity building. A review of training from central government organizations to regional public entities will be followed by the lessons that could be applied to Ethiopia.

5.1. Small Business Training Institutes (SBTIs) under Korean Central Government

First of all, readers should not misunderstand that this Korean institute is mainly for small enterprises. Despite its name, the institute mainly trains medium or large companies in the Ethiopian context. Half or more of the trainees are businesses with more than 100 employees. The following section will mention key factors where lessons can be learned.

Also, the institute has played a proper role in a series of systematic support systems where the Small and Middle Business Administration and Korean Small Business Corp. work together[18)].

5.1.1. History of SBTIs

Korean experts say SBTI is the country's lone think tank focused on technology training and the best training institute for SMEs in Korea (KIET, 2008).

5.1.1.1. Four STBIs Founded in Order since 1982

Korean SMEs can get training at four SBTIs: Ansan SBTI in Gyeonggi-do, Honam SBTI in Jeollanam-do, Daegu-Gyeongbuk SBTI in Gyeongsangbuk-do, and Busan-Gyeongnam SBTI in Gyeongsangnam-do.

The four institutes were not founded at the same time. Korean policymakers sought an efficient way to invest in training institutes despite a tight budget. Seeing the performance and success of the Ansan SBTI for more than ten years, they decided to launch the other three SBTIs.

17) In this part, SME will follow the Korean definition and context. This part is based on SBTI (2012), SBTI internal papers, KIET (2008) and UIRI (2006).

18) For more information, please see Won and Wole (2012) and Oh and Baek (2014).

〈Table 2-3〉 Status of Four SBTIs

	Ansan SBTI	Honam SBTI	Daegu-Gyoungbuk SBTI	Busan-Gyoungnam SBTI
Land	180,698m^2	32,949m^2	43,448m^2	58,741m^2
Building	42,912m^2	8,367m^2	8,569m^2	9,368m^2
No. of Practice & Lecture Rooms	78	13	12	12
Foundation	Oct. 1982	Sept. 2001	Nov. 2003	Oct. 2004

Source: SBTI (internal paper).

5.1.1.2. 1.2 Million Trainees since Foundation

The number of SBTI trainees in 2014 exceeded 40,000, a huge jump from more than 4,000 in 1982 when the program was founded. The average increase of the number of trainees is around ten percent per year, which means the figure has shot up about four times every 15 years. A combined 1.2 million trainees have been trained at four SBTIs since 1982. The number of SMEs trained at SBTIs is around 130,000, which means about ten trainees per participating business.

5.1.2. SBTI Characteristics

SBTIs whose aims are to foster qualified personnel and enhance the practical application ability of SMEs have a few characteristics differentiated from other public or private institutes offering SME training.

5.1.2.1. Mainly Targets Strong or Promising SMEs

The targets of SBTI training have not been all SMEs since the program's foundation. SBTIs chose a focus area of training, namely promising or strong companies of a scale larger than small. One of the goals of SBTIs is to support trained companies that move up to the category of bigger or stronger companies.

So the Ansan SBTI focused on targeted CEO trainees when founded in the early 1980s. Since the 1990s, middle managers and technical experts have been targeted for SBTI training. Junior technicians or apprentices have been excluded from the training.

The differentiation in SBTI training targets can be detected in the size of companies trained. Micro or small businesses with fewer than 50 employees comprised just

a quarter of those that underwent SBTI training as of 2007. Medium ventures with more than 100 employees comprised more than half of trained companies (KIET, 2008).

〈Table 2-4〉 Size Distribution of Companies Trained in SBTIs (2007)

No. of employees	Under 50	50-100	100-300	More than 300	Sum
Distribution ratio (%)	25.3	19.6	34.5	20.6	100.0

Source: KIET (2008).

5.1.2.2. Focused on Technological Development and R&D that Private Training Institutes Cannot Handle

More than a third of all training courses in SBTIs were on technological development and R&D (UIRI, 2006), far higher than the average 7 percent of private training institutes.

〈Table 2-5〉 Ratio of Training in Technological Development and R&D at Big SME Training Institutes in Korea

	SBTIs	KMA	KPC	KSA
Ratio (%)	34.6	9.8	4.7	7.3

Note: KMA: Korea Management Association, KPC: Korea Productivity Center, KSA: Korea Standard Association
Source: UIRI (2006).

Private SME training institutes tend to focus on training types using the format of open lectures and seminars, not that requiring many pieces of high-tech practice equipment. This is why SBTIs focus on the supply of technological development and R&D, which is relatively insufficient in the private SME training market. SBTIs are investing KRW 1 billion (about US$1 million) for practice equipment.

5.1.2.3. Various Training Methods Used

SBTIs operate four training methods to offer more opportunities to SMEs. Training is customized for each venture.

- Customized training is based on the needs, technology and business problems of a company. SBTIs handle from design of the customized training to implementation.

- Onsite training seeks to solve a problem at the place and time desired by the company. Either a technological or business problem can be discussed and solved in training.
- Distance training covers 370 courses in more than 30 modules with help of smartphones and the Internet.
- Collective Open Training allows a trainee or company to choose from one of 187 courses in 15 modules.

5.1.3. Big Pools of Qualified Instructors with Evaluation

5.1.3.1. About 8,500 Outstanding Instructors

The instructors are mainly composed of external experts who numbered more than 8,400 persons as of 2014. This is because the training SBTIs offer greatly vary and training using external experts as instructors are more efficient and timely because of a lot of new or abolished courses based on the annual performance evaluation of each course.

Trainee satisfaction scores for instructors are high at 4.5 out of five stars, showing an upward trend on the whole over the past five years.

〈Table 2-6〉 Trainee Satisfaction Scores for SBTI Instructors

(Unit: points out of five)

2010	2011	2012	2013	2014
4.275	4.364	4.456	4.480	4.465

Source: SBTI internal paper.

5.1.3.2. High Pay for Instructors

The instructors are paid based on their grades as evaluated by individual capacity or work experience. The grade comprises the four degree levels of special, first, second and third. No matter the grade, an instructor is paid at the highest level in Korea. SBTIs put no limits on the fees for a degree instructor who formerly worked as a vice minister, university dean or higher. First to third-degree instructors get paid KRW 90,000 to 110,000 per hour, or US$90-110. The amount is 130 to 250 percent of the pay for a part-time Korean lecturer with a Ph.D for a lecture at a four-year university located in the Seoul metropolitan area.

5.1.3.3. Persistent Evaluation and Feedback on Instructors

SBTIs operate the system of "three strikes and you're out." If an external instructor gets a low performance evaluation for nearly one year, he or she is let go. Under the system, five instructors were fired from SBTIs in 2014 and ten in 2015. The evaluation has a quantitative area with the number of courses and trainee satisfaction scores of an instructor, as well as a qualitative area with the instructor's expertise and contribution to SBTIs.

SBTIs also present opportunities to develop instructor capacity. Through workshops for instructors, cutting-edge technological trends or related information and opportunities for information exchange between instructors are offered. They also develop and offer contents for development of teaching techniques and strategy that the instructors can use on smartphones or online.

5.1.4. Developed Training Programs and Manuals based on Circumstances, Needs and Evaluation

5.1.4.1. Program Development based on Changing Circumstances and Trainee Needs

The training programs of SBTIs have been continuously changed and developed in accordance with trends in the economic and technological environments as well as the needs of trainee people and companies. The changes can be reviewed over three periods since SBTI's foundation: the early era after foundation (first period), the 1990s (second period) and since 2000 (third period). The following is a summary of the history of the program's development based on KIET (2008) and this study's analysis.

With higher instructor capacity and government support as well as the specified needs of trainees and development of IT circumstances, training programs have developed from uniform to departmentalized and specialized, and programs are customized for each entity and region. Also, the program's goals have developed from capacity building for each trainee to specific problem-solving through case studies and discussions.

A great change has been seen in targeted trainees. In the first period, a CEO, the most important person of an SME, was the targeted trainee of SBTI programs. SBTIs and the Korean government needed to maximize the efficiency of SBTI programs when national resources were scarce. In the second periods, however, middle manager was added to the targeted trainees' list and site personnel was added in the third period.

Development of the programs' targeted technology occurred as well. In the first period, SBTIs had no rooms to combine training for catching up with the latest technology and that for high-tech applications. Since the second period, however, SBTIs added training for the application of cutting-edge technology and core (root) technology,[19] respectively, thanks to confidence in successful training programs and accumulated technological development in Korea.

〈Table 2-7〉 Development of SBTI Training Programs

	Early period of foundation (1st period)	1990s (2nd period)	Since 2000 (3rd period)
Overall program (with goal of program)	- Uniform program - Capacity building of each trainee	- Departmentalized & specialized program - Problem solving through a case study and discussion added	- Customized program fitted to each business & region - E-learning program added
Targeted trainees	CEO & Select Middle Managers	Middle managers added	Site personnel added
Targeted technology	Catching up with latest technology	Application of cutting-edge technology added	Application of core (root) technology added

Note: Modified based on SBTI internal paper.

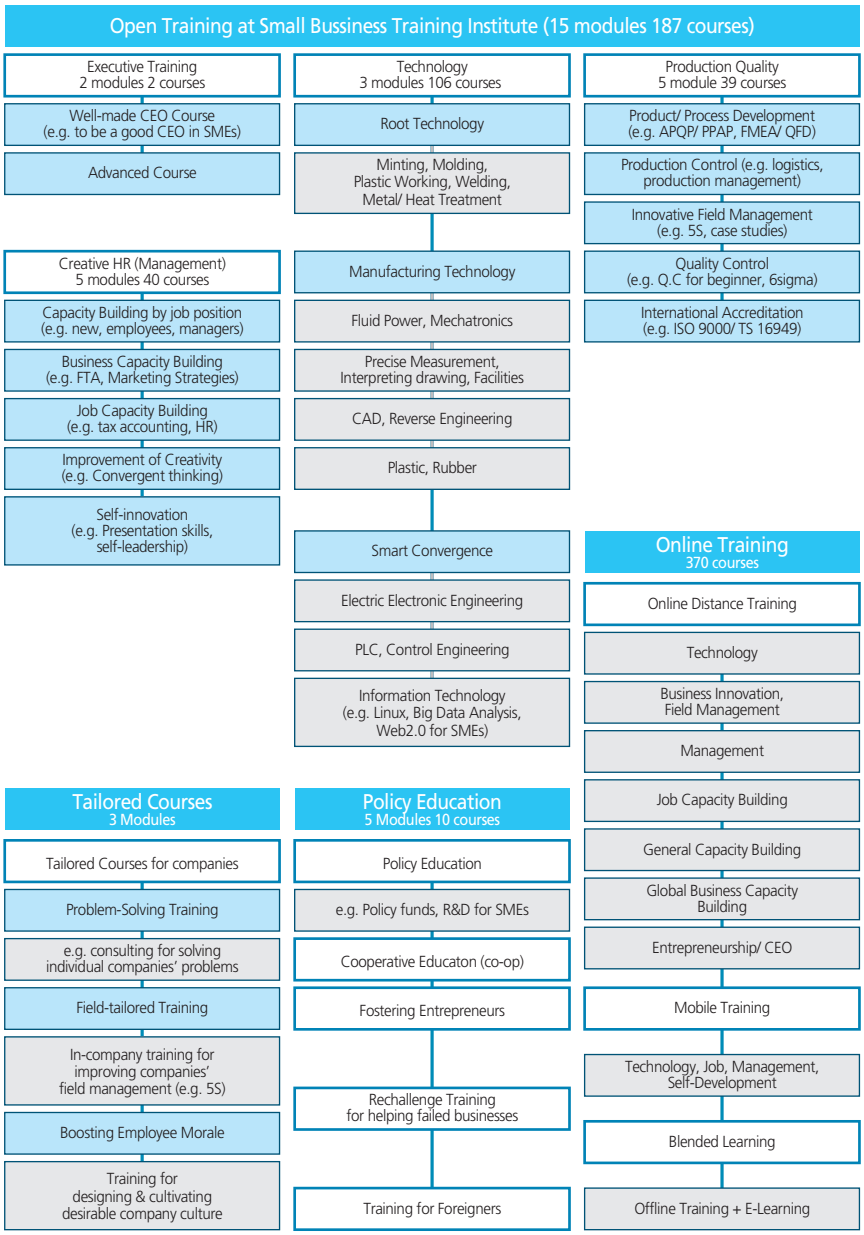
5.1.4.2. Balanced Training Programs Focused on Technology

SBTIs in 2015 offered 53 modules and 567 courses for SME training. The modules and courses cover all fields in SME training, but the main focus is technology, which accounts for about 40 percent of all courses, followed by business management with 30 percent, production quality and management with 25 percent, and others with 5 percent.

When categorized by international technological level, the courses can be divided into beginning accounting (about 30 percent of all courses), intermediate accounting (50 percent) and advanced accounting (20 percent). That is, SBTIs offer various training for application of cutting-edge technology down to catching up with the latest technology.

19) Core or root technology (*bburi-gisul* in Korean) refers to key technology for manufacturing basic components of products including minting, molding, plastic working, welding, metal finishing and heat treatment. The level of core (root) technology is deemed a determining factor in the quality of final products.

[Figure 2-4] Modules and Courses of SBTI Training Programs (2015)



Source: SBTI (2015).

5.1.4.3. Qualified Manuals and Prompt Upgrades

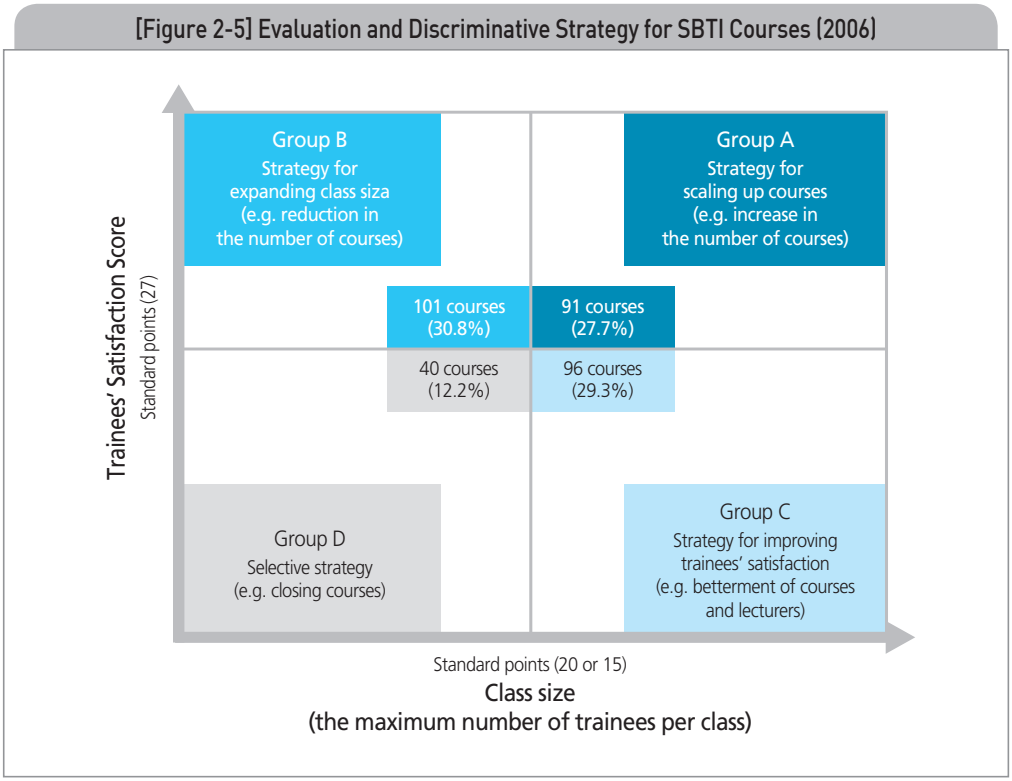
SBTIs and instructors are keen to renew and upgrade instruction manuals, as evaluation of the manuals is included in trainee satisfaction scores for instructors. If the evaluation of the manual falls, the responsible instructor or SBTI should review the reasons and upgrade and/or correct them promptly.

High pay is another reason for the high quality of manuals. No upper limit restricts pay for a manual written by a qualified instructor. A first-degree instructor can get paid up to 15,000 KRW per page, equivalent to about US$15. This can be said to be the highest payment level for writing SME training manuals in Korea.

5.1.4.4. Close, Integration and Creation of Training Courses via Evaluation

SBTIs decide the close, integration and creation of each training course using comprehensive indicators such as class size and satisfaction score each year. An example in 2006 shows that SBTIs set a standard point (score) on class size and satisfaction score for each training course, distinctions that were reflected in the four groups that were created in accordance with these criteria (see [Figure 2-5]).

[Figure 2-5] Evaluation and Discriminative Strategy for SBTI Courses (2006)



Source: SBTI internal paper and KIET (2008).

They implemented a discriminative development strategy based on the four-group evaluation. Group A, whose evaluation showed higher points both for class size and satisfaction score, followed a strategy of scaling up courses such as a higher number of courses. Group B, whose evaluation showed a higher satisfaction score but lower one for class size, followed a strategy for expanding class size such as fewer courses. Group C, whose evaluation showed a higher score for class size but lower satisfaction score, followed a strategy for improving the trainees' satisfaction score such as replacement of the instructor. Group D, whose evaluation showed a lower score for class size and satisfaction, followed a selection strategy featuring closure of a course.

5.1.5. About 3,000 pieces of practice equipment completed to satisfy rule of one piece of equipment per trainee

SBTIs own 848 types and 2,917 pieces of training equipment, the most in Korea and making SBTIs the best training institutes for technological development and R&D in the country. Trainees need not share equipment and can enjoy the training as well as technological development and application at the same time.

SBTIs have invested an average KRW 1 billion per year, or under US$1 million over the past three years. The equipment is either made in Korea or from countries with leading technology in the field such as Germany, Japan, U.S. and France.

〈Table 2-8〉 Training Equipment Inventory of SBTI (848 types, 2,917 pieces)

Sector	Laboratory	Key Equipment
Machinery (measurement)	Precision Measurement	CMMs, 3-D laser scanners, roundness testers, laser rangers, surface roughness testers, video microscopes, & projectors
	2-D CAD	CAD/CAM system, workstation PC, AutoCAD, Inventor & Hypermill
	Machinery & crafts	CNC machining center, CNC laths, CNC program controllers, & other general purpose machinery
Metal heat treatment	Material experiments	Scanning electron microscopes(SEM), X-ray fluorescence spectroscopes (XRF), Rockwell hardness testers XRD, Spectrometer, Vickers nano-indentation testers, ultrasonic fatigue tester, Vickers toughness testers , Brinell hardness testers, metal universal testing machines, optical microscopes
	Plating, heat treatment	Pilot system for plating, neutral salty spray testers, electric, tube, (high temperature) vacuum furnaces

〈Table 2-8〉 continued

Sector	Laboratory	Key Equipment
Electrical & electronic engineering	Electronic measurement	Spectrum, network, logic, LCZ analyzers, digital oscilloscope, electronic circuit system, & digital multimeters
	Basic electrical & electronic training	Electronic-pneumatic sequencing machines, refrigeration & air-conditioning machinery, electronic engine control system, & circuit network testers
	PLC	PLC (Master-K, Melsec, Siemens), touch screen system, & external device controllers
	PCB	PCB mounters, reflowers, screen printers, ultrasonic cleaners, UV exposure machines, & heat dissipation program
Plastic chemical analysis	Plastic molding	Injection molding machines(motor operated), Kneader, extrusion machines, hydraulic presses, SuperMixer, Mixing Roll
	Plastic testing	Flame retarding system, HDT-VICAT, spectrum colorimetric machines, UV accelerated weathering testers, IRHD, Rockwell hardness testers, moisture measurement devices, MI, TGA, Travel-IR, Rheometers, pattern viscometers, UTM, Plasti-Coder, system for analyzing filler variance, residual stress measurement devices, RPA, ICP
3D CAD	3D CAD	CAD/CAM system (Workstation), CATIA V5, NX(Unigraphics), Pro/Engineer, SolidWorks educational S/W
IT	IT	Computers with I7 processors , Internet network for education, other licenses
Automated fluid power (hydraulics, pneumatics)	Hydraulics	Hydraulic machines, hydraulic-PLC controllers, hydraulic proportional controllers
	Mechatronics	Distribution & test processing experimental equipment, integrated process controllers, storage process controllers, manufacturing process controllers, conveyor training equipment
	Pneumatics	Pneumatic machines & controlling PLC equipment
	Robots	Combined type 3 axes Cartesian coordinate robots, horizontal multi-joint robots
	Plant maintenance	Hydraulic proportional direction, flux, pressure controllers, servo motors, digital pressure gauges
	Automatic assembly	Free Flow Conveyor automatic assembly machines, Roller Gear Index-type automatic assembly machines

Source: SBTI home page - written in Korean (http://sbti.sbc.or.kr/sbti/ir/ST_IR0190R.jsp).

5.1.6. Training Link with Large Business

Another important lesson from SBTI training is their links to a large company in training. With the participation of a market leader, the SMEs in training can grasp the needs and wants of the market as well as why the large company leads the market.

Such links can also give SMEs opportunities to experience and a chance to obtain advanced technology from the large company, which can stimulate further technological development and meeting market needs. SBTIs expect such links to make SMEs bigger or stronger. The following is an example of the training's links with a large company, LG Electronics.

〈Table 2-9〉 Example of Training Links with Large Business

Outline and Goal	Ansan SBTI and LG Electronics have jointly created and managed cooperative SME training programs to increase links and cooperation between a large corporation and SMEs and enhance SMEs' technological development since 2005.
Training Target	Select (10-20) subcontractors of LG's Terminal Department and a few would-be subcontractors (if applicable)
Training Period	Six months to a year every year
Training Program	Learning and evaluation to get LG's internal license for injection molding authentication test
Role allocation	- SBTI: program design, support for instructors, implementation and management of the test, provision of training places - LG Electronics: management of training schedule, provision of training equipment and participation incentives to trainee SMEs by offering additional points - LG Chemical: Creation of curriculum and manual, support for instructors, evaluation of the test
Performance	- Thirty-five percent passed the test (exceeding existing average) - Sharp decline in the error rate of trained SMEs from 20 percent to 4 percent (average of four SMEs whose error rate was the highest)

Source: KIET (2008).

5.1.7. Outstanding Performance

5.1.7.1. Significant Enhancement in Output and Outcome of SBTI Programs since Foundation

SBTI performance has continuously showed a big increase in output and outcomes since its foundation. The following is changes of performance of the Ansan SBTI, the flagship institute of SBTIs.

First, the number of training courses sharply increased from under 40 in 1983 after foundation to more than 550 in 2014, a jump of more than 15-fold. A big jump was also seen in the number of trainees from around 4,000 to more than 40,000, growth of nearly ten-fold. But the number of internal employees has fallen to less than half of that in 1983. This is because SBTI instructors are mainly external staff, and on the whole, internal employees have worked efficiently with the integration or close of internal organizations.

As a result, SBTIs are said to run their own businesses, as seen in the sharp rise in their financial independence rate from around 15 percent in 1992 to 100 percent in 2014, excluding the amount for building extension and alteration and 62.1 percent if that amount is included. Equally, the trainee satisfaction score as a comprehensive outcome indicator shot up to around 90 percent in 2014, or 4.5 out of five stars.

〈Table 2-10〉 Change of Performance of Ansan SBTI

	1983 (A)	2014 (B)	A → B
No. of training courses	37	567	15.3 times
No. of trainees	4,100	40,230	9.8times
Financial independence rate (%)	15.7 (1992)	100 * (62.1)	84.2p ↑ (46.4p)
Satisfaction degree (5-point scale)	4.000 (2001)	4.465	0.465 ↑

Note: The rate of 100 percent excludes the amount for building extension and alteration, and 62.1 percent is if that amount is included.

Source: SBTI internal paper and KIET (2008).

5.1.7.2. Best as Central Public Institution among All Korean SME Training Centers

Most experts agree that SBTIs are the best among all public and private SME training institutes in Korea, and the Korean government confirmed this through an official evaluation. The Ministry of Labor and Employment surveyed around 200 training institutes that ran government-approved courses in 2006, and SBTIs were placed in the best grade (A) group.

5.1.7.3. Training Requests from Abroad

SBTIs are also receiving many requests from abroad for training development and cooperation. Not only developing countries such as Southeast Asia and Eastern Europe but also emerging economies such as China, India and Russia have sought development and cooperation with SBTIs. In 2013, the chairman of a Japanese committee for small and medium companies visited an SBTI in Korea, and praised the training system as being ahead of Japan's by as many as ten years.[20)]

5.2. Regional SME Institutes under Regional Governments[21)]

This research aims to propose lessons and policy recommendations for the Ethiopian government. A few case studies from the Korean experience at the local government level will be mentioned here. This information will prove valuable to Ethiopian policymakers at the central or local government level.

5.2.1. Various Types of SME Training based on Regional Governments' Circumstances

All 17 regional governments in Korea operate SME support centers, but each government operates its SME training system based on its area's circumstances. First, just one regional government (GSBC Academy[22)] in Gyeonggi-do) has training courses presented in a separate training institute. The second type is presenting training courses without a separate institute, and this is most common among regional governments in Korea. The last type offers a few focused courses without a separate institute and is often seen in Seoul.

20) Quoted from an interview with the head of SBTI Ansan in Jan. 2015.
21) For more information on Seoul regional government and Gyeonggi-do regional government, please see www.sba.seoul.kr/eng/index.jsp and en.gsbc.or.kr/front/eng/index/NR_index.do
22) Gyeonggi Small Business Center Academy, which is a separate SME training institute under GSBC

5.2.2. Training for Preparatory Startups and Microenterprises Executed by Large Regional Governments

In Seoul and Busan, Korea's two biggest cities, training for preparatory startups and microenterprises are carried out because many young people live in both cities and dynamic economic activities are to be seen in the two.

5.2.3. Focused on Training Customized for Locally-based SMEs

Compared to their central government, regional bodies in Korea tend to focus on training customized for SMEs based in the provinces. For example, Incheon is Korea's second-biggest port city, near China and home to Incheon International Airport, so the city's core focus is on training for beauty and design SMEs. In Jeollanam-do, which has wide coastal plains in the southwestern region part of Korea, training for the agro-fishery industry is used to promote SMEs there.

5.3. Lessons from Korea's Experience

Based on the above experiences in Korea, Ethiopian policymakers can draw the following lessons that are applicable to Ethiopia.

5.3.1. Aggressive New Training in Technological Development Needed to Promote Strong Manufacturing Industry

To make Ethiopian MSEs bigger and stronger, an aggressive training program under a capacity building policy is needed to be launched separately from existing training programs. This is possible via the acquisition of high technology application of new technology and development.

Teaching outdated technology to apprentices like present training is doing is pretty useless. This could simply be a passive way of training adequate to support a family. So the recommendation is to launch a new training program focused on technological development and application like SBTI training in Korea.

5.3.2. Phased Development of Training Programs

Korea experienced a lot of trial and error in implementing training programs under a capacity building policy. This is why four SBTIs were set up over a 20-year period. SBTI coverage of targeted trainees was not wide from the period after foundation, as trainees were mostly CEOs. Coverage was later expanded to middle managers and onsite employees as the training system was developed. The evolution of SBTI training programs also followed a similar process. SBTI training started with a uniform training

program but was developed into more specialized and customized courses.

So now is the right time for Ethiopia to adopt a new SME training system customized for each manufacturing industry, specialized in technological development and different from existing training programs. Under the new training system, the targeted trainees should also be CEOs or middle managers. Yet, Ethiopian policymakers are advised not to launch too many new training programs or centers at the same time.

5.3.3. User-centered Training Needed via Persistent and Objective Evaluation

The Ethiopian government can apply the training evaluation method used by Korean SBTIs, mixed with quantitative and qualitative methods and followed by a discriminating implementation strategy suited for each result of the evaluation. Based on the evaluation, training courses should either be closed or integrated. The "three strikes, you're out" system of SBTIs can also be applied to find qualified instructors in Ethiopia.

Ethiopian policymakers should mix business and technology training, which can lead to customized business training for the related manufacturing sub-industry.

Sufficient supplies of practice equipment should be provided for trainees per the SBTI practice in Korea. A trainee cannot apply what he or she has learned in training at work if access to practice equipment is lacking. More importantly, the Ethiopian government is encouraged to present trainees with new technology just as much as the trainees can absorb new training. But the government needs to possess higher technology to present to trainees who need more after the original training at a new training center. Then trainees can visit the new center whenever they need new technology, as Korean SBTIs used to instruct trainees.

5.3.4. Self-sufficient Training Program Using External Resources Needed

Links with a large corporation in a new training program is highly encouraged for Ethiopian MSEs to promptly respond to the needs and wants of the market, as well as adopting new technology to meet them. A case study to learn from is SBTI's links to LG Group.

SBTIs can be self-sufficient through expansion of word of mouth that business problems can be solved. The financial independence of SBTIs hit 100 percent in 2014, up from around 10 percent in 1992, as training revenue skyrocketed.

5.3.5. Shared Role between SBTIs and Local System with Exceptions

In Korea, SBTIs under the central government tend to focus on training for strong manufacturing SMEs, while regional governments tend to focus on training for locally-based businesses and start-ups. The Ethiopian government is encouraged to allocate the SME training role between the central and regional governments.

Exceptions to the role sharing in Korea could be seen, in that the central government strategically supports startups owned and operated by young entrepreneurs with new technology or business ideas. Few regional governments are also likely to present general training for general SMEs not based in their regions. This seems so because the training centers under regional governments want to make them bigger institutes like SBTI through more courses and budget.

6. Outline of Policy Recommendations

A systematic plan or strategy is needed for Ethiopia to develop MSEs. The Ethiopian government as well as partner countries like Korea has presented a few plans or strategies to that end

The Ethiopian government (2011) presented an MSE development strategy, definition and level of development, frameworks for MSE development support and implementation mechanism of the strategy.

In 2011, the KSP project (Won and Wole, 2012) suggested the following as developmental directions for Ethiopia: identify (informal) microenterprises; impose a mandatory loan requirement; collectivize MSEs; provide technical and business education; offer business consulting services using retired experts; strengthen public relations of MSE support institutions; form links with universities and think tanks; compile regular MSE statistics and establish an MSE-only think tank; separate MSE policymaking from implementation; set up public export-supporting financial and marketing agencies; organize MSEs by industry, region and nationally; establish MSE-specific financial institutions; avoid the institutional growth trap; and finally, create a business-friendly environment.

Oh and Baek (2014) presented eight policy recommendations for supporting, developing and expanding entrepreneurship and startups in Ethiopia: 1) launch a Bizcool (business and school) program at high schools; 2) establish technical high schools separately from TVET; 3) design colleges or universities with proper infrastructure as startup colleges; 4) identify young prospective entrepreneurs with

promising ideas and technology; 5) establish business incubators for manufacturers and women-owned businesses; 6) establish a youth startup academy with one-stop service necessary for starting a new business; 7) select and designate sectors as strategic industries to provide MSE funding; and 8) set up business incubators in associations of female entrepreneurs.

This paper suggests policy recommendations and action plans applicable to Ethiopia based on prior development strategies and evaluation of existing training and the Korean experience. The suggestions below comprise the outline of policy recommendations, phased implementation plan, execution strategy and costs.

6.1. Ethiopia's Reality and Need for Advanced New Training

Though astonishing economic development has been observed over the past few decades in Ethiopia, the most basic components or items for daily life and product manufacturing are still imported from China, India and other countries. The Ethiopian government and manufacturing MSEs aspire toward raising exports and conducting import substitution. The apparent lack of internal capacity in the MSE sector, however, is keeping the Ethiopian economy from advancing. Considering insufficient resources and low technology but high demand for manufacturing development in Ethiopia, a group of promising MSEs should receive advanced practical techniques to help them develop into stronger and bigger SMEs who can advance technological development, import substitution and export promotion by themselves.

According to the literature on technological capabilities, internal capacity, including production and innovative capacity, should be acquired for MSE promotion. Ethiopian MSE experts also say training for MSEs or startups that want to be strong SMEs is essential for the development of Ethiopian manufacturing.

Existing training in the country, however, is not meeting these needs. The existing system could be summarized as ordinary training whose main goal is apprenticeship training with low technology levels. Many institutions are said to offer unorganized and undifferentiated training. According to interviews with experts on training and MSE in Ethiopia, existing training has focused on catch up based on outdated technology and fails to pay adequate attention to new technology development that Ethiopian MSEs can utilize for exports or import substitution. Also, lack of links with large and foreign businesses implies that existing training lags far behind in technological development and market needs.

Moreover, business and technology training is separated in the existing system. To this study's knowledge, specialized business training for each industry has not been offered to MSEs in Ethiopia, except in rare cases where the businesses themselves procure services from limited training providers in the country.[23] More often than not, prospective trainees cannot also distinguish a training institution from other institutions in that the curriculum everywhere seem similar. Training quality also has much room for development in that existing training lacks qualifying instructors, manuals and practice equipment essential for successful implementation of training programs.

Considering the evaluation of existing training and the economic circumstances of Ethiopia, new training systems are desperately needed for MSEs to grow into strong SMEs.

6.2. Triangle Training System: Advanced New Training Focused on Transition into Bigger and Stronger Businesses

The Triangle Training System (TTS) is an advanced new training system operated by three key actors. The first is would-be strong SMEs as demanders of high-tech training. The second is Triangle Training Center (TTC) as the supplier of that training. The last one is universities or institutes that possess high technology as well as LEs or FEs, which are strong supporters or facilitators. The TTS is differentiated from existing training in that promising manufacturers or would-be manufacturing SMEs are restricted targets as well as LEs or FEs, and universities or institutes participate in this training system as facilitators to ensure high performance and successful implementation of the training.

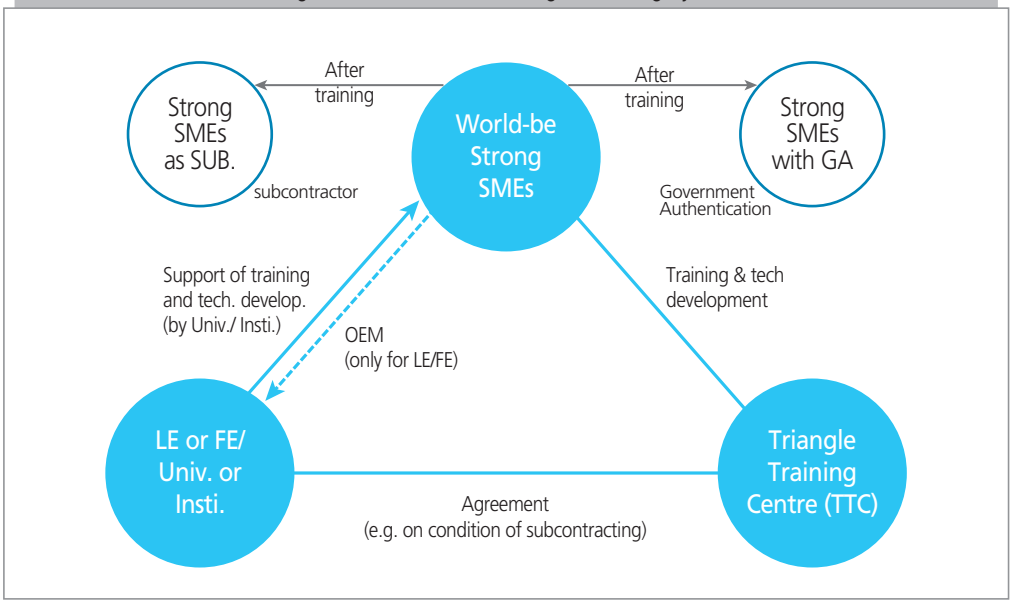
The path toward becoming strong SMEs via the TTS has two tracks. First, TTC presents targeted businesses with training in high technology and business customized for each industry by itself or in cooperation with universities or institutes. Under an agreement, a school or institute plays the role of presenter of high technology and qualified technology management. Certain SMEs who finish the TTC training could become stronger SMEs with the Ethiopian government's authentication.

Second, some LEs or FEs participating in the TTS will suggest to TTC conditions under which MSEs can become OEM[24] themselves. Under the agreement, TTC would train SMEs that want to become subcontractors as requested by LEs/Fes, and would

23) An important exception is also training programs provided by the Ethiopian Kaizen Institute, which focuses on the dissemination of Kaizen knowledge to MSEs and LMEs across the country.

24) Original Equipment Manufacturing

[Figure 2-6] Outline of Triangle Training System



offer a testing venue for the LEs/FEs, if needed. After training, SMEs that meet the pre-arranged conditions in the agreement will become OEM subcontractors for the LEs/FEs. The SMEs as subcontractors will not get official authentication from the Ethiopian Government.[25)]

Two tracks provide the way for would-be SMEs to become stronger SMEs under the TTS. SMEs receiving TTS training from TTC or the latter plus a university or institute will become an independent and strong SME with government authentication. Other SMEs receiving TTS training under an agreement between TTC and LEs/FEs will become strong SMEs as subcontractors for LEs or FEs that will participate in TTS. Below are the vision, mission and differentiated strategy of TTS.

6.2.1. Vision of Triangle Training System

- More than 200 companies will get trained at a TTC per year, meaning hundreds finishing TTS training could be reborn as stronger SMEs every year.
- Within three years after the TTS training, a brisk increase in export amount as well as import substitution could occur, which will lead the transition of MSEs into strong SMEs.
- With the advanced new training, companies of trainees would show a big

25) This idea might not be held in the implementation process. In that case, SMEs as subcontractors could also get a different official authentication from the Ethiopian Government, but the authentication for independent strong SMEs should be ranked higher than that for dependent SMEs as subcontractors.

jump in sales volume and/or the amount of profit based on catching up with technological trends as well as the development of new technology applicable to each company.

6.2.2. Mission of Triangle Training System

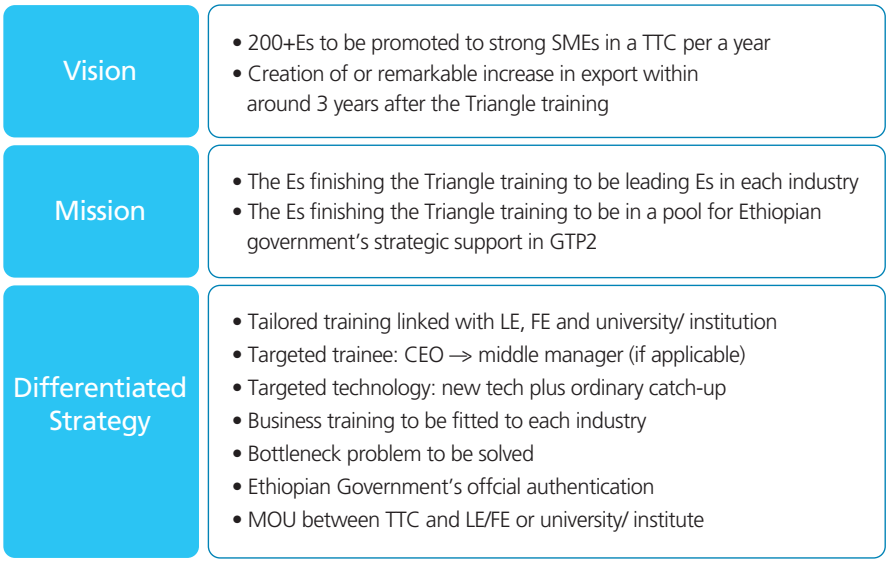
- Those finishing the TTS training will emerge as leaders in each industry.
- The Ethiopian government can use companies finishing the TTS training to form a pool for strategic support in GTP2.

6.2.3. Methods Differentiated from Existing Training Programs

- The targeted trainees of the advanced new training will be CEOs. Later, middle managers, if applicable in Ethiopian reality, can be included in the target.
- The targeted technology acquired from the training will be new technology applicable to each business beyond ordinary catch-up to existing and outdated technology.
- Business training will be presented, specialized and tailored to fit the training needs of each industry. The design of the training program will thus be preceded by a capacity gap analysis and assessment exercises are needed in each industry, including SMEs, targeting both the domestic and export markets.
- Each bottleneck problem in either technology or business management will be discussed and potential collaboration with large or foreign companies for the acquisition of advanced new training techniques will be explored further.
- The advanced new training will be tailored to each company where trainees work, based on the needs of large and foreign companies that dominantly feature in the Ethiopian market.
- The training will be linked with domestic companies and universities and institutes in the hope of nurturing, assimilating and disseminating more advanced and practical technology.
- The Ethiopian government can give official authentication and recognition to companies whose workers perform well in the advanced new training.[26)]
- An MOU can be signed between a large company or university/institute and the new TTC to agree on any condition or responsibility of each side.

26) Korean 'Best HRD Authentication System' can be a good example for authentication. For more information please see https://www.nhrd.net/index.do?menuCd=DOM_000000107001000000

[Figure 2-7] Vision, Mission and Differentiated Strategy of TTS Program



7. Action Plans

Three phased action plans on the first two recommendations are suggested based on the outline of the recommendations above. Three phases for each recommendation are commonly composed of a preparation period (Phase 1), a pilot test period (Phase 2) and an evaluation and expansion period (Phase 3). A policymaker in a developing country with insufficient resources could get higher effectiveness and efficiency for a new policy if the latter is carried out with thorough preparation, pilot test and evaluation.

7.1. Phased Implementation Plans

7.1.1. Phase 1 - Preparatory Period (One Year)

In this period, three sub-issues can be reviewed and presented. They are the plan for the whole project, measures for the Ethiopian Government's official authentication and fundraising actions.

7.1.1.1. Plan for Whole Project

- The plan for the entire project can be presented by an international project team over the one-year period. In the plan, a few subsectors of manufacturing fit for the pilot test can be confirmed, and a few businesses and a university or institute that could activate the sub-sectors can also be confirmed as instructors or helpers in the Triangle Training System.
- The plan will suggest whom the Ethiopian government can cooperate with, the manner of cooperation and managing the quality of TTS introduction.
- The business model for the TTS can be elaborately developed. The research includes a business model for the new training in that readers can see necessary action plans such as a phased action plan, goals and methods, cost and policy implementation strategy. The developed business model, however, can present Ethiopian policymakers with detailed information such as training requirements and revenue from the training, if any.
- Terms of reference on staff members and qualified instructors can be offered. Also, a guideline on monitoring, evaluation and reporting of the framework can be developed.
- An operation manual including the data above can be presented in the preparation period.

7.1.1.2. Measures for Ethiopian Government's Official Authentication

- An official government authentication can be offered by the Ministry of Industry to a trainee who has high performance from the advanced new training, as well as an SME managed or operated by the trainee. A qualification, process and effect of the authentication can be offered over the period.
- As one of the uses of the authentication, the ministry can use officially authenticated SMEs as a pool group to receive strategic support from the Ethiopian government as promising and strong SMEs over the GTP2 period.

7.1.1.3. Measures for Fundraising

- First, review and confirmation should be done on whether the Ethiopian government's own budget can be used or if it can invest jointly with an international organization or development partner countries like Korea.
- If not, the potential use of ODA can be reviewed and confirmed.

7.1.2. Phase 2 - Pilot Test Period (1.5 to 2 Years)

The second period is for a pilot test similar to a small-scale preliminary test to evaluate feasibility, effects including anticipated or unanticipated and direct or

indirect, and efficiency (Haralambos and Holborn, 2004). Over the period, six sub-issues can be reviewed and presented. The first five are for preparation of the pilot test area and invitation and training of qualified instructors, recruitment and training of staff of the new centers, development of new training manuals, research and analysis of training needs of large companies and others, and preparing the practice equipment needed. The last is execution of the TTS in a selected manufacturing subsector.

7.1.2.1. Invitation and Training of Qualified Instructors

- A maestro instructor can be invited as a general supervisor to lecture on recent trends and high technology, and give one-point guidance to MSEs undergoing difficulties in business or technological management. The instructor should be a top expert in the chosen sub-sector, fluent in English, have a sense of duty and stay at the position in Ethiopia for a few years.
- Qualified instructors from Ethiopia can be invited as paid instructors for their areas of expertise. The five areas of expertise are: general and labor management, finance and accounting management, technology development and production management, and marketing and customer management. Each Ethiopian instructor is expected to have sufficient expertise and experience in fields chosen for the pilot test. Those invited can be trained by and with the maestro instructor.

7.1.2.2. Staff Recruitment and Training

- Staff to be recruited for the new Triangle Training System will be full-time workers meeting prearranged qualifications for the positions of officer, manager and assistant.

7.1.2.3. Curriculum Development Including Manual Production

- A curriculum should be developed to meet the needs of trainees and their MSEs, and solve problems on the job. To that end, a maestro instructor and qualified trainers from Ethiopia who are familiar with recent technological trends and Ethiopian industry are highly encouraged to jointly develop the curriculum. Recent technology trends and development should be the core of the curriculum. A curriculum on business management should be developed to reflect the characteristics and circumstances of each manufacturing sub-sector.
- Manuals, the core expression of the curriculum, should be developed to satisfy the qualifications mentioned above. This study is aware of teaching materials, and manuals identified on the basis of an analysis of a market-oriented value chain in TVET, for example. The experience from the preparation,

implementation and evaluation of these manuals can be useful in the design and preparation of industry-relevant curriculum and training manuals.

7.1.2.4. Collection and Analysis of Subcontracting Needs from Large or Foreign Companies

- What large or foreign companies need for subcontracting should be collected. This is an important job that a TTC leader and staff would do as their duties. Based on such collection and analysis, an MOU between the TTC and would-be contractors would be prepared.

7.1.2.5. Completion of Practice Equipment

- The technology level of the completed practice equipment is highly encouraged to gradually improve from its present level. Globally cutting-edge equipment need not be introduced as trainees will have difficulty in learning how to operate them, and the equipment has unnecessary functions that will not be utilized.
- Also encouraged is the introduction of second-hand and easy-to-use equipment made in a trading or development partner country that offers ODA or joint investment in this project. Second-hand equipment will help lessen equipment cost and sunk costs occurred through the change in equipment after the completion. Prior experience exists in the import and use of second-hand machines and equipment by large foreign investment in textiles. This frees up investment capital to be employed as working capital and encourages manufacturers to operate at full capacity.

7.1.2.6. Pilot Test - Training as Planned in Selected Sub-sector

- The TTS will be performed as prepared in the five areas mentioned above in the manufacturing sub-sector selected in Phase 1.
- Monitoring and evaluation of the training should be performed concurrently. Monitoring and evaluation will be used in Phase 3.

7.1.3. Phase 3 - Evaluation and Expansion Period (1.5 Years)

The last period is for evaluation of the pilot test as well as expansion and upgrade of the new TTS based on the evaluation results.

7.1.3.1. Evaluation of Pilot Test

- The evaluation can be reviewed and presented by an international team like Phase 1.

- Considering the short time since the pilot test period, quantitative analysis of the performance of a trainee or his or her MSE will be tough. Instead evaluation of the trainee and MSE satisfaction scores is recommended, as well as that of a large company that submits its training needs to a TTC after the training.
- Factors and degree of performance, whether good or bad, of the pilot test should be evaluated.

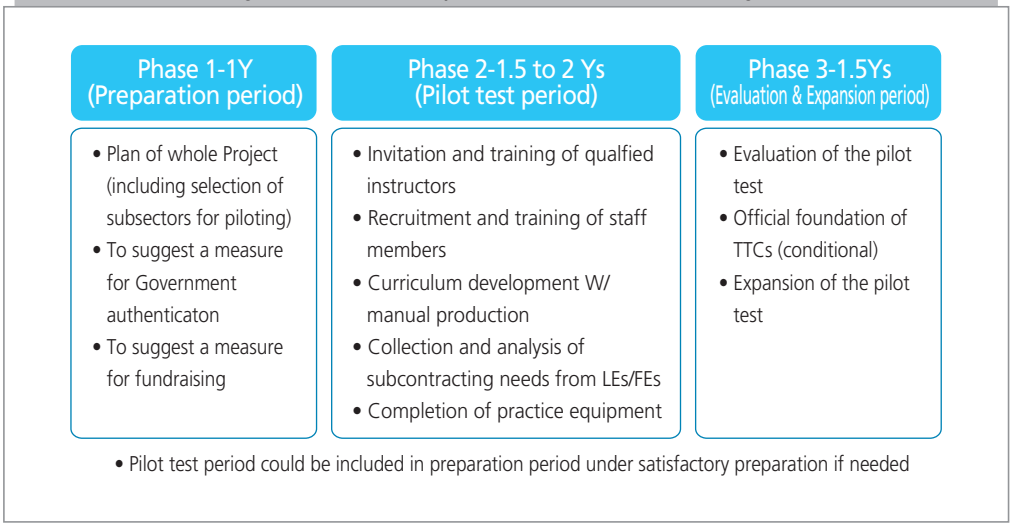
7.1.3.2. Expansion of TTS Performed in Pilot Period

- The official foundation and expansion of TTC should be decided based on the evaluation results. If the result is deemed negative, expansion cannot go forward.
- If the expansion can be pushed ahead, targeted sub-sectors for the expansion will be highly encouraged to be selected based on inter-industry relations and strategically emphasized industries in the GTP2.
- The expansion of selected sub-sectors should be performed in consideration of things in Phase 2 above.

7.1.3.3. Upgrade of TTS Performed in Pilot Period

- An upgrade should be decided on based on the results of an evaluation similar to the expansion.
- If the upgrade can proceed, an area capable of improvement like curriculum, instructor, manual and practice equipment should be the target of the upgrade.

[Figure 2-8] Phased Implementation Plans of TTS Program



The pilot test period could be included in the preparatory period if needed. In that case, actions like invitations of qualified instructors and staff recruitment could be performed in the first phase.

7.2. Policy Implementation Strategy

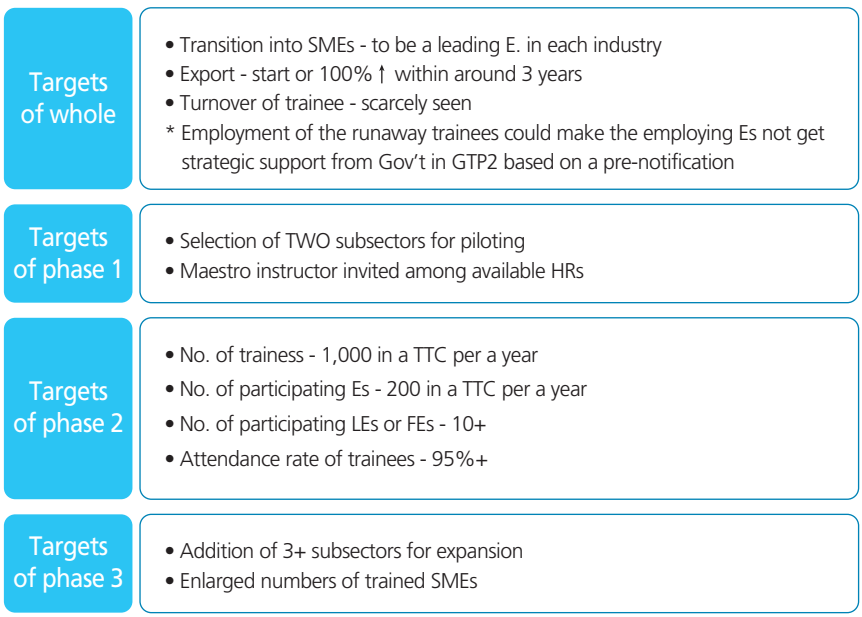
This study suggests a few strategies useful for raising the effectiveness and efficiency of the Triangle Training System. The strategies reviewed are the targets of each phase and ways to increase effectiveness.

7.2.1. Targets Set for Phases on Recommendations

7.2.1.1. Targets of Entire Recommendation

- Transition of the SME into a bigger entity – The SME will play a key role as a leader of an industry. The Ethiopian government's strategic support for SMEs in the GTP2 period would strengthen the roles of SMEs and Ethiopian manufacturing.
- Export – Within three years after the TTS, start of exports would be seen in SMEs with poor export results and for whom good trainees work for; a 100-percent

[Figure 2-9] Targets Set for Each Phase



increase in exports would be seen in export-experienced SMEs that trainees work for.

- Big fall in turnover after training – The turnover rate among high qualified trainees is expected to substantially decrease after Triangle Training. This can help implement a policy to help companies that employ "runaway trainees." Employment of trainees could disqualify the employers from strategic support from the Ethiopian government over the GTP2 period based on pre-notification.

7.2.1.2. Targets of Phase 1

- Selected manufacturing sub-sectors for pilot test – Two sub-sectors (ex. Textile or electricity/electronics) where a few SMEs or universities or institutes have consensus on the TTS will be selected for efficient management of piloting.
- Maestro instructor – The best instructor should be invited among those qualified.

7.2.1.3. Targets of Phase 2

- Trainee Attendance Rate – Ninety-five percent or more should attend, higher than 70-80 percent attendance at existing training institutions
- No. of trainees – One thousand trainees a year will attend a TTC.[27)]
- No. of participating businesses – Around 200 companies a year will participate at a TTC.[28)]
- No. of participating large and would-be large companies in the collection of training needs – Ten or more should participate.

7.2.1.4. Targets of Phase 3

- Added sub-sectors for diffusion of the triangle training system – Three or more sub-sectors where high industrial links are expected will be added for the diffusion of the TTS.
- The larger numbers based on the added sub-sectors will be seen on the targeted trainees and participating companies.

27) 5 trainees / enterprise * 10 enterprises / course * 5 courses / 3 months * 12 months
28) 10 enterprises / courses * 5 courses / 3 months * 12 months

7.2.2. Methods to Improve Likelihood of Effectiveness and Efficiency of TTS

7.2.2.1. Which LE, FE or University/Institute Could Participate?

Large or foreign companies that need qualified subcontractors are prime candidates for participants. One of this study's authors had meetings with CEOs or high-ranking managers of the companies in the process of writing this research and received positive responses from them. He saw success from the pilot test with Ethiopian large or would-be large companies that would like to participate in the following Phase 3, an expansion period.

Likely candidates among universities or institutes are leading schools in the Home-grown Postgraduate Program, who excel in high technology such as Mekelle University for textiles, materials and machinery, Jimma University for civil engineering and environment, and Addis Ababa Institute Technology for electricity and electronics.

The Ethiopian software industry could also be a good partner of the TTS. An ICT park in Bole district or sciencepark in Adama district could be good candidates for TTS's introduction to the software industry.

7.2.2.2. How to Save Resources and Improve Reliability?

Resources should be used efficiently in a developing country, whose resources are limited. Unused facilities that used to receive aid could come be put under control of other countries or international organizations. The use or sharing of existing resources and facilities efficiently is highly recommended if possible. The authors calculated the cost based on such encouragement.

The existing resources and knowledge of related development institutes (ex. LIDI and TIDI) should also be shared.

7.2.2.3. Suggest Shared Role Between Ethiopian Gov't Organizations

The Triangle Training system consists of two lower-level training sessions for would-be strong SMEs and start-up MSEs. Management of the two can be shared either by two organizations or one.

Considering Ministry of Industry is in charge of the middle enterprises of manufacturing industry, the ministry is encouraged to manage the would-be strong middle enterprises in the triangle training system, while FeMSEDA under MoUDHC is encouraged to manage the MSE in the triangle training system as FeMSEDA is in

charge of the training for MSEs.

7.3. Cost of New Triangle Training

This is the general cost of each phased recommendation of the new TTS. The cost can be used for policy implementation and prepared funding. The calculation was prepared on the condition that existing Ethiopian resources and institutions are best.

The assumptions for the cost are presented below.

- The projected cost is assessed on the period of 2016 to 2019, when the new TTS is expected to be implemented based on this research, though the new training could be implemented onward.
- Capital cost is assumed to be minimized by sharing existing buildings and facilities. If the share cannot satisfy the new needs, capital cost will be invested.
- Cost was assessed based on real cost information offered by ReMSEDA.
- Cost of human resources was accounted for on a full-time basis.
- Annual inflation is assumed to be ten percent a year.
- No revenue will be projected over the periods, though TTC might earn training fees.[29] Any revenue earned by a TTC was not assessed for a conservative cost calculation.

7.3.1. Projected Cost of Phase 1

7.3.1.1. Cost of Project Planning

- The cost for planning the Triangle Training System is estimated at US$90,000, which will be used for planning and travel expenses for a few international experts and Ethiopian consultants.

7.3.2. Projected Cost of Phase 2

7.3.2.1. Capital Cost Invested After Sharing

- The cost for setting up the Triangle Training System after sharing existing facilities and buildings is an estimated US$15,000, which can be used for furniture and equipment.

29) A TTC will likely not earn fees from trainees until it can get consolidated foundation for self-sufficient management with the spread of word of mouth about a trainee's acquisition of high technology through TTC.

7.3.2.2. Cost of Maestro Instructors and Training for Local Instructors

- An estimated US$103,000 will go toward inviting two maestro instructors and the training cost for Ethiopian instructors in two sub-sectors of the pilot test.

7.3.2.3. Cost of Invited Qualified Instructors from Ethiopia

- Five qualified instructors per a center where training for a sub-sector is offered could get paid 120 percent of the salary of instructors of TVET level 4 or 5. The amount of US$50,000 was calculated under the condition of no additional work.

7.3.2.4. Cost of Recruited Staff

- An officer, a manager and a few assistants per a center where training for a sub-sector is offered could be recruited and get paid 120 to 130 percent of the salary of TVET staff. The amount of US$31,000 was calculated under the condition of no additional work.

7.3.2.5. Cost of Curriculum Development including Manual Production

- The cost of curriculum development is assumed to be close to zero, as the invited maestro instructors and domestic instructors would develop it over the preparatory period. Curriculum development should cost in the case the development and trainings by the instructors are in progress at the same time contrary to this case (MEANING UNCLEAR). The cost is an estimated US$1,000 for development operating expenses.

7.3.2.6. Cost of Collection and Analysis of Training Needs from Large Companies and Others

- An estimated US$7,000 is the cost that would be used for preparing questionnaires, conducting surveys and doing statistical analysis of training needs of large and foreign companies.

7.3.2.7. Administrative Cost

- The administrative cost including electricity, heating and Internet is an estimated US$6,000 for two triangle centers in Phase 2.

〈Table 2-11〉 Cost of New Triangle Training

(Unit: thousand USD)

Phase	Activities	Cost
Phase 1	• Project Planning	90
	Subtotal	90
Phase 2	• Capital Cost Invested after Sharing • Invited Maestro Instructors and Training for Domestic Instructors • Invited Domestic Instructors • Recruited Staff Members • Curriculum Development including Manual Production • Collection and Analysis of Training Needs from LEs and Others • Administrative Cost • Completion of practice equipment – to be assessed in Phase 1	15 103 50 31 1 7 6
	Subtotal	213
Phase 3	• Evaluation of Piloting • Expansion of Piloting • Official Opening of TTC and Upgrade of Piloting	65 361 259
	Subtotal	685
Total		988

Note: rounded off to nearest whole number.

7.3.2.8. Cost of Completion of Practice Equipment

- No cost estimate is available at the moment, but the figure should be calculated based on the project planning in Phase 1.

7.3.3. Projected Cost of Phase 3

7.3.3.1. Cost of Evaluation of Pilot Test

- The evaluation cost is an estimated US$64,900, which will be used in an evaluation and travel expenses for a few international experts and Ethiopian consultants

7.3.3.2. Cost of Expanded Training for Would-be SSMEs in Pilot Period

- An estimated US$360,525 is needed for expanded training for would-be strong SMEs (SSMEs) in the three new sub-sectors of manufacturing. The amount was assessed based on both the capital cost in Phase 1 and all costs in Phase 2.

7.3.3.3. Cost of Official Opening of TTC and Upgrade of TTC Training

- The estimated cost of US$259,000 was based on the two training centers for would-be strong SMEs in piloting, holding the costs for curriculum development and collection and analysis of training needs from large companies and others.

8. Conclusion

The Ethiopian government has stepped up its efforts to foster business and boost MSE exports. Achieving these goals, however, is not easy. In reality, Ethiopian businesses produce very few household goods and components of manufactured goods, thus the country imports such goods from abroad. In this situation, capacity building by acquiring high technology is believed to be indispensable to MSEs to overcome their obstacles and grow into stronger and bigger companies.

To achieve this, this research evaluated Ethiopia's MSE capacity building policies and introduced the Korean experience as a guide. The Korean experience involves analysis of the central training and regional government trainings. Implications applicable to Ethiopia can be drawn from the experience.

Existing training programs illustrated limits in the focus on replacing outdated technology and lack of opportunities to learn advanced technology. Moreover, it seems difficult to develop MSEs into a market-leading group that could meet market demands because marketing-driven large or foreign companies are not well connected to MSEs. At the same time, existing training programs tend to provide MSEs with uniform rather than differentiated training based on target groups and purposes.

Under this evaluation, this research suggested a policy recommendation to overcome these limitations: the Triangle Training System (TTS) for capacity building and related action plans. A MSE finishing the TTS program would grow stronger and bigger and transform into either an independent entity with the Ethiopian government's official authentication for strong businesses or a subcontractor for a large or foreign company with links with both. At the same time, the Ethiopian government can use the graduates of the TTS program as a pool of would-be leading businesses to easily select more competent companies to benefit from strategic state support.

This research also presented action plans comprised of a phased implementation plan, policy implementation strategy including the targets of each phase and suggestions to raise the effectiveness of the recommendations and cost estimates.

We hope that this study is helpful in bolstering Ethiopian MSEs and helping them transform into strong SMEs through enhanced expertise and new technology development.

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2014/15 Knowledge Sharing Program with Ethiopia:
Developing Action Plans for the Priority Agendas of the
Second Stage of Growth and Transformation Plan

Chapter 3

Development of Efficient Agricultural Mechanization and Technology

Development of Efficient Agricultural Mechanization and Technology

Nam Ho Lee (Hankyong National University)
Yasmin Wohabrebbi Saeed (Agricultural Transformation Agency)

Summary

This research was done at the request of the Ethiopian Ministry of Agriculture through the Ministry of Finance and Economic Development in 2013. The KDI was assigned to conduct the study titled "Development of Efficient Agricultural Mechanization and Technology in Ethiopia." Data for this research was drawn from literature on agricultural mechanization as reported by development institutions. High-level government officials and consultants in Ethiopia were also involved. Intensive and in-depth discussions were made with research staff in several meetings held in both Ethiopia and Korea.

On visits to Ethiopia by the Korean research team, members spoke to stakeholders such as the Ministry of Agriculture, Prime Minister's Office, Ministry of Finance and Economic Development, Agricultural Transformation Agency, Ethiopian Development Research Institute, World Bank, Oromia Agricultural Research Institute, Ethiopian Institute of Agricultural Research, Adama Agricultural Machinery Industry, International Food Policy Research Institute and Ethiopian Institute of Agricultural Research. Also, valuable discussions were held with Korean experts working in Ethiopia. An Ethiopian delegation to Korea visited Korea Rural Economic Institute, Korea Agricultural Machinery Global Center and the National Academy of Agricultural Science.

Agricultural mechanization in Ethiopia might be considered in its early stage be-

cause of several policies and logistical and administrative challenges across the value chain. The challenges include the lack of dedicated institutions to coordinate efforts and stakeholders; no incentive packages for importers and distributors of agricultural machinery; low purchasing power of smallholder farmers; absence of a strong business model for rental, repair and maintenance services of mechanization implements and tools; and the unavailability of standards of agricultural mechanization implements or an institution with the required capacity to evaluate and certify imported and manufactured implements and machinery.

Korea has achieved agricultural mechanization over the past 45 years. Mechanization for rice production is almost complete and that for horticulture and livestock is under way. The Korean government has instituted policies to promote agricultural mechanization, including distribution, production, marketing, inspection, after-sales service and the training of end users of agricultural machinery. Korea is considered a role model in the development of agricultural mechanization and technology. In this regard, the Korean experience in agricultural mechanization was presented and discussed in detail, specifically policy, legal and institutional frameworks and support programs for agricultural mechanization.

Based on the study's findings, Ethiopia is considered to have a relatively insufficient basis for the development of agricultural mechanization and technology. And thus the research provided the Ethiopian government with policy recommendations to achieve sustainable agricultural mechanization. Based on Korea's experiences with the identified challenges in Ethiopia, success factors behind sustainable agricultural mechanization were deduced in the context of the role of stakeholders, legal and institutional frameworks, support programs, fundraising and agricultural mechanization scale. Recommendations on agricultural mechanization issues were provided. Key issues highlighted in the research framed in the scope of policies are:

- Role and responsibilities of stakeholders
- Result-based management for agricultural mechanization
- Strengthening institutional support
- Building service & maintenance support
- Machinery rental service
- Standards development for agricultural machinery
- Pilot project on mechanized farming
- Joint venture for manufacturing agricultural machinery
- Agricultural mechanization scale

1. Introduction

The purpose of agricultural mechanization is to enhance farmland and labor productivity through well-timed farming operations and lower manual power requirements. This will contribute to raising agricultural productivity and alleviating poverty. Ethiopia has achieved a measure of progress in agricultural mechanization thanks to higher agricultural productivity.

In 2012-2013, agriculture accounted for 42.9 percent of Ethiopia's GDP, 90 percent of export earnings and more than 85 percent of employment. The government is putting tremendous efforts into the sector, in line with its Agricultural Development Led Industrialization (ADLI) strategy and the Growth and Transformation Plan (GTP), both of which put the sector at the center of the country's drive toward industrialization and economic development. Accordingly, the country has shown a solid commitment to the sector by allocating 10 percent of its national budget to it. The sector in recent years has also registered growth higher than the target.

In Ethiopia, farming operations are still practiced through manual power, resulting in low labor productivity. Ethiopian agriculture is dominated by subsistence production and low input application, so productivity levels of major crops and livestock are significantly below regional and international standards. In farming power, an estimated 0.716 horsepower per hectare is applied in the country, a far cry from that in other countries like Korea (4hp/ha) and Japan (7hp/ha). This is partly because agricultural mechanization in Ethiopia has stalled over the last two decades and the government's priority shift toward the adoption of biological inputs such as fertilizer and improved seeds by smallholder farmers.

Recognizing its significance toward enhancing the productivity of smallholder farmers, the Ethiopian government has started to give due attention to agricultural mechanization as recent developments indicate. For example, the newly established Mechanization Directorate under the Ministry of Agriculture (MOA) and the development of the National Agricultural Mechanization Strategy can be mentioned as positive government actions toward this direction. The strategy's implementation is expected to progress in line with the roadmap under development. So promising indications show that the mechanization agenda will be on track in Phase 2 of the Growth Transformation Plan's implementation period (2015-16 to 2020-21).

Korea has achieved successful farm mechanization over the past 45 years. Mechanization for rice production is almost complete and that for horticulture and livestock is under way. This is party due to Korean government policies to promote farm mechanization, including distribution, production, marketing, inspection, after-sales service and the training of end users of agricultural machinery.

In the 1960s, Korea focused on developing its export-oriented industries to reduce poverty. A series of five-year economic development plans (EDPs) were started in 1962 and ran for 35 years through 1996, when the seventh plan was completed. The major policy directions in agricultural mechanization have been detailed in these EDPs. As the plans saw successful implementation, a significant level of labor was required to drive newly developed industrial sectors. Consequently, farmers began leaving their jobs en masse to work in new jobs in export-oriented industries. So Korea's industrial development was the key factor in the country's agricultural mechanization.

Korea has been regarded as a role model in the development of agricultural mechanization and technology. In this regards, Korea's experiences on agricultural mechanization are presented and discussed in detail in terms of policy, legal and institutional frameworks and etc. Also supporting programs for the success of agricultural mechanization in Korea are presented.

The purposes of this study are to identify challenges for agricultural mechanization in Ethiopia, review Korea's knowledge on policy, legal and institutional frameworks and prepare policy recommendations for the successful implementation of Ethiopia's agricultural mechanization.

2. Agricultural Mechanization in Ethiopia

2.1. Overview: Agriculture and the Ethiopian Economy

2.1.1. The Economy and Economic Policies

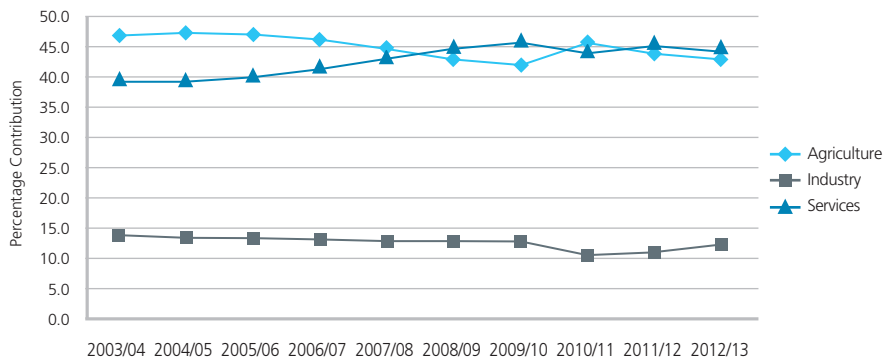
Ethiopia covers 111.5 million hectares in the Horn of Africa. The population is 87,952,000 per a Central Statistical Agency (CSA) report in 2014, of which about 83 percent live in rural areas and the rest in urban centers.

The Ethiopian economy is predominantly agricultural, but the shares of the service and industrial sectors are growing. Since 2008-09, a slight shift has occurred in sectoral contribution to GDP from agriculture to the service sector, a first in the country's history (see [Figure 3-1]).

In the three years (2010-11 to 2012-13) of the implementation of the country's Growth and Transformation Plan (GTP), real GDP on average grew 10 percent per year. Over the same period, added value in agriculture grew 7 percent, that in industry rose 17 percent and that in services went up 11 percent per year on average. Furthermore, real GDP growth in 2012-2013 enabled the Ethiopian economy to sustain

a high growth trajectory over ten years (see [Figure 3-2]). Real GDP on average grew about 11 percent per year between 2003-2004 and 2012-2013. Per capita income reached US$550 in 2012-2013, up from US$510 in 2011-2012 (MOFED, 2014b).

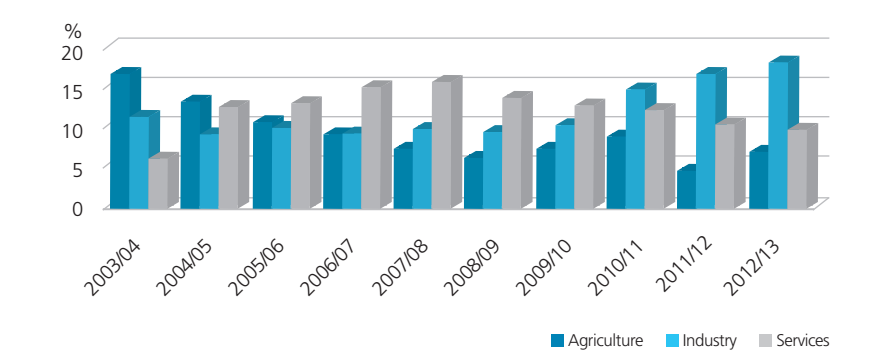
[Figure 3-1] Contribution to GDP by Sector



Source: Ministry of Finance and Economic Development (2014).

Furthermore, real GDP growth (about 11 percent per year) has enabled sustained high growth over the last ten years between 2003-2004 and 2012-2013 (see [Figure 3-2]). Per capita income reached US$550 in 2012-2013, up from US$510 in 2011-2012 (MOFED, 2014).

[Figure 3-2] Real GDP Growth By Sector



Source: Ministry of Finance and Economic Development (2014).

The country is in the last year of its third generation mid-term national plan called the Growth and Transformation Plan (GTP, 2010-2011 to 2014-2015), which clearly stipulates policies and strategies for agriculture. One of the objectives is to set the economy on the path of structural economic transformation. A long-term shift in the fundamental economic structure is the goal through sustainable growth and economic development as well as composition by sector and employment level of each sector.

The plan also indicates that agriculture will continue to be the major driver of economic growth and grow an annual average of 8.6 percent. Accordingly, the priority focus and intervention areas were named to bring significant progress toward agricultural transformation by increasing agricultural productivity and production and commercialization. They are as follows:

- Enhance national agricultural extension systems
- Strengthen links among research, extensions and farmers to improve technology generation, transfer, utilization and feedback
- Initiate and implement agricultural development programs to solve wide-ranging problems
- Build MOA's institutional capacity through training and provision of logistics and facilities

2.1.2. Agricultural Policies and Strategies

Ethiopia has big potential for agriculture, with 51.3 million hectares of arable land and 3.7 million hectares of irrigable land. Only 11.7 million hectares, however, has been cultivated and 160,000 hectares is under irrigation with 14 million smallholder farmers. The Ethiopian Constitution of 1995 ruled that land ownership belongs to the states and the Ethiopian people (as further elaborated below).

Studies show that more government emphasis is needed on adoption of proper agricultural technologies (including mechanization) to increase smallholder farmers' productivity, besides expanding the area of cultivated arable land. Crop production is crucial for a country like Ethiopia, mainly to ensure food security, increase industrial inputs and enhance export earnings. To this effect, government efforts not only seek to promote agricultural growth but also enhance living standards.

Since 1991, Ethiopia has followed a strategy of agricultural development-led industrialization (ADLI). ADLI is a development policy framework in which the government stresses the importance of agricultural growth as the basis for industrial growth, through the former's provision of inputs and creation of markets. ADLI's primary objective is high productivity growth in small-scale agriculture through

the creation, diffusion and adoption of new farming technologies in the form of improved inputs and modern farming practices. ADLI also promotes the adoption of improved farming power and implements it through investing in adaptive R&D for improved agricultural implements and supporting rural centers of technology manufacturing (FAO, 2013).

In 2003, the Rural Development Policies and Strategies (RDPS) was developed to guide agricultural and rural development under the umbrella of the ADLI platform, aiming to ensure rapid economic growth; enhance benefits to the people; alleviate food aid dependency; and promote the development of a market-oriented economy. Subsequently, the country developed and implemented two consecutive generations of mid-term strategic frameworks of spanning five years each. The Sustainable Development and Poverty Reduction Strategy Program (SDPRP) was run from 2002-2003 to 2004-2005, and PASDEP from 2005-2006 to 2009-2010. The latter enabled the country to achieve annual GDP growth of 11 percent, and while agriculture's contribution to GDP fell from 47 percent to 41 percent over the period, PASDEP helped to sustainably raise agricultural production and productivity.

In 2009, the Ethiopian government endorsed Comprehensive African Agriculture Development Program (CAADP), which requires African countries to commit at least 10 percent of their national public expenditure to agriculture, with a target of 6 percent in average annual agricultural growth rate in successive years. Accordingly, the government has demonstrated a solid commitment to agriculture and rural development by allocating 10 percent of its national budget to the sector and registering more than 6-percent growth. In 2010, the Policy and Investment Framework (PIF) was developed to provide a strategic framework for prioritizing investment and estimating the financial need to drive Ethiopia's agricultural growth and development. PIF is a 10-year roadmap designed to operationalize CAADP, which was signed by the government and its development partners.

2.2. Agricultural Mechanization in Ethiopia: Status and Challenges

2.2.1. Significance of Agricultural Mechanization

Agriculture's significance to Ethiopia's economy is highly dependent on farmland productivity which, in turn, depends on factors such as supply of quality input, water availability and the application of technologies. The latter will be covered more in detail.

The application of agricultural mechanization technologies increases agricultural production and productivity because it boosts land and labor productivity by meeting

timeliness of farming operations and increasing output per unit time. Agricultural mechanization also reduces the required labor quantity and improves farmers' comfort and safety in their daily tasks. In addition, proper application of agricultural mechanization helps the conservation and optimal utilization of natural resources. Moreover, farm mechanization helps reap maximum benefits from the application of improved seeds, fertilizer and irrigation water practices as well as encourage multiple cropping and agriculture diversification, which are being promoted by the Ethiopian government. By lowering overall production costs, agricultural mechanization technologies raise the incomes of farmers, which, in turn, promotes social equality and improves overall living standards.

2.2.2. History of Agricultural Mechanization

Farming in Ethiopia is practiced mostly through backbreaking manual labor, the result of low yields per unit of labor. Ethiopia was one of the world's first countries to use animal power for tillage operations. Nevertheless, the country's farming technology has remained the same depending on the centuries-old tool "maresha," which is still being used to till more than 95 percent of the land under annual crop cultivation (Ehret, 1979).

Agricultural mechanization in Ethiopia is assumed to have started in the 1950s with the introduction of the mule-pulled plow by the Jimma Agricultural Technical School. Subsequent efforts in the 1960s led to several interventions undertaken by the Wolaita Agricultural Development Unit (WADU), the Chilalo Agricultural Development Unit (CADU) and the Ministry of Agriculture. Agricultural tools and implements that are still used at farms across Ethiopia prove the efforts made toward developing domestic agricultural mechanization.

In 1959, Alemaya University (now Haramaya University) launched the country's first education program called agricultural engineering to support mechanization efforts. The curriculum did not cover fundamental fields such as soil and tillage mechanics, engineering properties of biological materials and agricultural machinery design, but did create a link between the education system and extension work in agricultural engineering fields (Agricultural Transformation Agency, et al., 2014).

The Agricultural Mechanization Research Unit is the main driver of agricultural mechanization in Ethiopia. Support to smallholder farmers over the last three decades has been insignificant, however. The Agricultural Mechanization Research Directorate was established under the Ethiopian Institute of Agricultural Research (EIAR) in 2000, and restructuring was conducted at the regional level. The directorate develops and introduces agricultural mechanization technologies that are suitable and more efficient to the agro-ecologic and socio-economic conditions of Ethiopian

farmers. The institute has developed enhanced mechanization technologies to improve land and labor productivity, timeliness, management of post-harvest losses and higher quality standards for marketing and input for industry. Nevertheless, only a few technologies are recognized and popularized because of low attention and feeble efforts given by the extension system and relevant stakeholders.

Subsequently, the Amhara, Tigray and Oromia regions established their own mechanization-focused research programs. These include (i) Bahir Dar Mechanization and Food Science Research Center under the Amhara Agricultural Research Institute; (ii) Mekelle Mechanization and Rural Energy Research Center under Tigray Agricultural Research Institute; and (iii) the Assella, Bako, Jima and Fedis agricultural mechanization research centers under Oromia Agricultural Research Institute.

Of 31 higher learning institutes in Ethiopia, only six universities provide agricultural engineering and mechanization courses, including Haramaya, Ambo, Mekelle, Addis Ababa and Adama Science and Technology. In the private sector, Selam Vocational Training Centers and others train and develop agro-equipment such as engine drivel mills, threshers and agricultural implements, and are critical to the development of agricultural mechanization technologies in the country.

2.2.3. Status of Agricultural Mechanization

Ethiopian agriculture has registered remarkable improvement over the last 10-15 years. But the sector has not been supported with improved technologies in agricultural mechanization as the government puts more focus on improving seed and fertilizer adaptation. The country is believed to have a comparative advantage in land and labor consumption activities given the abundance of both resources. This has been reflected in all policies and strategies adopted in relation to agriculture. As a result, Ethiopia's agricultural mechanization has stalled over the last two decades due to lack of considerable attention. Yet this does not mean that agricultural mechanization is new to the country and did not exist before.

Despite the enormous benefits of agricultural mechanization, progress has been slow in Ethiopia due to many reasons. For instance, land preparation remains highly dependent on cattle instead of tractors, harvesting is done manually using sickles, and threshing is conducted by animal threading and manual beating and rubbing. The use of draft animals is an ancient tradition in Ethiopia, whereas it is relatively new in the remainder of Sub-Saharan Africa. Ethiopia leads Africa in the number of cattle with nearly 49 million heads, or equal to 20 percent of Sub-Saharan Africa's cattle population. Thirteen million heads of Ethopian cattle are used as draft animals.

In the highland area, where cattle are mainly produced, their use as draft animals is greater than other benefits. The proportion of cattle used as work oxen accounts for 30-40 percent of highland herds, whereas in regions like in central Tigray, the figure is 70 percent. Draft animal power is used in 90 percent of crop production. The use of animal traction in the early stage of land preparation is essential for better crop yields.

Regardless of the importance of cattle in farming, recent trends show that the cattle population is decreasing compared to that of sheep and goats due to the rising density of the human population and pressure on grazing land in the highlands. The relatively less demanding and flexible grazing nature of goats and sheep and their higher marketability encourage farmers to focus more on raising them. Instead of sustaining animal power year round just for the sake of seasonal use in farm activities, which is becoming unaffordable for farmers, farmers are being forced to rent draught animals seasonally when demanded. This by itself justifies the need for mechanized farming in Ethiopia (Helina et al., 2012).

Recent migration from rural to urban areas has resulted in scarcity of human labor. Moreover, youths are losing interest in the traditional ways of Ethopian farming. As a result, the daily labor cost has increased tremendously, forcing farmers to pay an average wage of 70-100 ETB per day. In certain areas of the country, population pressure and overutilization of existing arable land have led to the cultivation of hilly and marginal lands to satisfy required production. This shows that an agricultural system that depends on human and animal beings as primary sources of power is no longer sustainable unless supported by mechanized farming practices.

2.2.4. Tractors in Ethiopia

The tractor is perhaps the most useful and versatile piece of machinery used by farmers to modernize their operations. Beside their main use in preparation of land, tractors are used to move heavy farm inputs and produce from the farms as well as combining other motorized and non-motorized implements important for efficient and timely use in land preparation needed for high yields and minimizing post-harvest.

The agricultural machinery business is open to the private sector, as the government has no direct engagement in import or distribution of agricultural machinery. Importers and suppliers are also in the business openly and operate in the market competitively. The importation of tractors is exempt from import tax, subject to clearance within six months once they reach the port of Djibouti. The clearance process, however, often takes longer than six months, so importers cannot capitalize on the special provision for the sector. Consequently, importers are usually forced to

pay 10 percent in customs duty and 15 percent in VAT, which affects the price of the equipment. This makes the import of tractors an unattractive venture, and rental service providers request prices that most farmers cannot afford. Even for farmers who wait in long queues to get the service, the time wasted is discouraging given that farming practices are highly dependent on time.

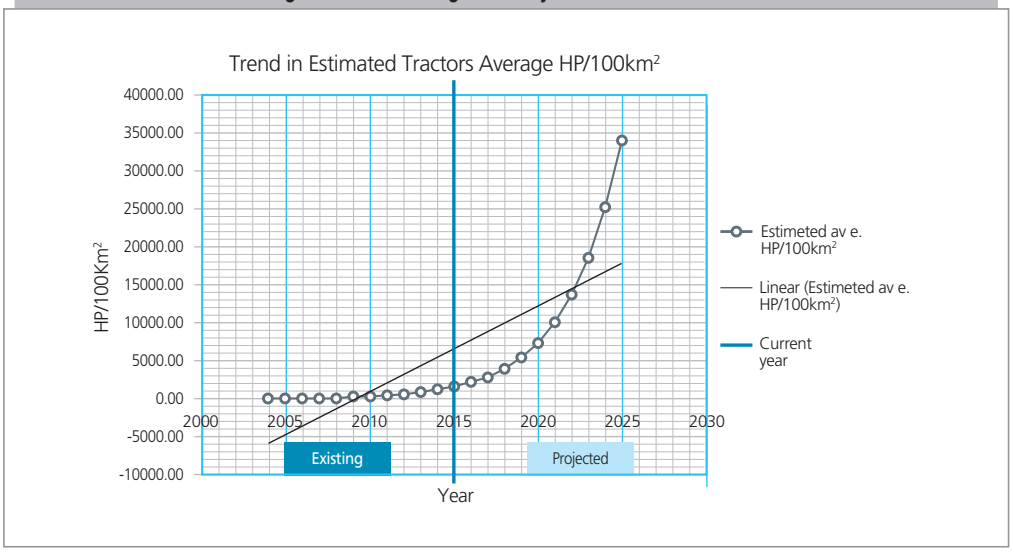
Ethiopia has just one or two tractor assembly companies, resulting in high dependency on imported tractors and spare parts. The Nazareth Tractor Assembly Plant (NTAP) was established in 1978 as part of technical and economic cooperation between Ethiopia and Russia. Now called Adama Agricultural Machinery Industry (AAMI), the plant is still functioning as one of the key companies in assembling "semi-knocked down" tractor parts imported from Russia. AMMI assembles tractors ranging from pedestrian-controlled and small-size tractors to heavy duty tractors, and also assembles trailers for hauling and transportation of agricultural inputs and products. In addition, AMMI produces simple implements like disc plows and disc harrows. In five years, the factory assembled 6,000 small and medium-size tractors at the rate of one tractor per day using three day laborers (World Bank, 2012).

Since the Ethiopian Metals and Engineering Corp. (METEC) took over AMMI's management, 5,000 tractors and 3,000 power tillers were assembled over the last three years and raised the number of tractors in the country 60 percent to 12,500 in 2013. Without including tractors used on commercial farms, this brings the ratio of available tractors to the country's 14.7 million smallholder farmers close to 1 tractor per 1,000 smallholder households. This ratio implies a need for more efforts to introduce suitable mechanization technologies at the small to medium level to the Ethiopian farming system.

The agricultural mechanization strategy indicates that farm power in Ethiopia, primarily drawn from oxen power (13 million heads), accounts for 87 percent while the previously mentioned 12,500 tractors account for 13 percent. Accordingly, the combined farming power applied (using humans, animals and machinery) in the country is 0.716 horsepower per hectare (hp/ha), low compared to other countries like Korea (4hp/ha) and Japan (7hp/ha) (Lamidi et al., 2013).

In 2004, just 3,000 tractors were in the country and the number shot up 316 percent in 2014; the number is projected to reach 458,052 by 2025. The country's level of agricultural mechanization is approximately 0.1kW per hectare and the strategy document is projected to reach 2.529kW per hectare by 2025. Similarly, the figure of 9.3 tractors per 100 km2 is expected to rise to 341.8 per 100km2 by 2025 (see [Figure 3-3]).

[Figure 3-3] Existing and Projected No. of Tractors



Source: Agricultural Transformation Agency (2014).

2.2.5. Challenges of Agricultural Mechanization

Agricultural mechanization in Ethiopia could be considered to be in the early stage because of many challenges ranging from policy to logistics and administrative issues. These constraints have resulted in low levels of agricultural production and productivity due to the absence of mechanized farming by smallholder farmers and limited presence on commercial farms. Accordingly, a few of the major challenges are explained below (Agricultural Transformation Agency, et al., 2014).

First, little recognition has gone to the significance of agricultural mechanization in previous and existing government policies and strategies. Most agricultural development policies and strategies geared toward raising agricultural production and productivity tend to focus on higher use of improved seeds, fertilizer and irrigation, without specific attention to agricultural mechanization. The recently developed National Agricultural Mechanization Strategy (NAMS), however, can serve as a starting point to set an implementation roadmap like guide the formulation of the second phase of the Agricultural Growth Program (AGP), as well as influence the design of other upcoming flagship programs in the sector, and more broadly, to inform of the national GTP II design.

Second, the country lacks a strong and dedicated institution to coordinate relevant stakeholders and complementary efforts across the agricultural mechanization value chain. Even existing institutions and departments are severely understaffed and lack

the required qualifications at both the regional and federal levels. Only recently did the Mechanization Directorate under MOA assume the coordinating role, starting from R&D and covering maintenance and after-sale service.

Third, the size of land held by the majority of farmers is a major constraint for agricultural mechanization practices. In Ethiopia, more than 90 percent of households are subsistence smallholder farmers with ownership of less than one hectare. This makes it difficult for them to afford and apply mechanization implements and tools. In addition, the national topography is characterized as sloppy and fragmented, making it inconvenient for agricultural machinery to access farmland.

A fourth challenge is the low availability of agricultural machinery and poor implementation in the market because of few domestic manufacturers and importers or suppliers of medium and high-level machinery. Those who produce small implements also must scale up to reach as many farmers with required quality. One reason behind this is inadequate policy-level attention to incentivize domestic manufacturers and importers. One example is the tax imposed on farm machinery does not encourage importers, distributors and farmers to enter the business. The tax rate levied on imported farm machinery and implements constitute a 10-percent duty tax and 15-percent VAT, with an additional 5-percent duty tax on the import of spare parts for farm machinery and implements. Moreover, the exiting tax rate lacks uniformity across similar imported machines.

A fifth challenge is no standards for agricultural machinery and implements, and inadequate capacity to assess the quality and applicability of the technology to the country. The Quality and Standards Authority of Ethiopia (QSAE) is responsible for assessing the standards and quality of products manufactured domestically or imported from abroad, as well as providing certification. But no clear standards have been developed specifically for agricultural mechanization technologies, and the institute has limited capacity in trained human resources as well as in testing equipment to review and release mechanization technologies.

Finally, the resistance and reluctance of farmers to embrace new mechanization technologies is another obstacle in the development of agricultural mechanization. This behavior has much to do with less farmer exposure to new and efficient technology over the past decades as farming continued to follow traditional practices. In addition, the past failure of agricultural machinery introduction was not mainly because of functionality issues but also other constraints within the value chain such as repair and maintenance, and this made farmers resistant to any risk. But more importantly, as most farmers depend on subsistence farming, their capability to afford such implements is limited. Access to finance to help farmers buy agricultural machinery is also not available, unlike support measures for fertilizer and improved seed applica-

tion through MFIs and RuSACCOs.

2.3. Agricultural Mechanization Stakeholders in Ethiopia

In Ethiopia, engagement by different actors in the agricultural mechanization arena is rather weak. Yet many government and non-governmental organizations exert different types of efforts in the manufacturing, import, sales, promotion, operation and maintenance of agricultural mechanization technologies and implements. Below are key stakeholders involved at different levels.

The end users of agricultural mechanization are obviously smallholder farmers. Smallholder farmers are the majority as they account for 90 percent of farmers in Ethiopia. For this reason, they are the key stakeholders in agricultural mechanization and need to be consulted at different stages in determining the types of technologies and implements to be produced and adopted, as well as choosing efficient business models to reach a significant number of smallholder farmers.

MOA is mandated to develop national agricultural and rural development strategies and policies in collaboration with regions and other key stakeholders in the country. The Mechanization Directorate under MOA manages all government-led agricultural mechanization intervention. Moreover, the Extension Directorate under MOA, together with the Regional Bureau of Agriculture (RBoAs), and zone and Woreda-level offices of agriculture are responsible for promoting and popularizing new technologies and practices through the existing extension system.

The Agricultural Mechanization Research Directorate of EIAR has been helped develop and introduce mechanization technologies that are more efficient and compatible with the socioeconomic condition of Ethiopian farmers. Similarly, regional agricultural research institutes (RARIs) conduct targeted and region-specific research to identify and recommend technologies and implements that suit specific agro-ecologies. Both EIAR and RARIs form the National Agricultural Research System (NARS), which contributes and plays a key role in formulating and disseminating research on agricultural best practices that benefit smallholder farmers.

The ATA is mandated to remove systemic bottlenecks in agriculture through support and enhancement of MOA's capability and other public, private and non-governmental implementing partners to promote agricultural transformation. In particular, ATA's technology access and adoption (TAA) team works closely with the Mechanization Directorate and other stakeholders in identifying and facilitating access to technologies that increase production and productivity to improve smallholder farmer livelihoods. The application of mechanical technologies and their

increased use in farming practices is among the key focus areas of the TAA team.

Agricultural cooperatives seek to help farmers increase their production and productivity by bringing together their resources to leverage collective service provisions (such as enhanced aggregated links to markets and services). An estimated 10,000 agricultural cooperatives are operational across the country. The Federal Cooperative Agency (FCA) was established in 2012 to monitor the appropriate execution of cooperative legislation and design policies and legal procedures. A similar structure also evolved at the regional level called Regional Cooperative Agency (RCA) (Bernard et al., 2010). A low trend of distribution exists of small and medium-scale agricultural mechanization technologies through existing cooperatives system in the county. Among others, agricultural cooperatives can be a business model for agricultural mechanization if provided enough support and attention similar to other agricultural inputs.

Ethiopia's agricultural extension is a major element of the agricultural system and rural development strategy to disseminate appropriate technologies such as improved seeds, fertilizer, artificial insemination and veterinary services. Within the extension system, agricultural, technical and vocational education training (ATVET) trains development agents (DAs) and farmer training centers (FTCs) allow DAs to train farmers in agricultural practices that help them to boost production and productivity. Nearly 46,000 DAs work at FTCs.

Small and medium enterprises (SMEs) manufacture the majority of the agricultural machinery used in the country. Exiting SMEs often sell their products directly to farmers and the RBoA through informal channels. Agricultural implements produced by SMEs include both LMIs and some HIMIs such as sickles, plows and stationary threshers. Many blacksmiths make the traditional plow (marshal), sickles, and "wegel," which are characteristically locally based and dependent on family labor. Their work is considered part-time jobs to generate income in addition to farming.

Domestic large-scale private companies with business relationship with external suppliers are often active in agricultural mechanization. Just a few companies in the country import or distribute machinery and spare parts as well as provide technical support. Foreign companies have no physical presence in Ethiopia except a few represented by agents and distributors. To this effect, nearly no knowledge transfer occurs in the design or adaptation of technology and production for Ethiopian SMEs and artisans. Service providers such as individual mechanics also offer technical services to repair and maintain agricultural machinery on a fee basis.

International organizations, including of the multilateral and bilateral variety as well as several non-governmental organizations based in the country, promote

the benefits of mechanization. NGOs can also play a valuable role in the promotion and dissemination of technologies, thereby providing an alternative to the public extension system.

2.4. Government Efforts to Promote Agricultural Mechanization

2.4.1. Overview

Ethiopia has huge demand for food crop production, targeting price cuts and meeting demand to catch up with the rapidly growing population. Recently, agricultural mechanization is considered a pillar to bring agricultural transformation in the country, because of the government's realization of its significance toward enhancing productivity of smallholder farmers.

As indicated in Section 2.3, MOA recognizes the importance of agricultural mechanization and the need for integrated end-to-end support. To this effect, the ministry established the Mechanization Directorate in 2013. Moreover, the ATA has also constituted a team for technology access and adoption to tackle key issues within specific crop-based interventions, mainly focusing on pre and post-harvest mechanization. Following that, MOA together with ATA saw the need to develop NAMS, aiming to align stakeholders across the agricultural mechanization value chain on a unified and comprehensive strategy to improve the production and profitability of primarily smallholder farmers by facilitating and increasing their use of agricultural mechanization (Agricultural Transformation Agency, et al., 2014).

The inclusion of agricultural mechanization as a sub-component of the sector's flagship program (i.e., AGP) is underway as the second phase of the program design is ongoing. Although the design is at the pre-appraisal stage, early indications show that agricultural mechanization will come through key interventions identified that promote agricultural mechanization technologies, including the following:

- Support for development of mechanization technology standards
- Develop training manual for pump manufacturers in areas with groundwater potential;
- Technical support to agricultural machinery producers, distributors and service providers
- Support to operators and maintenance service providers to provide required service
- Provide training for private sector to get spare parts based on demand

AGP II is designed to align with GTP II (2015-2016 to 2020-2021), as agricultural

production and productivity are believed to remain at the center of the national plan, specifically under the agriculture sector. The government is expected to give much emphasis to agricultural mechanization in the ongoing design of the next Growth and Transformation Plan. All these efforts indicate a tendency for policy to shift toward agricultural development greatly supported by mechanization. In addition, agricultural mechanization in the GTP II period is in the draft stage, but 815,369 pieces of agricultural mechanization machinery and tools have been identified, including tractors, land preparation tools, row planters, harvesters, threshers, shellers, decorticators, animal product processors, and fruits and vegetables processing technologies.

2.4.2. National Agricultural Mechanization Strategy (NAMS)

Ethiopia's NAMS was developed recently (2014) with a vision to increase national food production and security through the enhanced and sustainable use of agricultural mechanization technologies to support Ethiopia achieving middle income status by 2025. The objective of this strategy is to increase the country's mechanization level from 0.1kW/ha to 1kW/ha with at least half derived from mechanical or electrical power, thus halving animal power in agricultural operations by 2025.

The strategy outlines the key bottlenecks that hindered mechanized farming practices in Ethiopia and recommends intervention. Mechanized implements have been divided into two categories: low mechanization and high and intermediate mechanization. Low mechanization refers to packages of equipment identified to be used by smallholder farmers that can be distributed and promoted through the existing public extension system and smaller retail outlets. High and intermediate mechanization refers to motorized high and intermediate-level mercenaries.

The strategy recommends the six key immediate forms of intervention below and suggests mid- and long-term intervention.

- Conduct need assessment to identify most impactful mechanized technology opportunities for private sector
- Promote awareness of agricultural machinery at grassroots level by facilitating links with private companies
- Promote local-level contractor class to render rent services to smallholder farmers
- Expand accessibility by farmers to financial services, specifically to support adaptation of mechanization technologies
- Establish institution of mechanization at federal and regional levels
- Capacitate and support local technical staff to perform basic maintenance

The NAMS implementation guidelines are being prepared, and the five guidelines identified to be relevant are:

- Technologies need assessment
- Promotion of agricultural mechanization technologies and awareness
- Establishment of agricultural mechanization service providers (machinery leasing, rental, custom hiring service providers, maintenance and spare parts suppliers)
- Institutionalization of agricultural mechanization at all administrative levels
- Support for local technical staff and capacitation

As part of MOA's mechanization effort, the ATA and other partners seek to examine, source and support the adoption of new and improved mechanized technologies that boost agricultural production and the livelihood of smallholder farmers, through a national agricultural mechanization survey. The purpose of the survey is to set baseline data on knowledge, access and adoption of mechanized agricultural technologies by smallholder and commercial farmers; and provide data on suppliers and promotion agencies such as extension and the challenges users and suppliers encounter. Overall, the survey is hoped to provide detailed quantitative results that help to set a baseline on specific indicators stipulated in NAMS and other related documents (Agricultural Transformation Agency, et al., 2014).

These challenges need to be discussed and managed to realize the desired impact of mechanized agricultural practices in Ethiopia. Accordingly, the government and all concerned stakeholders need to come together to implement the recommendations provided under NAMS as well as other forms of intervention, taking lessons on best practices from other countries achieving remarkable progress in agricultural mechanization, such as Korea. Nonetheless, it is encouraging to note that NAMS implementation is generally on track.

3. Agricultural Mechanization in Korea

3.1. Overview

In the 1960s, Korea focused on developing its export-oriented industries to reduce poverty. A series of five-year economic development plans (EDPs) started in 1962 and continued for 35 years through 1996, when the seventh and final EDP was completed.

The major policy directions for agricultural mechanization were detailed in the EDPs. As the plans were implemented, a significant level of labor was required to

drive newly developed industrial sectors. Consequently, farmers began an exodus, leaving their jobs behind to work in newly created jobs in export-oriented industries. Korea's agricultural population peaked at 16 million in 1967, or 53.4 percent of the overall population, but steadily fell to the level of 6.4 percent in 2008.

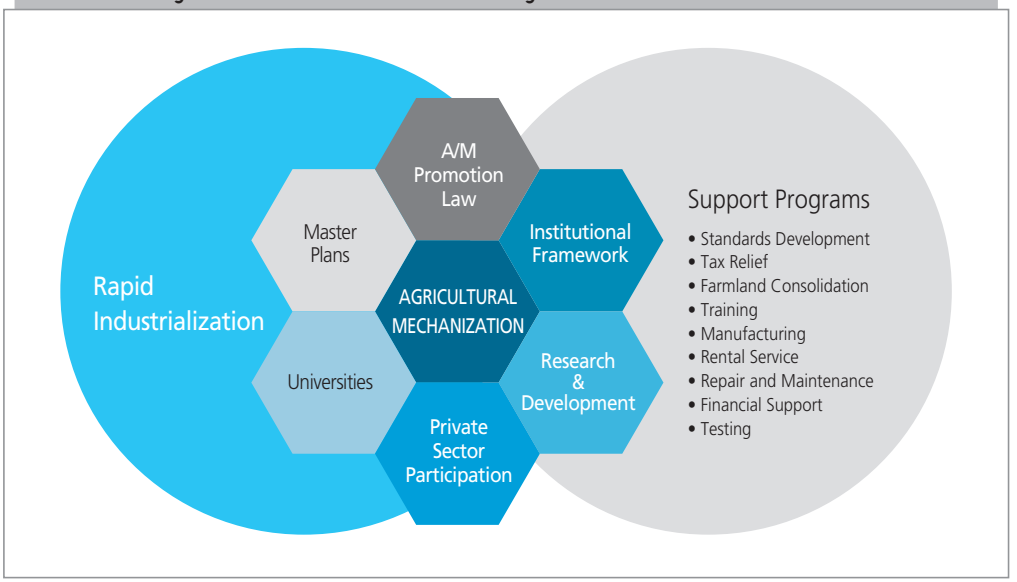
In the early 1970s, the government recognized the need for agricultural mechanization. First, the projected decline in the agricultural population due to the shift in labor toward export-oriented industries was considered a potential threat to a stable food supply, especially because the population was growing so fast. Second, a need was perceived to increase farm production because self-sufficiency in rice production was deemed a necessity. Increasing labor productivity and improving cultural practices through agricultural mechanization were seen as the only ways to meet both the required agricultural production and labor force for the new industries. So industrial development was the key to the success of Korea's agricultural mechanization.

One of the most important factors affecting agricultural mechanization was wages in rural areas. Pay was critical in peak periods of labor demand, typically for rice transplanting and harvesting. Korea saw average farm wages jump 98-fold from 1962 to 1987. The average annual hike had exceeded 20 percent over the last 20 years and peaked at 30 percent in the fourth EDP period. Growth of such wages has since dropped to under 5 percent from 1982. Such a dramatic rise in farm wages resulted from the rapid decline in rural labor over that period.

The rise in farming wages, caused by the decline in the rural labor population, played a positive role in Korea's agricultural mechanization but failed to increase the non-agricultural income of farmers because employment opportunities in rural areas were limited. In addition, the decline in agricultural population did not adequately increase farming size to make mechanization economically competitive. But farmers still could not conduct farming without using machines because of the rural labor shortage, but they could also not afford the machines because of the low surplus afforded by their field. This was a serious problem for Korea over the agricultural mechanization implementation process. Adequate job opportunities must be created in rural areas for the success of agricultural mechanization, especially in regions where the number of farming households is relatively small. Expanding farming size has been a policy direction of Korea in its efforts to tackle low income in the farming household economy.

The factors behind Korea's successful agricultural mechanization are summarized in [Figure 3-4]. Each element is discussed in further detail afterwards.

[Figure 3-4] Success Factors Behind Agricultural Mechanization in Korea



3.2. Historical Transition in Agricultural Mechanization in Korea

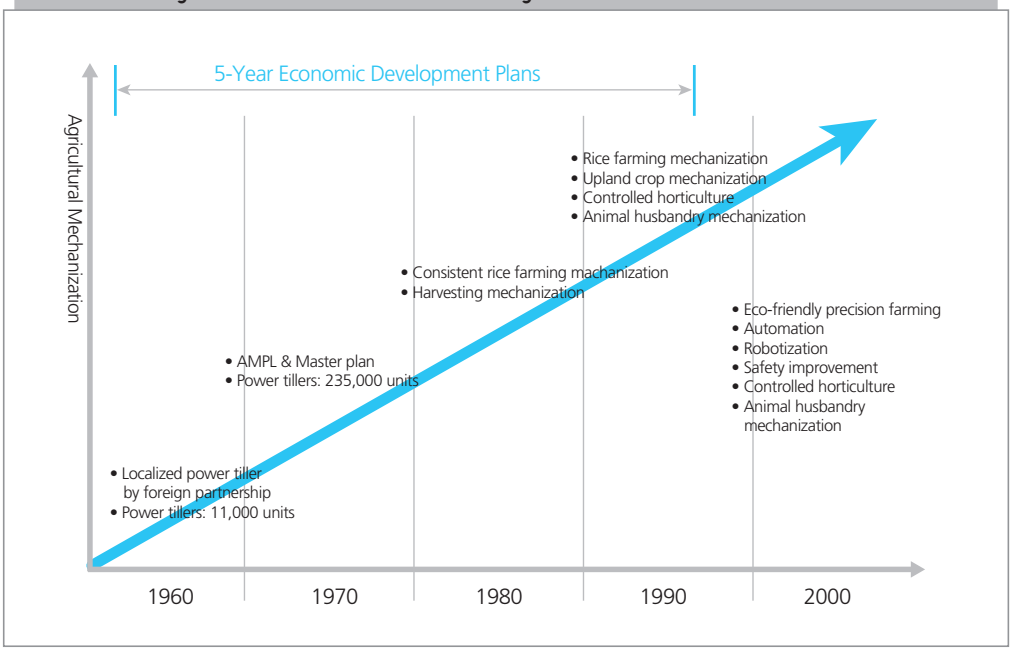
Prior to 1960, manual and axial forces were used to perform most farm work. Rakes, hoes and sickles were used as manual farm equipment and plows and harrows as axial farm equipment. Water pumps were used to control drought and power sprayers to control pests.

In the 1960s, stable food production was adopted as agriculture's prime objective. Accordingly, a disaster readiness project to reduce disasters such as drought and pests was implemented as a priority. Agricultural mechanization also emphasized disaster preparedness in the pursuit of government policies to increase food production. Through a technical partnership with Mitsubishi of Japan, partially localized power tillers were developed and supplied to farmers in 1963.

In the beginning, a power tiller was not mainly used for farm work but for transportation, but would replace draft animals through active use in farming operations such as plowing and harrowing (Yun and Kim, 2013).

Due to the success of the five-year EDPs, labor migration from rural to urban areas intensified, and the basis for agricultural mechanization was provided due to higher wages for rural labor and a shortage of workers in farming season. Development of efficient agricultural mechanization was one of the main pillars of agricultural

[Figure 3-5] Periodical Transition of Agricultural Mechanization in Korea



policy. From 1972, the five-year agricultural mechanization plan was established under a presidential order. Among the programs, 196,000 agricultural machinery units were to be supplied over five years, including 38,740 power tillers. As a result, the supplied number of power tillers was increased from 11,000 units in 1970 to 235,000 in 1979. Additionally, power tillers were completely localized in 1978. For the systematic and continuous promotion of agricultural mechanization, the Agricultural Mechanization Promotion Law was enacted by the end of 1978. Loans from the German Reconstruction Bank and Asian Development Bank were introduced to raise funds to help farmers purchase agricultural machines.

In the 1980s, labor migration from rural to urban areas was intensified due to rapid urbanization and industrialization. Labor peaks appeared in rice transplanting and harvesting, thus mechanization was required due to lack of workers in rural areas. A consistent system of mechanized rice farming was formed from tilling up to harvest work.

In the 1990s, the mechanization rate of major rice farming except drying operations exceeded 90 percent. Demand for upland crop mechanization also increased. For upland crops, agricultural farming machines such as cultivators and seeding machines were developed. Mechanization for controlled horticulture and post-harvest were promoted.

Since the 2000s, eco-friendly precision farming, automation, robotization and safety improvement have been the main topics in agricultural machinery. Upland crop mechanization for controlled horticulture and animal husbandry and low-cost rice crop mechanization are being moved forward. The efficient and safe utilization of agricultural machinery is also being strengthened.

3.3. Master Plan for Agricultural Mechanization

In 1971, President Park Chung-hee urged an agricultural mechanization promotion plan be set up by systemization of agricultural machinery factories to mechanize agricultural machinery manufacturing. The first agricultural mechanization master plan for 1972 to 1976 sought to drive agricultural mechanization. Afterwards, an agricultural mechanization master plan was devised every five years.

A professional implementation unit was organized to develop the master plan for agricultural mechanization. Subsequent surveys and analyses were performed on:

- Cultivation area
- Production by crop
- Labor input per farm household
- Status of agricultural machinery supply and working areas
- Crops to be mechanized
- Farm work to be mechanized
- Agricultural machinery to be locally manufactured
- Supply of agricultural machines

3.4. Agricultural Mechanization Promotion Law (AMPL)

In December 1978, the Agricultural Mechanization Promotion Law was enacted after a review of Japanese and Italian laws. The law stipulates the definition of agricultural machinery, financial support, establishing an agricultural mechanization plan, fund raising, notification of the fleet of supply, adjustment of machinery price, joint use of machinery, inspection, repair and maintenance, and safe management of agricultural machinery. The law has 24 clauses and annexures, and the important contents are as follows:

- The government should set up and notify the master plan for agricultural mechanization.
- The government should notify for qualified agricultural machinery suitable for promotion of agricultural mechanization, and enable farmers to purchase necessary machines at moderate prices.
- The government should raise the funds to promote agricultural mechanization.

- Agricultural machinery should be supplied with performance test certificates and quality inspections by government inspection institutes. Otherwise, a penalty will be imposed on the manufacturers or dealers.
- The government should operate demonstration farms for agricultural mechanization or joint use organizations to promote utilization of agricultural machinery.
- Agricultural machinery manufacturers or dealers must have mandatory facilities to provide efficient repair and maintenance.

The Enforcement Ordinance of the Agricultural Mechanization Promotion Law was enacted in December 1979 and its enforcement rules were enacted and promulgated in February 1980. In the enforcement ordinance, the administrative control of the agricultural mechanization fund was regulated. Also, the enforcement rule specifies the accounting process of the fund, testing of the agricultural machines and the repair and maintenance system.

3.5. Institutional Frameworks for Agricultural Mechanization

The master plan for agricultural mechanization was established to achieve self-sufficiency of staple food by coping with the labor shortage and wage peaks in the agricultural sector. In 1973, the Agricultural Machinery Division of the Ministry of Agriculture, Forest, and Fishery (MAFF) was established to efficiently promote the mechanization plan. The division controlled all necessary works for agricultural mechanization. In every city and district, agricultural machinery training stations (AMTS) were re-organized in 1972. Agricultural machinery training centers (AMTCs) were established under the RDA, and played a key role in promoting and utilizing of agricultural machinery via training in the operation and maintenance of agricultural machinery.

The Institute of Agricultural Engineering and Utilization (IAEU) under the RDA was expanded and re-organized as the National Agricultural Mechanization Research Institute (NAMRI) to take full charge of R&D. And the institute developed and improved agricultural machinery to support agricultural mechanization policy. Establishment of the exclusive organization for agricultural mechanization contributed to successful agricultural mechanization over the short term.

Toward the end of the 1970s, agricultural engineering departments were re-organized at universities by adding the agricultural machinery major to foster related engineers.

3.6. Support Programs for Agricultural Mechanization

3.6.1. Standards for Agricultural Machinery

Benefits of the standardization of agricultural machinery include convenient repair and maintenance services by increasing the interchangeability of agricultural machinery implements, making attachments convenient to use, reducing the production cost of shared parts by mass production and raising industrial competitiveness through efficient production (Yun and Kim, 2013). Industrial standardization started at the national level through the enactment of the Industrial Standardization Law as a requirement of the first EDP in September 1961. From 1961 to 1970, industrial standardization was initiated and the Industrial Standardization Law was revised. The KATA under the Ministry of Knowledge Economy controls standardization.

In the 1960s, Korean Standard (KS) for person-driven agricultural implements was mainly enacted. In the 1970s, KS was provided on a full scale for agricultural machines. Necessary standards have been provided and revised. The number of standards rose from 67 in 1979 to 146 in 1989. In 1990, several KS were transferred to the Korea Agricultural Machinery Industry Cooperative (KAMICO) as organizational standards. The transferred standards were those for small farming implements such as hoes and pickaxes and simple parts.

Since 1999, the National Agricultural Mechanization Research Institute (NAMRI) has managed standardization by testing agricultural machinery. Research on standardization to raise the interchangeability of agricultural machinery implements was performed systematically, and the results were applied to industrial standards. Since 2001, the ISO standard has been reviewed for consideration as a part of the Korean Industrial Standard and KSB ISO 0000 types were enacted. In 2010, 228 Korean Industrial Standards were being used, with most standardization being implemented through hard work.

3.6.2. Tax Relief

The fuel to run agricultural machines is supplied tax-free to farmers. Thirty-seven agricultural machines are eligible for tax-free fuel such as power tillers, rice transplanters, tractors and combines. Tax-free fuel is supplied on the basis of the number of machines being used and the yearly supply limit of MAFF. The supply limit for one agricultural machine is calculated reflecting fuel consumption per hour and allowable annual supply limit. The National Agricultural Cooperative Federation (NACF) manages the supply of tax-free fuel.

To lessen the burden of agricultural machinery purchases, the VAT of 10 percent

has been exempt for agricultural machines under the Special Tax Treatment Control Law of 1989. The 32 types of agricultural machines that are VAT-free include tractors and attachments, along with 39 items for equipment and tools for animal husbandry.

3.6.3. Farmland Consolidation

A critical issue in agricultural mechanization was that farmland generally was fragmented, small in scale and of an irregular shape. Farmland consolidation was inevitable because of this problem. In the initial stage of consolidation, severe resistance came from farmers who feared cultivated land and yield reduction. After consolidation, they could enjoy easy and profitable farming on cultivated land thanks to more advanced irrigation and drainage systems. Double cropping after rice harvests was also provided to increase farm income. Farmland consolidation had been driven as a government project since 1965, so consolidation was rapidly implemented focusing on paddy fields. In 1970, the Agricultural Modernization Promotion Law was promulgated and the farmland consolidation project was implemented, with half of funding coming from a central government subsidy, 30 percent from a local government subsidy and 20 percent from a beneficiary fund. From 1983, the farmland consolidation system was recognized as essential for retaining agricultural production infrastructure, and government support increased to a 90 percent subsidy. The projects were implemented by concessional loans from foreign banks such as International Bank for Reconstruction and Development (IBRD) and Asian Development Bank (ADB). About 80 percent of Korean paddy land has been consolidated, and the remaining 20 percent is unsuitable for consolidation from technical and economic points of view.

In the 1990s, the development and introduction of large-scale agricultural machines such as tractors and combines resulted in several consolidated systems being no longer able to accommodate big machines. The plot size was expanded more than one hectare (100m×100m). The project has been implemented with a 100 percent government subsidy.

3.6.4. Training

Farmers must be well trained before using their machines, and this would promote the efficient use of the machines and minimize machine-related accidents. Farm machines should be properly maintained before being used. A survey of farm machinery accidents in Korea showed that 77.3 percent stemmed from mishandling and carelessness by operators. As such, in the early phase of training implementation in Korea, training could not be properly conducted simply because of budget limitations; personnel, equipment, and facilities were also insufficient and inadequate. Manufacturers trained end users in a series of three-day classes on operation,

maintenance and repair prior to the delivery of machines. With the establishment of the Central Training Center at the Office of Rural Development in 1969, owners and end users could be trained through government-developed programs. The Farmer's School were established in provinces and offered farmers four to six weeks of training. In 1972, approximately 100 farmer training centers were also set up in cities and counties, and provided training mainly for end users. Between 1992 and 1996, the centers were expanded, and their facilities were modernized to improve quality of the program.

At present, three levels of training courses are offered. The highest level is through the Rural Development Administration and has instructors and mechanics teach lower level courses. The intermediate level is offered by provincial authorities for village leaders and operators working at mechanized farming groups. End users are trained at agricultural technical centers in cities or counties nationwide. The training programs include those on operations, maintenance and repair, but their periods and contents differ depending on the types of courses. Educating farmers on machine operations has taken on even more importance because this will help cut fuel consumption.

3.6.5. Manufacturing of Agricultural Machines

Power tillers were first manufactured in Korea in 1963. Tractors were first produced in the country in 1969. Combines were introduced in 1972 and rice transplanters in 1973. In the beginning, power tillers, tractors, combines and rice transplanters were assembled in Korea with numerous imported parts under technical collaboration agreements with foreign manufactures such as Kubota, Yanmar and Iseki of Japan, Fiat of Italy and Ford of the U.S. The imported parts were gradually replaced by domestic parts. The gradual localization of farm machines was a government-driven policy to strengthen domestic agricultural machinery.

To strengthen the agricultural machinery industry and increase the quality of domestically made machines, the government had manufacturers produce farm machines under two licenses: the integrated farm machinery manufacturer (IFMM) and the specialized small to medium-scale machinery manufacturer (SSMM). The IFMM was licensed to produce farm engines and at least two large-sized machine such as power tillers, tractors, transplanters, binders or combine harvesters. To get the IFMM license, a company had to meet facility and employment requirements and maintain the required quality level in production to pass a national inspection. The SSMM license was issued to relatively small manufacturers that produced at least two smaller to medium-size machines such as grain dryers, power sprayers, power threshers and irrigation pumps. This license system was also designed to avoid serious price competition among manufacturers so that they could produce quality

products. Yet this policy produced unintended results. Many licensed manufacturers made minimal efforts to strengthen their capabilities in assuring quality of their manufactured products and the development of new technologies; this was due to minimal competition among licensed manufacturers in the domestic market. The license system continued until 1988, when a new system took over based on the principle that if qualified, all manufacturers could be permitted to produce any machine they wanted. In 1987, five of 118 manufacturers were IFMMs and six were SSMMs. The remaining companies produced parts or components as subcontractors to the licensed manufacturers.

Another problem associated with the old licensing system was that it caused licensed manufacturers to expand production facilities to meet seasonal peak demand. Off-season demand, however, had decreased so much that many licensed manufacturers suffered from excess output capacity in the late 1980s, especially for power tillers, tractors, transplanters and binders. Starting with just 50 manufacturers in 1963, the farm machinery industry has grown into a key manufacturing sector of Korea, with more than 450 companies.

3.6.6. Rental Service

In the initial operation of the agricultural machinery bank, the mediation business of consignment farming was predominant, followed by the direct farming contract. The commission fee charged by the machinery bank, however, was too low as set by the Local Agricultural Cooperative Federation (LACF) at quid pro quo for member farmers of the cooperative. Most banks have deficits due to the operational burden caused by the increase in management personnel and labor charges. Also, the business is not active on a large scale and the real operational status is unknown (Yun and Kim, 2013).

When farmers want to do mechanized farming, they have to purchase agricultural machinery, request farming contract by payment or borrow machinery from others. Smallholder farmers, however, find it hard to buy agricultural machinery because of price. The short operating hours of agricultural machinery is short do not justify the high initial investment, and the joint use of agricultural machinery leads to poor operation and maintenance.

So leasing agricultural machinery was introduced for farmers. At the end of 1990, the lease project was implemented sporadically by local governments, but in 2002, the project, initiated at the government level, was named a national strategy for efficient agricultural mechanization. The purpose was to lessen the farmers' burden in buying agricultural machines and resolve the labor shortage in the sector. The NACF in 2003 was ordered to implement the lease project.

The agricultural machinery banks were established in 1992 to support farmers who could not afford to get own agricultural machines due to low income. The role model of the bank was a type of joint use of agricultural machinery in Germany. The business of the agricultural machinery bank is as follows:

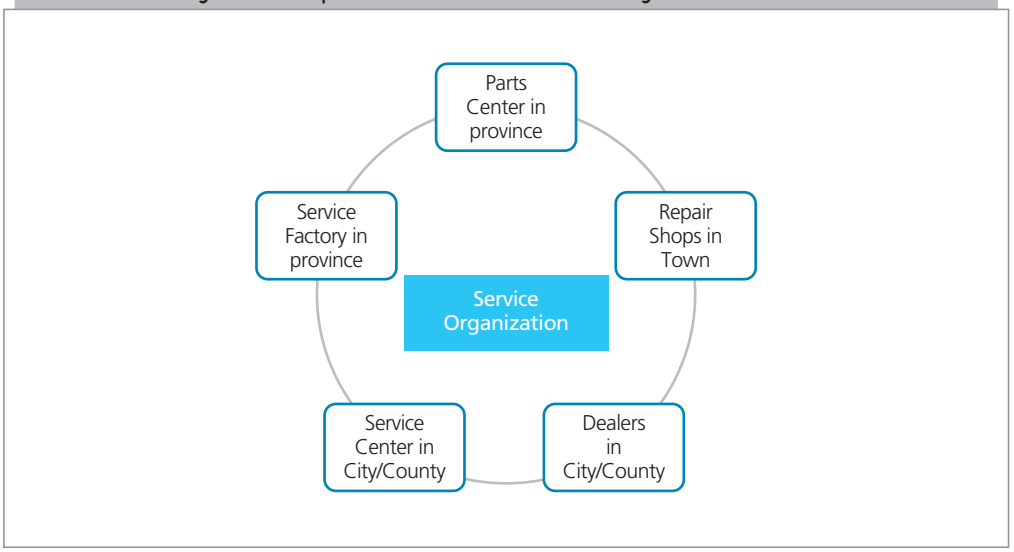
- Rental of retained machines to individual farmers, farming groups and others
- Mediation between farmers and machine owners
- Direct farming service for landowners on a contractual basis

In 2002, the LACF managed agricultural machinery banks and at present, the number of participating farm households is 16,000 with a working area of 10,500ha.

3.6.7. Repair and Maintenance

The policy direction of after-sale services was developed on the premise that machine suppliers would assume the responsibility. Consequently, manufacturer dealers and the NACF have provided repair and maintenance services for the machines they sold. The after-sales service network is comprised of five types of service organizations: parts centers and service factories in the provinces, service centers and manufacturer dealers in counties or cities, and repair shops in towns. The parts centers and service factories have been operated by manufacturers, with the former supplying other service organizations with spare parts and the former doing maintenance checks including overhauls. Both types of centers have been required to stock all spare parts so that they can be delivered without delay. Ordinary repair

[Figure 3-6] Repair and Maintenance Service Organizations in Korea



and maintenance services have been provided by dealers and NACF-operated service centers located in counties or cities. Manufacturers producing supply models have been required to maintain a dealer in every county nationwide, and dealers have been required to keep more than 45 percent of all consumable parts in stock. Repair shops have been the smallest service organization in conducting simple repairs. This is important, however, because most repairs have been performed at repair shops. They have been required to keep more than 20 percent of all consumable parts in stock. All service organizations must be furnished with equipment, facilities and a set number of mechanics as specified by the government. As of the mid-2000s, more than 700 dealers and 2,500 other service organizations were active in the country, including NACF-operated service centers.

In general, service organizations cannot keep a large stock of spare parts. So farmers are often forced to visit a factory to obtain what they need. Another problem is the lack of qualified mechanics due to poor working conditions and low wages. To solve these problems, measures have been taken including loans and subsidies for purchasing spare parts, modernization of service equipment and facilities, standardization of spare parts and the digitalization of service management.

3.6.8. Financial Support

Because most farmers could not afford agricultural machines, they needed financial support such as subsidies or loans to purchase machines. Since 1967, financial support programs have helped to procure agricultural machines. Under these programs, farmers and cooperatives received government subsidies and loans if they were going to purchase the machines specified as supply models by the government. In the 1960s, a subsidy worth 60 percent of the machine price was provided for sprayers, water pumps and power tillers. The subsidy was reduced to 40 percent and the loan was 25-40 percent until early 1970s. From the mid-1970s, tractors, rice transplanters and combines were supplied to farmers' cooperatives in farm villages for joint machine use. Various types of farmers' cooperatives such as mechanized farming centers and large and small farming groups were established at that time. These cooperatives received 40 percent in subsidies and 60 percent in loans. Individual farmers received just 1 percent in subsidies and 60 percent in loans.

This system changed in the 1990s. Cooperatives got half in subsidies and 40 percent in loans, and individual buyers got just 60-90 percent in loans. Small farming companies for contract operations and full-time rice farmers appeared in the 1990s. Farming companies had received the same subsidies and loans as cooperatives. The subsidy for full-time rice farmers had increased from 30 percent in 1993 to 50 percent in 1996. In general, the subsidy was reduced as the loan amount increased. In 1987,

94 percent of overall financial aid to support the purchase of farming machines came in the form of loans. The subsidy was available only for machines meant for joint use and upland crop mechanizations such as cultivators. In particular, cooperatives received half in subsidies and 40 percent in loans to purchase machines for joint use. Only 10 percent was paid by cooperatives. Individual farmers received 70-90 percent in loans, however. Subsidy and loan services have been managed by the National Agricultural Cooperative Federation (NACF), which charges a lower interest rate on their loans than those from commercial banks. Differences in interest rates between the NACF and commercial banks have been reimbursed by the government. The initial annual interest rate was 10 percent, and the rate gradually decreased to 4 to 5 percent in the 1990s and 3 percent in the 2000s. The present rate is 2 percent and will fall to 1 percent in the coming year.

4. Policy Recommendations

4.1. Sustainable Agricultural Mechanization for Ethiopia

To increase the agricultural output of food and non-food products while improving labor productivity on farms and in value chains, agricultural labor needs access to the right tools, equipment and machinery to ensure efficient farm operations from the viewpoint of capital and financial costs as well as those of the environment and society. Farm power is determined by a combination of energy sources and the tools and equipment utilized to maintain farming operations.

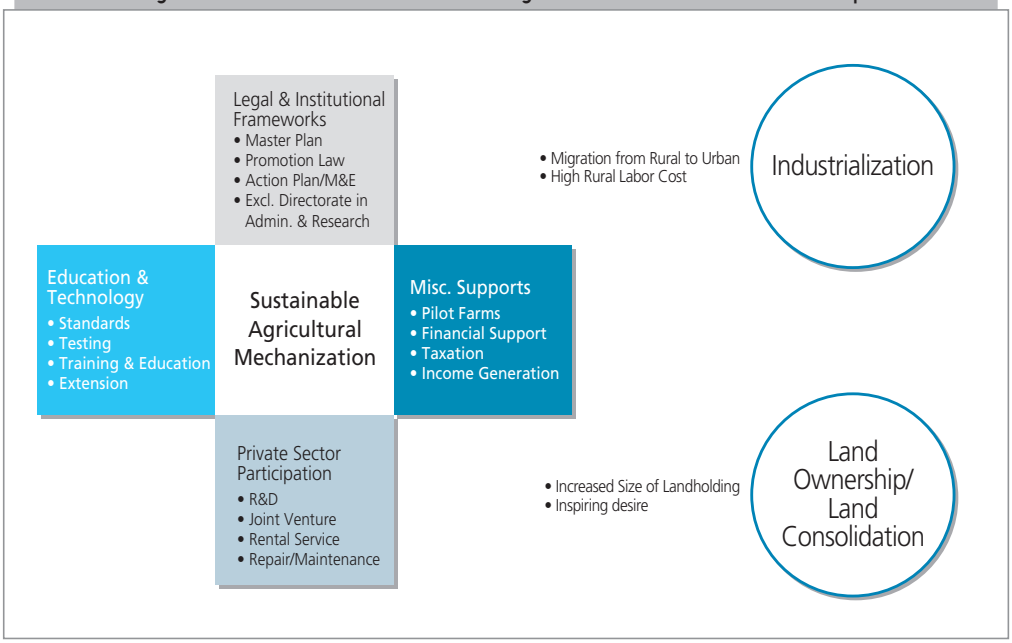
To improve and maintain competitiveness and keep inflation as low as possible, production costs must be kept low, too. One major approach to achieve this is mechanization, and effective demand for improvement of agricultural products and greater product volume are needed to meet domestic and international demand for food, feed and industrial raw materials. As the Ethiopian economy diversifies, grows and offers greater economic opportunities in non-agricultural sectors, a continuing need will be for labor-saving mechanical technologies to supplement decreasing labor supply and offset rising labor costs. When family labor remains the main source of farm power, reduction of labor requirements and improvement of labor productivity as well as overall output are needed so that child labor and drudgery can be eliminated and employment for hired labor is possible.

Thus, agricultural mechanization that improves farm power and labor as well as overall productivity is part of a complex array of interactions between numerous stakeholders both on farms as well as in supply chains. Besides the agronomic, technical, environmental and social aspects, an important role is played by institutional aspects such as agricultural education, extension and research. Rural infrastructure,

domestic supply chains and service providers, and domestic manufacturers and world markets for equipment and machinery are all of vital importance.

Demand for sustainable mechanization and services will continue to rise with a growing population's demand for food, feed and biological industrial raw materials from agriculture, especially with rural out-migration and the younger generation responding to economic opportunities in agricultural service and non-agriculture sectors, and in growing urban centers for employment and improved quality of life. Labor shortages have been seen at critical stages in the cropping calendar in many developing countries in Asia and increasingly in Africa. What is now growingly important is to encourage sustainable private sector development that can offer farmers the right choice of technology at the right price to raise agricultural productivity to support rural economic development, contribute to regional and national food security, reduce post-harvest losses and promote domestic manufacturing of equipment and machinery.

[Figure 3-7] Elements for Sustainable Agricultural Mechanization in Ethiopia



Based on the findings from this research and the discussions between partner countries, relatively insufficient basis for the development of agricultural mechanization and technology has been found in Ethiopia. And thus the research provided the Ethiopian government with policy recommendations in order to achieve sustainable agricultural mechanization. Based on the Korea's experiences with the consideration of identified challenges in Ethiopia, success factors for the sustainable

agricultural mechanization (see [Figure 3-7]) have been deduced in the context of the role of stakeholders, legal/institutional frameworks, supporting programs, fund-raising, and scale of mechanization among others. Recommendations on issues for the successful agricultural mechanization were provided. Key issues highlighted in the research which framed in the scope of policies are;

- Role and responsibilities of stakeholders
- Result-based management of agricultural mechanizations
- Building service & maintenance support
- Rental of machines
- Standards development for agricultural machinery
- Pilot project on mechanized farming
- Joint venture for manufacturing agricultural machines
- Scale of agricultural mechanization

4.2. Role and Responsibilities of Stakeholders

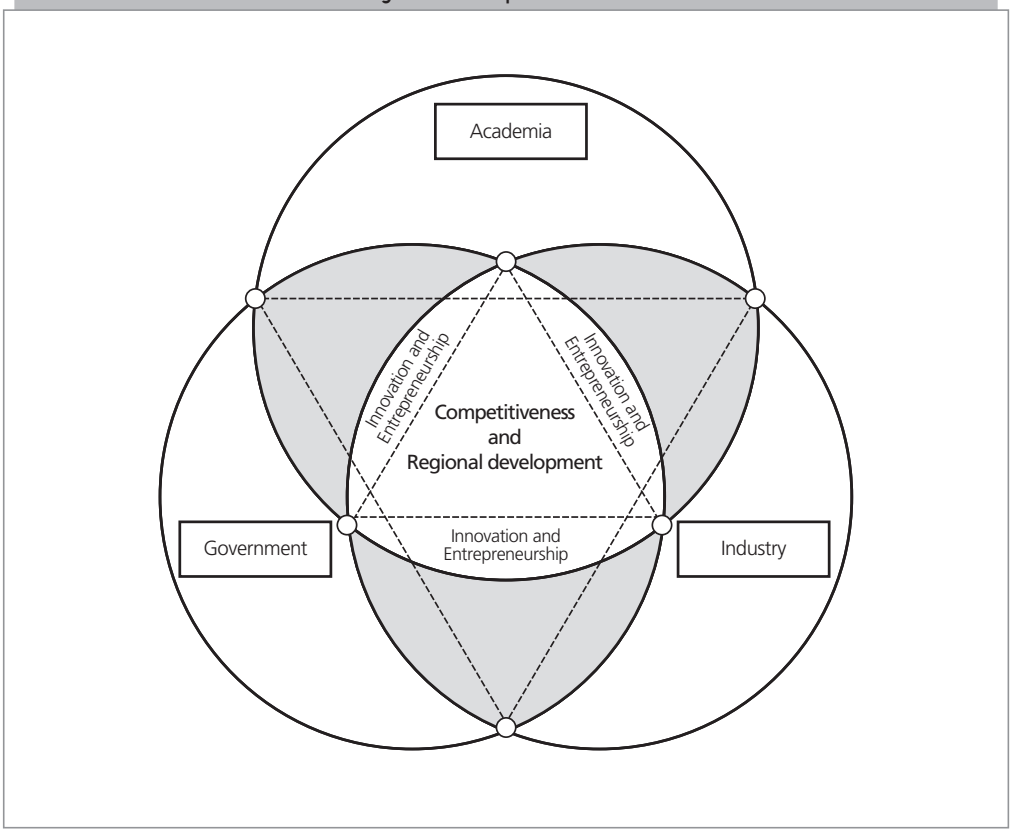
The Ethiopian government needs to take the first steps in importing the consignment of machinery and implements. After the initial investment, the government should import the consignment in partnership with private companies, and then the private sector can take over. The government can gradually take steps toward a comprehensive privatization policy to reduce costs and prices.

The government, private agencies and end users need to play important roles in the implementation of mechanization strategies. The ideal situation involves the so-called triple helix model (as shown in [Figure 3-8]), in which the government, public institutions (academia) and industry team up in a mutually supportive cooperative action. Broad partnerships between government tasks will cut across infrastructure, gender, health, education, transport, natural resources and legislation.

The government needs to play major roles in education, training and research. Its key role is establishing, financing and managing institutions responsible for knowledge acquisition and dissemination. The government can also foster trade relationships with the suppliers of new technology. The private sector can obtain momentum in a short period with support such as financial securities or tax waivers.

The private sector will provide farm inputs including machinery and related support services. Establishing intimate relationships with farmers, estimating needs and satisfying demands are parts of the business. Based on such intentions, demand for mechanization and agricultural productivity will probably be increased. Domestic manufacturing can be logically preceded by profitable importation, assembly and distribution of support businesses in Ethiopia.

[Figure 3-8] Triple Helix Model



Source: Farinha and Ferreira (2012).

4.3. Result-based Management (RBM) of Agricultural Mechanization

Results-based management (RBM) has all actors on the ground contributing directly or indirectly to achieving a set of development results, and ensure that their processes, products and services contribute to the achievement of desired results (outputs, outcomes and goals) (Bester, 2012). RBM rests on clearly defined accountability for results and requires monitoring and self-assessment of progress toward results, including reporting on performance (United Nations Development Group, 2010).

Outputs from the implementation of policies or strategies and the effects on stakeholders will be monitored by the Ethiopian Ministry of Agriculture. The institutions assigned with responsibilities listed in the logical framework of agricultural mechanization strategies will need more detailed methodology and work plan. Each component will be implemented through annual work plans including activities,

time frame and budget formulated vis-a-vis the targets.

Progress on the implementing activities will be periodically evaluated by comparing the outputs with proposed key indicators. Information on progress will be collected according to the proposed plans and schedules. The review of collected information will provide decision makers with an assessment of achievements, failures, constraints, opportunities, weaknesses, challenges and lessons learned. The activities and work plans for implementing strategies shall further be modified based on the record of outputs, effects and impacts. The above modification will provide feedback to have remedial action for setting a new set of goals, as feedback is essential for continuous improvement.

4.4. Strengthening Institutional Support

To foster an environment for the development of agricultural mechanization, many institutions including those of education, training, extension, R&D and testing must undergo strengthening.

4.4.1. Public Sector Departments of Agricultural Mechanization

Agricultural mechanization directorates of MOA should be primarily responsible for advising the government on setting mechanization policy and strategy, as well as planning and oversight of programs for the sector's development. Another important function is intimately involvement with data and statistics collection and the dissemination of information. Once an overall strategy is defined, the government could easily identify components where resources are required and where appropriate external assistance could be advantageous.

The suggestions for the objectives of a mechanization directorate are:

- Ensure an intra-disciplinary engineering approach to public technical support in all aspects of agricultural engineering, including mechanization
- Improve inter-disciplinary cooperation within MOA
- Facilitate more effective collaboration with related disciplines in other government organizations and the private sector
- Strengthen understanding of agricultural engineering, of which agricultural mechanization is a part, as an important element in rural development

4.4.2. Research and Development

The term "research and development (R&D)" can cover a wide range of activities from fundamental scientific research to practical machine development and testing.

In general, the private sector does not conduct scientific research, and is mainly interested in putting on the market new or improved products to increase business activities.

By the same token, the general consensus is that the public sector is unsuitable for either developing machines or marketing them. Like in Korea, the private sector should instead carry out machine development as it will have a more focused approach as well as direct knowledge and understanding of its own capabilities in production technology and costs.

Scientific research, on the other hand, is generally carried out in the public sector, sometimes with private funding, and is carried out at universities or in government think tanks. Whether governments get involved in these activities is a question for them to individually prioritize and decide on. Because R&D is expensive and requires high levels of skills and expertise that developing businesses might lack, governments and the private sector could cooperate in certain instances to ensure that activities are closely linked to the identification of markets and subsequent manufacturing.

The technical expertise required for production should be placed with the company itself. The public sector should not run development workshops because they tend to become isolated and have little connection to the private sector or market.

4.4.3. Testing

Testing of farm machinery is a controversial subject. The main issue is whether testing serves a useful purpose and whether it adversely affects the free development of the private sector and thereby restricts farmers' choices. Testing programs are undertaken with the professed intent of protecting the end user. In most cases, the outputs of testing and evaluation centers have been of little practical value to farmers.

The standards and testing procedures used are often taken over from industrialized countries and have little or no relevance to the end users. A testing institution often ends up repeating tests previously carried out or setting their standards so high that domestically manufactured machinery and equipment are at a disadvantage.

In deciding whether to carry out testing and evaluation, client requirements should be considered; often, those requirements are diverse and so if consideration is given to introducing or continuing a testing and evaluation program, a crucial step is to establish its purpose, cost effectiveness and understanding of client requirements.

4.4.4. Extension

Extension has been traditionally considered a function of the public sector in many countries. Similarly, the Ethiopian government promoted and supported the public service of extension as a key element to meet agricultural development objectives. Now, however, the recognition is that many governments lack the resources to provide free extension services to all farmers and that government programs might not be the most effective in providing them.

While the solution to this problem in many developed countries has been charging fees for advice rendered to farmers, a more workable approach could be assigning the extension role to the private and NGO sectors. Agricultural extension, when carried out by the public sector, should operate in collaboration with institutes and private companies involved in agricultural mechanization. This requires an effective research-extension link. Moreover, education and training institutions have key roles to play in promoting these links.

4.4.5. Education and Training

Governments might well find it advantageous to develop integrated programs for education, training, and extension. The type and level of education and training need to be geared toward both the requirements of the farming sector and the agricultural manufacturing and production sectors.

Training for skills development might be based on a supervised, hands-on practical approach in which trainees learn by doing. The instructors should demonstrate the skills they are teaching and also be master craftsmen. This requirement seems obvious but observations in many countries show that certain instructors attempt to teach by telling rather than doing, usually because they are inadequately trained themselves or the centers lack the resources necessary to purchase practical teaching aids. Effective education and training programs improve the skills and knowledge of people who manufacture, market, service and use agricultural machinery and equipment, as well as those who devise policies related to these activities.

Finally, proper training of trainers is crucial. Recognition is growing that few countries have the capacity to provide all of the training required, and that reliance on foreign or domestic experts for low-level training is an expensive option. So domestic staff need to be trained as trainers to subsequently provide training to a broader audience. This project is best carried out in the form of short but practical courses.

Training is of vital importance to ensure that machines are used in a safe and

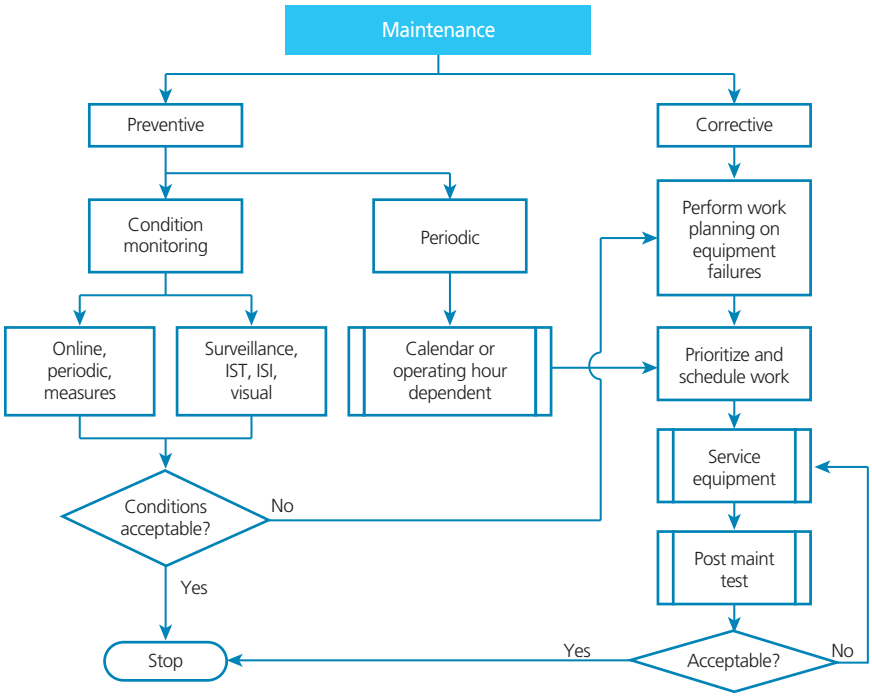
correct manner. Training and capacity building need to be strengthened at the local level in the form of regular Farmer Field schools and/or on model training farms where farmers can learn about specific types of machinery. Advisory services should be established for sustainable agricultural mechanization and related farming skills.

4.5. Building Repair and Maintenance Support

Successful mechanization requires the building of support infrastructure in the form of repair services and supply of spare parts, fuel and lubricants. Increased investment is needed from the government and private sector to develop adequate regional coverage of essential spare parts and maintenance services as well as replacement facilities.

The maintenance of agricultural machines is essential for successful agricultural production to guarantee safe operations and availability of machines and related equipment for cultivation operations. Moreover, maintenance incurs a major cost in agricultural operations. Consequently, the growth of competition in agricultural

[Figure 3-9] Maintenance Strategy



Source: Khodabakhshian (2013).

production requires maintenance improvement through lower maintenance cost while maintaining safety.

Maintenance is to ensure that the components carry on the original purposes. The primary objective of maintenance is to efficiently use a minimum of resources to make sure that components properly perform their designed purposes for the sake of reliability and recovery from breakdowns (Knezevic, 1993). Overall maintenance strategy (as shown in [Figure 3-9]) is made up of support programs. In general, the strategy comprises preventive and corrective maintenance programs (Khodabakhshian, 2013).

4.6. Rental of Agricultural Machines

Mechanization has undoubtedly contributed to the development of the agricultural economy; still, most farmers, due to the meager financial resources at their command, cannot go further in mechanization due to the high prices of machines. Smallholder farmers need access to farm power but without the associated risks of machine ownership. This can be done by making more efficient use of agricultural machinery capacity, like the more effective market for machine hire as practiced in many Asian countries.

The time between harvesting one crop and sowing the next is was so short that only the use of agricultural machines for plowing makes it possible to prepare the seed-bed in time for a crop variety to be grown. Threshing was given more importance because the season's labor could be wasted if rain destroyed the harvest. To overcome this problem and exploit the advantages of mechanization by needy farmers, certain agricultural cooperatives will initiate a step toward providing farm machinery on rental as well as custom hiring for farmers. Custom hiring needs neither initial investment nor repair and maintenance cost from farmers, and merely charges custom hiring and rental charges and a refundable security deposit.

4.7. Standards Development for Agricultural Machinery

Agriculture is characterized by a high degree of heterogeneity in the growing conditions and strategies and the resulting operational methods. Agriculture offers a wide range of specific machines adapted to individual conditions. Due to the leading role of tractors in agricultural mechanization and the need to design the process chains to meet local conditions, standardized interfaces are necessary to give farmers the freedom to choose from various tractors and implements.

International standardization for tractors and agricultural machinery was started in 1952 with the creation of ISO/TC 23. Over time, expectations for targets of

standardization and technical specifications changed significantly. ISO methodology can be used by national standards watchdogs and other standards development organizations to measure the economic benefits of standards and thus raise awareness of their positive impact. Ethiopia can apply such a methodology to better understand the impacts of standards on their activities and improve performance.

These phases show the continued orientation of stakeholders toward agricultural machinery standardization. In the beginning, the interests of tractor and implement manufacturers played the leading role, but client needs and political developments grew in importance later.

Developing standards uses a consensus-based approach and comments from stakeholders are considered. Key principles in standards development for agricultural machinery are as follows:

- Developed as response to market need
- Formulated by experts' groups that are part of larger groups called technical committees. These experts negotiate all aspects of the standards, including scope, key definitions and content.
- Form technical committees with experts not only from the relevant industry, but from consumer associations, academia, NGOs and government

The advance of globalization allows and demands the integration of new partners into the standardization network. Through this integration, more resources will be made available and ISO standards will be increasingly received by the new markets. Due to individual market conditions, however, different types of machines are needed to satisfy local demand. As a consequence, standardization is faced with the question of how to satisfy the requests of highly developed and developing markets by one high quality standard.

Specific reference is made to the publication "ISO's Action Plan for Developing Countries," which is available at http://www.iso.org/iso/iso_action_plan_developing-countries-2011-2015.pdf.

4.8. Pilot Project on Mechanized Farming

Farmers' resistance and reluctance to embrace new mechanization technologies pose a challenge to the development of agricultural mechanization in Ethiopia. Many farmers are uncertain about the machines' functions and performances because mechanized farming through the use of these machines is completely different from the traditional ways. Thus, demonstrations are needed on how agricultural machines can be used and why mechanized operations will not cause yield losses.

An integrated agricultural mechanization demonstration farm (IAMDF) is recommended in each province of the country to demonstrate all-out mechanized farming for crop production. IAMDFs might not be economically successful because of the large number of personnel and facility expenses as well as mismanagement. They will, however, contribute to changing farmers' prejudice against mechanized farming.

4.9. Joint Venture for Manufacturing Agricultural Machines

To supply low-priced and domestically made agricultural machines to farmers is the key to achieving sustainable agricultural mechanization in Ethiopia. Joint ventures with foreign manufacturers are a helpful way for Ethiopia to manufacture agricultural machines. A joint venture is a strategic partnership of two or more people or companies agreeing to contribute goods, services and/or capital to a common commercial endeavor. Joint ventures with larger companies also provide smaller ones with the chance to build technological capacity and access to wider markets.

The products from this business will accommodate not only domestic demand but those of neighboring countries for agricultural machines. It will also contribute to national foreign export promotion and industrial development in Ethiopia. Other advantages include:

- Supply of cheaper agricultural machines to Ethiopians farmers
- Provision of national network for machine repair and maintenance
- Absorption of rural area workers for industrial sector
- Additional need for agricultural mechanization

Aside from the joint venture, the public-private partnership (PPP) for agricultural mechanization in Ethiopia could be an alternative. One of the key problems in the implementation of the GTP II is lack of financing. Foreign manufacturers can supply agricultural machines and provide repair and maintenance services via overseas concessional loans.

4.10. Scale of Agricultural Mechanization

Debate over past decades has raged over the appropriateness of promoting mechanically powered farming in the most populous landlocked nation in the world. Accordingly, the consequences of small-scale farming mechanization have been carefully examined by many studies.

To determine the scale of agricultural mechanization in Ethiopia, many circumstances should be considered, like the following:

- More than 80 percent of population lives in rural areas
- 90 percent of farm households are smallholders with less than 1.0 ha of farmland.
- Farmers' inability to buy agricultural machinery due to low income
- Technologies for manufacturing agricultural machines in infant stage
- Repair and maintenance services for mid- to large-scale machinery unavailable
- Farmlands in many areas not consolidated to accommodate large machinery

In the initial stage, the development of relatively small-scale agricultural machinery is preferred in Ethiopia given the above circumstances.

On the other hand, a chronic debate in agricultural development is the emphasis on roles of large-scale farms versus small-scale farms in enhancing agricultural growth and economic development. Large-scale mechanized farming has been discussed as the way to the sector's modernization. This has been most common in relatively land abundant regions like Ethiopia, where a focus on labor-saving versus land-saving technologies appears to have economic logic. So large-scale agricultural machines are considered inevitable. But the import of sizable agricultural machines excluding tractors is recommended over manufacturing them domestically in consideration of technology, investment and economic feasibility.

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2014/15 Knowledge Sharing Program with Ethiopia:
Developing Action Plans for the Priority Agendas of the
Second Stage of Growth and Transformation Plan

Chapter 4

Public Private Partnership in the Government Funding Modality

Public Private Partnership in the Government Funding Modality

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Summary

Reducing poverty and thereby emerging as a middle income country by 2025 is Ethiopia's main goal. To achieve this objective, a comprehensive series of five-year socioeconomic plans and policies have been designed and implemented. These, together with global trends that favored growth, have helped the country witness strong growth in recent years.

Infrastructure improvement has played a critical role in economic growth over the last 10 years. Yet the sector is fraught with many challenges, which according to one study are mostly related to the availability funding gap, inefficient delivery of services and limited involvement of the private sector. So a public-private partnership (PPP) could provide solutions to the challenges and improve infrastructure conditions.

Despite the common perception of PPP's absence in Ethiopia, the system was introduced recently in an ad hoc nature. The programs specifically focused on energy generation and delivery of services. Nevertheless, PPP in Ethiopia is in its initial stage and a myriad of pressing issues must be dealt with. The major issues are related to the lack of institutional and legal frameworks dedicated mainly to PPP. Without these frameworks, ad hoc approaches to PPP that are often taken could lead to poor performance in PPP endeavors. So Ethiopia must come up with a legal, procurement and institutional frameworks conducive to PPP.

The history of PPP in Korea is relatively short compared to other developed countries. In the early 1990s, Korea faced a serious lack of infrastructure and the government lacked sufficient budget to fund infrastructure investment. As an innovative attempt to cope with fiscal budget constraints as well as take advantage of the private sector's superior efficiency, the government of Korea introduced PPP. Korea trial and error experience can provide valuable insight and reference to the governments of fast-growing developing economies facing similar issues.

So Korea's rich experience has much to offer a developing country like Ethiopia. Korea faced PPP challenges in its development stage and attempted to resolve problems via multiple strategic approaches. Certain strategies turned out successful and have been stabilized, while others, such as those using market promotion policies, incurred additional fiscal burden. The Korean PPP system is still evolving, facing many controversies and obstacles on its way to a more advanced stage. This study conducted within the KSP program will provide useful information to the Ethiopian government and share the lessons learned.

This report aims to share the knowledge of the process of PPP development and capacity building with the Ethiopian government, based on Korea's 20-year experience in PPP project initiation and management. The focus is on establishing a PPP system in Ethiopia to encourage project implementation. Based on Korea's experience, policy implications are drawn organized around the following main points: setup of a solid legal framework; building of a transparent and competitive procurement process; attraction of private investment through a variety of incentives such as risk sharing; introduction of a unified framework for sound fiscal management; and building of capacity of private parties and providing education and training for public officials. In addition, strategic points in the PPP system development are emphasized, namely the establishment of a PPP-dedicated unit, consideration of Ethiopia's unique context, and evolution into a well-functioning system.

1. Introduction

As a long-term goal, Ethiopia has committed itself to a series of five-year socio-economic plans to emerge as a middle income country by 2025. The purpose of the latest Growth and Transformation Plan (GTP), which covers 2010/11 to 2014/15, is to sustain rapid, broad and equitable economic growth. Ethiopia has made great strides in economic and social development as its economy experienced impressive growth over the last decade, with average GDP growth of 11 percent, or about double that of Sub Saharan Africa.

Infrastructure is widely considered to play an essential role not only in economic development and productivity enhancement, but also in welfare improvement. Ethiopia remains a Third World country with poor infrastructure. According to Africa's Infrastructure Development Index, the country is ranked 52nd out of 53 African countries, showing one of the lowest infrastructure access and coverage indicators in the developing world.[30] The analysis of Ethiopia's infrastructure development suggests that its infrastructure capacity needs to expand in an expedited manner to solve problems stemming from insufficient infrastructure.

To maintain the socioeconomic growth momentum of recent years, Ethiopia must urgently improve its infrastructure capacity. Infrastructure development is one of the pillars in the country's economic development plans, and the government's determination to expand infrastructure capacity is reflected in the GTP. As the plan reflects, however, the mobilization of necessary investment resources is critical because investment needs for expanding infrastructure capacity are too immense to come solely from the national budget. Forecasts from Foster (2008) in the report "Africa Infrastructure Country Diagnostic" said meeting Ethiopia's infrastructure expansion would require US$5.1 billion per year over the next decade; due to macro constraints and inadequacy of official development assistance, however, the public sector alone simply cannot meet these needs.[31]

The Ethiopian government thus needs to secure new investment sources and partners to meet its infrastructure needs. Unless efforts to resolve the infrastructure gap covers all sectors, the long-term sustainability of Ethiopia's high growth might be jeopardized. By enabling the efficient use of scarce public resources in collaboration with private sector technology and access to a wider pool of funding sources, the government is more likely to achieve its social objectives.[32] The main challenge is narrowing the growing financing gap, so mobilizing private sector resources is a viable option. To implement this option as a practical alternative, a well-functioning PPP system is critical. PPPs will help mobilize additional funding sources for infrastructure development.

Middle powers in Asia and Latin America, as well as advanced economies such as the U.K., France and Germany, have strongly promoted the implementation, enhancement and development of PPP projects. The appeal lies in the potential benefits of the PPP system. The expected effects are not only expansion of a government's fiscal capacity but also improvement in services and productivity at reduced cost through competition. Ethiopia needs to secure resources for infrastructure invest-

30) AfDB, Ethiopia: Economic and Sector Work (ESW), The Roadmap to the Public Private Partnership Framework in Ethiopia, abridged version, 2014

31) Vivien Foster, Africa Infrastructure Country Diagnostic, Overhauling the Engine of Growth Infrastructure in Africa, AICD, 2008

32) AfDB, *op. cit.*

ment, which can support sustainable economic growth, by expanding the private sector's role in development. So the Ethiopian government must promote the strengths and necessity of PPP projects.

Though many believe that PPP does not exist in Ethiopia, it has been introduced in recent years. The Ethiopian government officially introduced the concept via a procurement proclamation in 2009, showing their commitment to implement a PPP system in their homeland. Such efforts led to more contracts being awarded to the private sector in recent years through a PPP arrangement. But PPP's scope is still confined and limited.

The Ethiopian government is undertaking PPPs by adapting legal, institutional and procurement frameworks and ensuring the conclusion of PPP contracts. Nevertheless, no single official document has provided a comprehensive policy and institutional frameworks for PPP, though the concept is based on sectoral implementation discourse in the country. Generally, countries without adequate legal and institutional frameworks tend to take an ad hoc approach to PPPs. Thus, Ethiopia needs to formulate a comprehensive institutional framework.

In summary, recent trends show the emergence of PPP in Ethiopia. Certain projects have reached the implementation stage, with fervent support from the government, which is trying to use PPP as an optional public funding modality and innovative dynamism as well as utilize the private sector's fundraising ability. For the private sector to play a significant role in resolving the country's investment and service backlogs in infrastructure through PPP, concerted efforts must go toward improving the legal and institutional frameworks.

This report first summarizes the status and progress of economic development in Ethiopia, and analyzes infrastructure development with an emphasis on challenges and investment needs. Then the state of PPP in Ethiopia is followed by a description of institutional settings for PPPs with a legal framework, decision-making organizations and procurement programs. This report also reviews the details of the Korean PPP system focusing on the legal and institutional frameworks, and derives key aspects from the policy efforts of the Korean government. Finally, policy implications are drawn and strategic directions advised for the Ethiopian PPP system based on Korea's experience.

2. Infrastructure in Ethiopia: Issues and Challenges

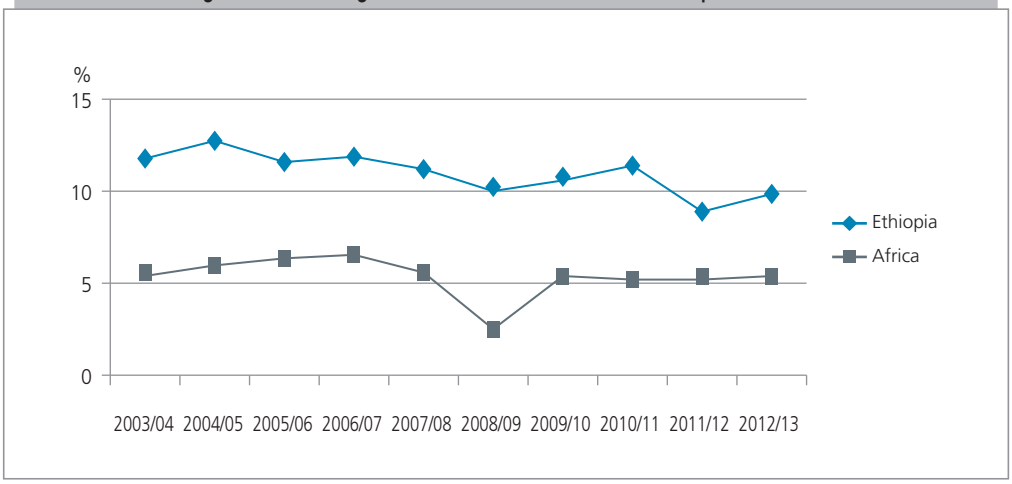
2.1. Ethiopian Economy and Public Finance

2.1.1. Economic Growth and Private Contribution

Ethiopia's overarching goal is to reduce poverty with the long-term vision of transforming into a middle income country by 2025. Over the last two decades, a series of five-year socioeconomic plans and policies have been designed and implemented to actualize this vision. The Growth and Transformation Plan (GTP, covering 2010/11 to 2014/15) is aimed at sustaining rapid, broad and equitable economic growth.

The GTP plans to intensify infrastructure development to support broad-based growth. The effects of these policies and plans and other favorable growth leveraging global situations have reflected in the general improvement of Ethiopia's economic growth. Accordingly, the country has experienced robust growth in recent years, with real GDP growth at or near double-digit levels and the economy growing an average of 10.9 percent since 2003/04.

[Figure 4-1] Average Economic Growth Rates of Ethiopia and Africa



Source: NBE (2012/13), AfDB (2010) and IMF.

The Ethiopian economy has consistently outperformed those of most other African countries, and expanded much faster than the continent-wide average. Ethiopia's growth has well exceeded the 7-percent rate required for attaining the MDG goal. The service, agricultural and industrial sectors, which constitute 47.7, 39.6

and 13.2 percent of GDP, respectively, are the main contributors to the registered growth rate.

To spotlight the contribution of PPP in the aforementioned achievement considering the private sector's GDP share could be a good indicator. Over the period, the share of the formal private sector falls in the range of 23-28 percent of real GDP. In addition, the growth of value added in the private sector was higher than in the public sector. Overall, private investment has played a significant role in capital and employment creation in Ethiopia (EEA, 2013).

Ethiopia's impressive growth has continued mainly due to sound macroeconomic policies, export expansion, a surge in foreign investment and huge public investment in social and economic infrastructure. A number of issues, however, need the attention of policymakers. Accordingly, the country has had to grapple with the twin macroeconomic challenges of high inflation and low foreign exchange reserves.

In 2011/12, Ethiopia recorded a deficit of US$9 billion in overall balance of payments and the trade deficit stood at US$7.9 billion. The current account deficit reached US$4.5 billion in 2011/12. In general, the deterioration of these macroeconomic variables was due to substantial increments in the trade deficit and structural weaknesses in the economy (EEA, 2013). In addition, the financing gap remains large, thus more stringent budgetary consolidation is needed.

2.1.2. Fiscal Policy and Performance

In recent years, Ethiopian fiscal policy has focused on strengthening domestic revenue mobilization and increasing spending on the poor. The overall efforts toward revenue mobilization exhibited have had encouraging results over the last decade. Tax revenue grew an average 26 percent, and more importantly, the figure hit 38 percent over the last five years. Tax revenue on average contributed 80 percent of overall revenue collected in the period.

But according to Ministry of Finance and Economic Development (MOFED) data, the tax revenue in 2012/13 ranged from 10-12 percent of GDP, indicating that the growth rate is not well leveled with the fast expansion of the economy and the high costs of public projects. Another component of government revenue is grants. Despite increases in other revenue sources, grants saw a fall due to a decline in disbursements and donor commitments, reflecting the challenge associated with aid predictability.

At the government level, the composition of spending continues to be toward public investment and anti-poverty measures. This has been one of the major drivers

of recorded growth in recent years in Ethiopia. In addition, government spending doubled in the last three years and quadrupled over the past six years. Over the cited period, 42 percent of government expenditures was spent on current expenditures, while the remaining 58 percent was spent on capital expenditures.

〈Table 4-1〉 Public Expenditures

(Unit: ETB million)

	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Average
Total Expenditures	29326	35567	46915	57774	71334	93831	124417	153929	76636.6
%Current Expenditures	52	48	49	47	45	43	41	41	42
%Capital Expenditures	48	52	51	53	55	57	59	59	58

Source: MOFED (2012/13).

Expressed in relation to GDP, government spending comprises nearly a fifth of GDP (MOFED, 2012/13). This spending pattern indicates that though the economy operated under a tight fiscal policy, government investment in national development programs has been skyrocketing. The overall fiscal performance of the government over the period resulted in an average deficit of 7.9 billion birr. In recent years, the deficit has been enlarging at an alarming rate, with about 75 percent of the fiscal gap financed through external sources and the remaining through net domestic borrowing.

〈Table 4-2〉 Budget Deficit and Financing Modalities

(Unit: ETB million)

	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	Average
Budget Deficit Including Grants	-6,186	-7,210	-3,147	-5,097	-8,220	-8,758	-16,736	-7,908
Total Financing	6,186	7,210	3,147	5,097	8,220	8,758	16,736	7,908
%External (Net)	31	33	101	81	95	75	101	74
%Domestic (Net)	69	91	-13	34	1	43	11	34
%Revenue from Privatization	0	14	15	0	18	32	7	12

Source: MOFED.

On national external debt, public debt in Ethiopia reached US$8.9 billion in 2011/12, surpassed the pre-debt relief level.[33] Of the debt, US$5.4 billion (60.2 percent) was central government debt whose debt service financing is through the national budget (MOFED, 2012/13).

On the sustainability of public deficits, significant adjustments in public finance have been made in the period. The key active achievements have been hikes in tax revenue and capital expenditures and cuts in the portion of current expenditures. The period, however, has corresponded to public expenditures and augmentation of the public deficit.

An increase in public spending seems indispensable to satisfy the country's economic endeavors. On the other hand, financing higher expenditures can be a delicate matter and jeopardize growth and investment. So a prudent public financing system is needed, as well as expanding the menu of public investment financing modalities. Considering the magnitude of financing needs and need for precautionary fiscal modalities, the government must harness complementary sources of finance, such as PPP.

2.2. Current Status of Infrastructure

Development of infrastructure such as roads and power infrastructure are undeniably important, as they lay the essential foundations—the necessary conduits and circuitry—of building a modern economy. Ethiopia's infrastructure configuration can be categorized as hardware and software infrastructure. The country has made significant progress in construction of such infrastructure in the last ten years, and its infrastructure indicators are improving. Infrastructure successes include the development of Ethiopian Airlines, a leading regional carrier, upgrading the network of trunk roads and rapidly expanding access to water and sanitation. The improvement in infrastructure has contributed to the country's delicate economic growth in recent years, adding six-tenths of a percentage point to annual per capita GDP growth over the last decade (World Bank, 2011).

Ethiopia's core infrastructure development was centered in the capital Addis Ababa, and from there, spread further north and east following a rise in population density and foreign trade outlets. Infrastructure networks, however, remain at the takeoff stage and require further efforts and investment. Subsequent sections will thus review plans, achievements and challenges in major infrastructure subsectors of the country.

33) In 2005/06, major donors granted debt relief to Ethiopia.

2.2.1. Infrastructure Development by Sector

2.2.1.1. Roads

Road transportation creates a network over a wide array of infrastructural facilities to improve accessibility and mobility of economic activities. It has been the dominant mode of transport and biggest service provider in Ethiopia.

To boost the subsector over the GTP period, the plan was to build 71,000 kilometers of new roads, which included all-weather roads to virtually all kebele (neighborhood) administrations. According to NBE data, the combined road network spanned 85,966km. The asphalt road network in 2012/13 constituted 13.1 percent of the overall road network. The country had dedicated nearly 4 percent of GDP to road investment.

According to a GIS-based analysis, however, only 10 percent of the rural population is living within two kilometers from an all-weather road. To place the entire rural population within such a range, tripling of the length of the road network would be required (World Bank, 2011). A high incidence of road fatalities and severe traffic congestion, a consequence of the underdeveloped infrastructure, are prevalent in the country, resulting in sizeable losses to the economy.

Furthermore, financing sources are thinly diversified as the government makes up a major part of the financing for the sector from the budget. Over the long run, this could leave the sector exposed to a possible fiscal downturn. The limited capacity of domestic contractors, consultants and suppliers also limits competition in the sector.

2.2.1.2. Air Transportation

The air travel sub-sector in Ethiopia is crucial since it earns foreign currency and provides a quick link to export markets. The aviation sector's focus over the GTP period is to scale up and improve the quality of services.

Ethiopia has four international airports (Addis Ababa Bole, Dire Dawa, Mekele and Bahir Dar) and more than 13 domestic airports. Over the period, 13 operators were registered to work in the sector while the GTP sought to increase the figure to 35. Significant investment was also made in new aircraft, aviation maintenance and training facilities, and human resource development.

Many pressing challenges remain in the sector, however. No air traffic surveillance technology is in place and development of domestic lines is limited. The country has also been slow to liberalize air transportation.

2.2.1.3. Railways

Despite the importance of rail transportation for raising national competitiveness, the sector has had a poor status for a long period in Ethiopia. The country's existing 781km-meter gauge railway linking Addis Ababa with Djibouti is 100 years old and undergoing reconstruction.

Since 2011, however, the sector has drawn significant attention from the government; as a result, 2,395 kilometers of new railways is planned over the GTP period. The railway initiatives in the GTP are expected to involve public and private companies working in the design and construction of networks and producing spare parts.

But no single line provides service and almost all projects are under construction. As investment in the sector is in the early stage, forming partnerships with the private sector and foreign companies is being mulled as a key government strategy.

2.2.1.4. Water Transportation

Since it became landlocked in 1991, Ethiopia has been using the ports of neighboring countries. More than 90 percent of Ethiopia's export and import goods are handled at the port of Djibouti.

Because of the country's geographic nature, the government is emphasizing construction of dry ports and terminals and raising the number of vessels and their capacities. Modjo dry ports with storage capacity of 35,000 tons and Semera dry ports with a storage capacity of 20,000 tons are functional. Ethiopian Shipping and Logistics Service Enterprise (ESLSE) has 13 vessels and its import capacity is 68 percent of fuel imports.

Not in great shape are the Ethiopian water transportation system and dry ports, which have a poor logistical management system and lack of coordination in goods transport. On private sector involvement in the subsector, additional financing and experts have been provided but not at the level of private entities capacity.

2.2.1.5. Power

The role of energy is key in ensuring rapid and sustainable development in Ethiopia. By developing the energy potential of the country and exporting it to the regional market, the foreign exchange earnings of the country can be improved. From this perspective, developing energy sources, building energy infrastructure and

raising the administrative capacity of the energy sector are key strategic goals of the GTP.

Accordingly, national power generating capacity reached 2,177MW in 2012/13 and electricity coverage 53.5 percent. Investments in transmission and distribution lines reduced overall power loss from 21.4 percent in 2009/10 to 13.8 percent in 2012/13, and the target is 5.6 percent (MOFED, 2012/13). The long-term marginal cost of developing generating capacity is US$0.04 per kilowatt hour, significantly below that of neighboring countries. If no barriers hindered developing and trading Ethiopia's hydropower, the country could earn annual net revenue of US$263 million, or around 2 percent of GDP (World Bank, 2011).

Despite investments in infrastructure and high upside of hydropower, the power supply network is inefficient due to internal technical problems and available potential remains untapped (MOFED, 2012/13). The lasting solution to the problems are thus raising the institutional capacity of the sector, accelerating investment and boosting private stakes in the sector.

2.2.1.6. Telecom

Ethiopia needs a modern and efficient IT infrastructure to optimize national development efforts. The national operator, Ethio Telecom, provides fixed, mobile, Internet and value-added services. To develop the sector, the GTP seeks to raise mobile phone accessibility for mobile phone users as well as improve accessibility in the public sector use of IT platforms.

ICT in Ethiopia has seen substantial growth over the last decade. The number of mobile telecommunications subscribers skyrocketed from a mere 1.2 million in 2007 to 23.7 million in 2013. The country has also seen substantial growth in mobile Internet use. The international bandwidth for Web capacity was 8.686 Gbps in 2013, with about a quarter of a million subscribers. Ethiopia's fixed telecommunications network has 790,188 subscribers, or about 1 percent of the population. Ethiopia has also been stimulating demand for underlying infrastructure by expanding e-government platforms.

Coverage of ICT services in Ethiopia, however, remains the lowest in Africa. The deficit in service can be ascribed to the absence of multi-sources of investment and multi-funding systems. Loss of private-sector involvement in service installations is also another problem in the subsector (World Bank, 2011).

2.2.1.7. Water Supply

The development objectives of the water supply and irrigation subsectors are to utilize water resources to meet social and economic needs. The GTP seeks to expand water supply infrastructure so that 99 percent of the population can use it and drill some 3,000 water wells per year.

From a low base, access to improved water is rising rapidly with national coverage of 68.45 percent in 2012/13. Nonetheless, the majority of the Ethiopian population relies on unsafe water and sanitation, which represents a major public health problem. Moreover, sanitation is poor (World Bank, 2011).

2.2.1.8. Irrigation

Ethiopia's development agenda is highly related to improvement in the agricultural sector. Irrigation can be a driving force for expediting agricultural growth. Considering the potential of Ethiopian agriculture, the subsector is economically viable to invest in.

Data from a number of sources shows irrigation in Ethiopia is not growing in the desired manner. Ethiopia irrigates barely 3 percent of cultivated areas. In 2011, the World Bank suggested the feasibility of the country developing 347,000 hectares for irrigation. The sector, however, is crippled due to low investment and absence of sufficient gurus.

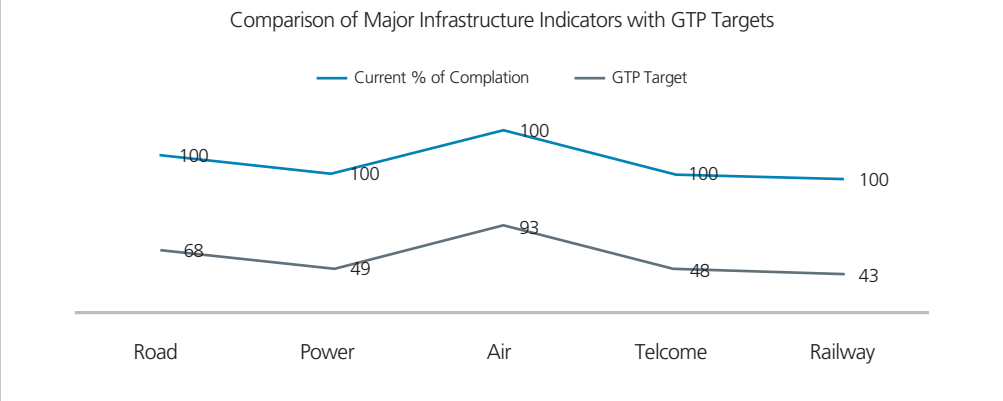
2.2.2. Strip-down Version of the Issue

In general, Ethiopia has shown progress in infrastructure expansion, but the sector faces many pressing issues that reflect the pervasive challenges of the government.

As [Figure 4-2] shows, the nation in the last three years of the GTP period achieved notable headway in the road and air subsectors. Likewise, headway was made toward the expansion of power facilities, telecom and railways, but progress in most of the subsectors were below GTP targets except in air subsector.

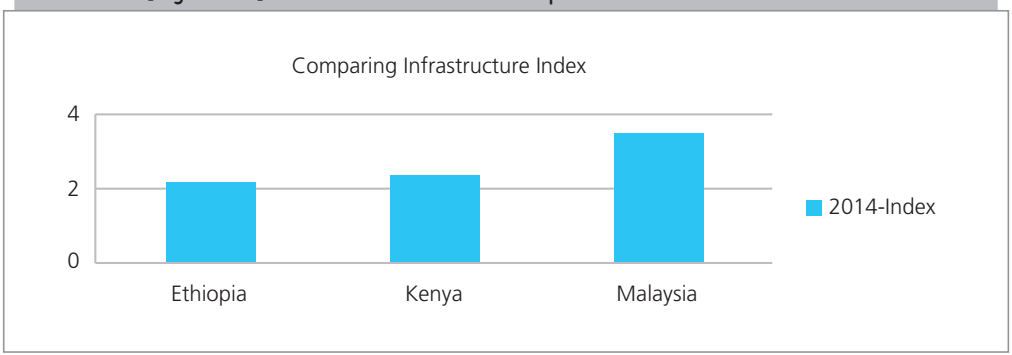
The achievements are also below the index scores of comparator countries. The logistics performance index surveys of the World Bank is used to compare Ethiopia with a lower income country (Kenya) and middle income country (Malaysia). [Figure 4-3] displays Ethiopia's performance in the index as weak compared to that of the upper middle income country, Malaysia. When the performance is compared with the lower income country, Kenya, it displays similarities to the middle income country's results, with interesting nuances that the gap is not too big.

[Figure 4-2] Three-year Percentage of Infrastructure Subsector Achievements



Source: Based on MOFED data.

[Figure 4-3] Infrastructure Index of Ethiopia and Benchmarked Countries



Source: Based on World Bank data.

In general, hindrances to infrastructure performance mentioned in this subsection are mostly related to the following facts. First, the available funds cannot cover the financial needs of the country. Second, coordination between the private and public sectors is not at optimal. Third, the delivery of infrastructure assets and services are not in the desired qualities and standards.

The implication is that such conditions could hammer the Ethiopian economy. This is well affirmed by business surveys conducted by the World Bank in 2011, which indicates constraints infrastructure responsible for an estimated half of the productivity handicap faced by Ethiopian companies. To tackle this impediment, the country is in need of new and innovative investment sources and partners. Under the right circumstances, PPP can be a good silver-bullet to mobilize additional funding sources to finance infrastructure plans and needs.

2.3. Investment in Infrastructure: Financing Gap[34)]

Ethiopia has ambitious plans to improve its infrastructure availability. To meet the need the country requires infrastructure assets. The primary focus of the subsequent section is to elaborate and estimate the aggregate funds needed for financing Ethiopian's infrastructure goals. Since collecting data has been difficult from Ethiopia's public sector, the study has gathered information based on data and intuitive explanations from the World Bank 2011 report on Ethiopia's infrastructure prospects.

The study stipulated that Ethiopia needs close to US$5.2 billion per year over the next decade to finance its infrastructure plan. The spending requirement is 42 percent of GDP and the highest in Sub Saharan Africa. The study further estimated that the power sector requires US$3.4 billion per year. Transportation including roads, air and water transportation development, and water supply and sanitation, each requires US$1 billion annually. ICT needs close to US$200 million in spending (see <Table 4-3> below). Investment needed to make this happen is being sourced through different channels including domestic bonds and foreign and private investments.

〈Table 4-3〉 Estimated Financial Needs of Selected Infrastructure

(Unit: US$ million per year)

Sector	Capital Expenditures	Operation & Maintenance	Total Spending
ICT	72	139	211
Power	3,105	276	3,380
Transportation	248	149	398
WSS	846	355	1,201
Irrigation	6	-	6
Total	4,277	919	5,196

Source: World Bank (2011).

The report further spotted Ethiopia's infrastructure funding gap amounts to $3.5 billion per year (or about 26 percent of GDP) across various sectors. Over 77 percent ($2.9 billion) of the infrastructure funding gap is in the power sector, much of which is associated with the development of the electricity generating capacity that

34) This section is sourced from the World Bank's 2011 Report on Ethiopian Infrastructure Perspective.

Ethiopia would need to become a power exporter. The rest of the gap is related to water and sanitation, where an additional $809 million per year is needed to meet the Millennium Development Goals. In this study no financing gap was found for transportation subsector, however data from the GTP performance reports show the subsector is also facing financial gap. For example, since 2010/11 of the total finance needed for funding railway construction less than half was secured.

〈Table 4-4〉 Estimated Financing Gap

(Unit: US$ million per year)

	ICT	Power	Transportation	WSS	Irrigation	Total
Needs	-211	-3,380	-398	-1,201	-6	-5,196
Spending	126	476	301	383	-	1,286
Potential efficiency gains	9	40	290	9	0	451
(GAP) or surplus	-76	-2,864	193	-809	-6	-3,459
Reallocation potential	149	142	196	0	-	486

Source: World Bank (2011).

The country needs a significant increase in its proportionally high spending on infrastructure. Assuming that Ethiopia can resolve the inefficiencies identified above and preserve overall spending at current levels, it will need 30 years to reach the targets. Without eliminating inefficiencies, meeting the targets will take significantly longer than 40 years (World Bank, 2011). Therefore, the sizeable funding gap can be tackled only by increasing supplementary financing or adopting cheaper technologies.

2.4. Need for Private Participation in Infrastructure

Providing infrastructure services is inherently challenging and development of the sector has created predicaments that one party cannot handle alone. The approach of a public monopoly on infrastructure development as exercised by the Ethiopian government tends to be plagued by financial and non-financial impediments. This has forced the government to look to the private sector for financing and expertise in infrastructure development.

Private participation in infrastructure is a method of reducing the drain of the government budget due to infrastructure spending. Furthermore, the major benefits derived from private investment in infrastructure are efficiency gains arising from

business expertise offered by the private sector. The private sector also has greater incentives for the control of construction, operations and maintenance costs and the provision of additional finance for economically justified projects.

One form of private sector participation often talked about is the public-private partnership (PPP). PPPs are often perceived as a middle ground between full privatization and state ownership. It allows governments to tap financial and human resources of the private sector while still hanging on to ownership and control over the asset.

Countries with relatively long PPP histories have found that PPPs manage construction projects better than traditional procurement, with the projects being done on time and within budget more often,[35] and this is typically attributed to the incentives from the PPP structure. So the Ethiopian government will have to adopt policies that more fully cover these if it aspires to improve and expand infrastructure services throughout the country.

3. Public Private Partnerships in Ethiopia

3.1. Conceptual Framework

Ethiopia has undergone a series of reforms that have yielded visible results in its transformation from a state-driven system to one that recognizes the private sector as an engine and partner for growth. The critical analysis of the private sector's engagement experience globally as well as domestically has led to the design of a new generation of transactions more commonly known as PPPs.

No standard definition of what constitutes a public-private partnership exists. Differences indicate that national political, socioeconomic, cultural, and institutional contexts should be considered in analyzing PPP. A key springboard for defining PPPs is that through harnessing the private sector's expertise in combining an asset's design and operation, or applying a whole life view, the service can be provided in a more efficient manner, like providing more value for money, compared to traditional forms of procurement and production.

Thus, the PPP is a way of delivering and funding public services using a capital asset through sharing project risk between the public and private sector. A PPP is defined as a time bound agreement between the government and a private partner in which the service delivery objectives of the government are aligned with the profit

35) PPIAF, Public Private Partnerships Reference Guide, World Bank Institute, 2014

objectives of the private partner. The effectiveness of the alignment depends on a sufficient and appropriate transfer of risk to the private partner.

As mentioned in the outset, an important observation is that PPPs are not the same across countries in their formation, operations and conceptual definition. Commensurate with this fact, Korea defines a PPP project under the Korean Act on Public Private Participation in Infrastructure as a project to build and permeate infrastructure such as roads, ports, railways, schools and environmental facilities – which have traditionally been built and run by government funding – with private capital, thus tapping the creativity and efficiency of the private sector (KDI, 2013).

In the context of Ethiopia, PPP can be defined as an accountability-based nexus between public and private entities undertaken to ensure prosperity of the country's hard and soft infrastructure. Under this arrangement, public entities team up with private partners that bring expertise, management, operations, innovation and cutting-edge technology and efficiency to leverage infrastructure platforms based on a win-win arrangement. Tasks, obligations, risks and benefits should be designated among the public and private sectors.

In summary, a variety of definitions exist of public-private partnerships. The review of these definitions show that they are not necessarily contradictory, and an amalgamation of the definitions indicates that the essence of a PPP includes at least the following attributes: a contractual agreement between the public and private sectors; shared risks and resources; value for money; outcome orientation; acceleration of infrastructure provision; and faster implementation.[36)]

The wide spectrum of PPP models vary from short-term, simple management contracts (with or without investment requirements) to long-term, complex concessions in BOT form. These models mainly differ by ownership of capital assets, responsibility for investment, assumption of risk and duration of contract (Guruprasad, 2010).

3.2. Trends and Current Status

Contrary to the belief that PPP is non-existent in Ethiopia, the PPP system arrived in the country in the beginning of the 2000s. The Ethiopian government officially introduced the PPP concept through its 2009 procurement proclamation, and this demonstrated a government commitment to implement PPPs. The attempt led to more contracts awarded to the private sector under a PPP arrangement. This is, however, still on the narrow scale due to divestiture and privatization apparently hijacking most private-sector intervention as well as low understanding of the PPP concept by both public and private entities (Asubonteng, 2011).

36) United Nations, Public-Private Partnerships in Urban Economic Development

PPP in Ethiopia has been undertaken in an ad hoc manner. The scope of initiatives focuses on energy generation and service delivery and is overwhelmingly dominated by the service contract (Asubonteng, 2011). PPP projects include the Lehulu system of unified utility billing, construction of the Corbetti geothermal energy site and management of the Addis Ababa City Government Exhibition Center. The projects are being run by both domestic and foreign investors, and can serve as yardsticks for gauging PPP potential in the country.

Based on an assessment of PPP projects initiated in Ethiopia since the 2000s, a few trends appear to be emerging and indicating a shift in the profile of contracts being developed and the role of stakeholders involved. A summary of PPP activity over this period is provided in <Table 4-5>.

〈Table 4-5〉 Summary of PPP Projects in Ethiopia (2005-2014)

PPP Project	Parameters				
	Year of Commencement	Sector	PPP Model	Private vs. Public Mix	Capital
Addis Ababa City Government Exhibition Center	2005	Service	Management Contract/Lease	Addis Ababa City Government vs Addis Ababa Chamber of Commerce and Sectoral Associations	US$1.25 million
Lehulu Kifiya Unified Billing System	2013	Service	BOT	MCIT vs Kifiya-PLC	US$5.1 Million
Corbetti Geothermal Project	2014	Energy	Build-Lease-Transfer (BLT)	Ethiopian Electric Services Enterprise vs Reykjavik Geothermal	US$4 billion

Source: Drawn from study based on secondary data.

Under a strict definition of PPP, this study found that the country recorded three PPP[37] transactions between 2005 and 2014 across the spectrum of the service and infrastructure sectors, bringing combined investment stock of US$4.006 billion. This is close to 8.5 percent of the country's 2013/14 GDP. The cumulative investment is spreadable over the coming six years.[38] With this consideration, this PPP stock of capital is 7.8 percent of the 2013/14 annual budget. Compared to 2011, the Sub

37) The number of PPPs concluded in the country can exceed this number. We restricted our analysis to these because of data limitations and our belief that these are the most notable PPPs.

38) The geothermal project is in the investment stage and will be completed in 2021. By taking this into account the total stock is spread across this period (over the coming six years).

Saharan Africa region completed 400 PPPs with a combined investment stock of US$108.5 billion (AfDB, 2014). This indicates PPP in Ethiopia remains minimal.

The type of PPP arrangement has also showed changes, with the major trend primarily in lease arrangement with 100-percent public financing and involving management contracts. Today, PPP contracts are a mix of concession agreements (BOT and BLT projects) and management contracts with full private financing and with government support in kind. The time taken between project initiation and implementation is on average two years. Moreover, the country's investment environment has created the impetus for private participation, but the appraisal process under the PPP is not an easy road to travel.

In summary, recent trends indicate a merging of PPPs in Ethiopia with projects reaching the implementation stage, supported largely by the government's desire to use PPPs as an optional public funding modality and by the private sector's appetite to involve in PPP. Expanding this momentum, however, requires ensuring of a sustainable business environment and nurturing progress.

3.3. Legal Framework

The PPP legal framework comprises all laws and regulations that control whether and how PPPs can be implemented (World Bank, 2014). Certain governments do so by adapting existing laws, while others introduce specific legislation. PPPs, however, usually guide by specific laws earmarked for it and by other supplementary laws that can affect the sector directly or indirectly.

The Ethiopian government is embarking on PPPs by adapting the existing legal frameworks by ensuring PPP contracts can be signed and by leveraging legal rights and processes that apply to it. The two key laws that spell out the PPP legal framework in Ethiopia in detail are the Ethiopian Constitution of 1994 and the Ethiopian Federal Government's Procurement and Property Administration Proclamation, No. 649/2009. Thus, the constitution and proclamation have provided what is called a general administrative law on forming legal rights for public and private contracting parties to engage in PPP. They thus build an umbrella legal framework for national implementation agencies and regional governments for conducting PPP.

Other laws and regulations also have an impact on PPP implementation, such as investment and tax laws, guidelines governing sectors and procurement, and other laws on commerce and land. The laws related to economic and institution platforms that affect the public-private relationship and govern the business environment are part of this law. Moreover, a typical ad hoc PPP exercised in Ethiopia is leading to

the implementation of PPP project under case-specific agreements. This leads the agreements to allow the implementing agencies a wide latitude of prerogative. Moreover, conducting PPP through public entities seems to be working as a new variant, thus being subject to MOFED approval.

To date, however, no single official document (separate legal framework) comprehensively sets out the policy, legal and institutional frameworks for PPPs, though the modality is being utilized in the procurement of public goods. Under these circumstances, the legal and regulatory ambiguities about their status can then lead to political and administrative delays. Often unclear is what role government authorities have, and conflict between ministries could ensue and create delays or cancel PPPs. This necessitates Ethiopia to formulate a PPP legal framework (AfDB, 2014).

On the other hand, introducing such a law can give weight on the amount of legal and political attention offered by high-level public bodies to PPP projects. A separate law will also facilitate the establishment of a specialized institution to assist the implementation of PPPs in the country. The institution can also disseminate related information and conduct PPP promotion and consulting.

3.4. Institutional Arrangements

The PPP is a complex instrument that requires a prudent institutional arrangement. Ethiopia has no dedicated PPP unit, so PPP implementation is of a purely contractual nature; the partnership is based on contractual links with sector agencies.

Under this arrangement, the parties involved include line ministries, agencies and regional states (with primary responsibility for service delivery), a steering committee, the Ministry of Finance and Economic Development (MOFED) and general audit authority (with supporting and monitoring roles). Accordingly, MOFED, at the federal level, sees if the overall investment envelope in PPP is sustainable and whether projects are in line with the government's fiscal policy and plans. Moreover, if a specific PPP agreement requires special treatment in tax and revenue arrangements, the ministry has final approval.

Line ministries and agencies that procure PPPs are ultimately responsible for concrete projects, usually establishing steering committees to oversee PPP procurement. On the other hand, the General Audit Institution audits and assesses PPPs' ex-post performance. The above institutional roles are also maintained at the sub-national level, but so far, the watchdog has little experience in tasks related to PPP.

The two major issues in institutional arrangement in Ethiopian PPPs are the un-

availability of PPP units and constraints in capacity. Options to solve the problems are setup of a unit within MOFED and reliance on skills development to supplement capacity and/or conducting drives to raise capacity and awareness tailored to harness public and private stakeholders' understanding of PPP.

3.5. Procurement Procedure

The procurement of PPP projects in Ethiopia are guided by the Federal Procurement Law and expected to enhance the monetary value of PPP projects. Overall, the country lacks PPP-procurement guidelines that could be integrative and applicable to all sectors, though articulated guidelines do exist for PPP procurement in IT-sector by the Ethiopian Ministry of Communication and Information Technology (MCIT).

In the country, the PPP procurement process passes through a series of steps that could be grouped under the following phases: planning, bidding, procurement awarding and contract management and monitoring. In the planning stage, evaluation of a potential project is carried out to examine the value of PPP procurement versus that of traditional procurement. In the bid selection stage, the preferred bidder is chosen through competitive bidding. The public entity then manages the PPP throughout its life, including monitoring the private partner's performance against the concession agreement's requirements.

Like many of Ethiopia's PPP frameworks, the PPP procurement process is in the infant stage and thus faces a bunch of problems. The problems include a shortage of experienced management and procurement staff capable of handling PPP procurement and limited procurement experience as well as the lack of PPP-specific procurement guidelines in the procurement process. Another problem is negotiations and renegotiations in the country, which is partly related to capacity problems found in the area. In general, raising the integrity of public procurement will help increase transparency and achieve value for money. Thus, PPP procurement should be a strategic system that necessitates the development of knowledge and creation of tools to support improved procurement.

3.6. Enabling Environment

In Ethiopia, PPPs are striving to take hold of the country's financing endeavors. Accordingly, they are expanding because of enabling factors that are vital for implementing PPP existing in the country. In light of this, Ethiopia's legal and institutional environments cannot restrain the start of PPP projects, though the country lacks PPP-tailored legal frameworks and units.

Furthermore, such complex projects and the significant commitments and

obligations under PPPs cannot be entered without supplementary enabling factors in place. Thus, other such factors that can leverage the country's PPP intake are sorted and skimmed on in the following subsections..

3.6.1. Investment Climate / Business Environment

The PPP seeks to raise the private sector's stake in public infrastructure development. To meet this target, the business environment should be made lucrative. Since the beginning of the 1990s, Ethiopia's will to accommodate the private sector is increasing, and in connection, the country has created a favorable investment climate, a set of established rules and processes that allow reasonable confidence in the protection of private investment.

The government has also significantly reduced the cost of doing business by simplifying regulations and improving the quality and effectiveness of the institutions supporting the business sector.

3.6.2. Government Support

The Ethiopian government is exerting efforts toward expanding soft and hard infrastructure in the country. Through such efforts, constraints in financing and expertise are to be expected. Nowadays, top policymakers seem to want to take advantage of PPPs and use them to reduce the problems exhibited in infrastructure development. With the present method of case-by-case arrangement (ad hoc approach) of the PPP project implementation strategy observed in the country, the public organizations that are in the PPP commitments started sharing risk alongside the private sector. Public counterparties are also contributing resources to PPPs in kind and monetary terms.

3.6.3. Emergence of Dynamic and Innovative Private Sector

Significant and sustained PPP development cannot be realized without private sector, which is the main engine for such development. Although the private sector in Ethiopia has remained small because of obstacles impeding its growth, this study recognizes that the private sector in certain industries are making technical progress and notable advances in information and communications technology (ICT). Their appetite to use PPPs is also rising, something which can help future PPP needs of the country. Ethiopia has also seen a significant increase in foreign direct investment (FDI), so FDI can drive PPP development by bringing in new technology, products, skills and financing.

Finally, the enabling factors have tripartite structure and operate under three

mutually supportive and reinforcing factors: the government, operating environment and the private sector. This can be a solid foundation for leveraging PPP in the country.

3.7. Case Studies of Sample PPP Projects

This section presents case studies of two PPP projects in Ethiopia that have been geared to stress the experience and lessons learned so far and draw ideas for future PPP framework design and implementation. The two case studies represent different sectors and PPP arrangements. A descriptive approach is used to illustrate the case studies. Accordingly, their profiles are summarized first then the background and rationale for their initiation will be discussed. Finally, the lessons learned in the course of their implementation will be explained.

〈Table 4-6〉 Profile of Selected PPP Projects

	Addis Ababa City Government Exhibition Centre	Lehulu Kifiya Unified Billing System
Rationale/ Objectives of the PPP	Provide better services and maximize productivity and profitability in sustainable way.	Offer the convenience of one-stop service in payment of utility bills
PPP Actors	Addis Ababa City Government vs. Addis Ababa Chamber of Commerce and Sectoral Associations	Ethiopian Ministry of Communication and Information Technology and Kifya PLc
Financial Structure	The government-provided facility and operating cost is covered by income generated through facility rental.	Funded by the private sector
Government Support	Initially, the facility is owned by the government and provided to a private entity without an initial investment fee.	In-kind support through working premises and flats.
Contract Agreement of Parties	Contractual agreement/ Management contract/lease	BOT
Risk Allocation	Losses and gains are equally shared by the government and private sector	The private sector bears most of the risk
Institutional/ Managerial Structure	The private sector manages the structure and a joint steering committee supervises overall performance.	Managed by the private sector and a regular joint meeting of both parties evaluates overall performance.

〈Table 4-6〉 continued

	Addis Ababa City Government Exhibition Centre	Lehulu Kifiya Unified Billing System
Tariff Setting	Price adjustment is done annually	Price cap tariff set on PPP contract signature
Strengths	This unique and successful PPP experience is considered exemplary and paving the way for other PPP activities.	This groundbreaking initiative offers one-stop service and a level of customer service previously unavailable, and its good performance has improved the bankability of PPP projects.
Weaknesses	The strategy is not designed to expand the facility.	Problems arise in user projection and the private operator bears most of the risk

Source: Prepared by the study.

3.7.1. Background

3.7.1.1. Addis Ababa City Government Exhibition Center

The PPP process for the center took place in 2005, following the negotiation of the Addis Ababa City Administration and Addis Ababa Chamber of Commerce and Sectoral Associations. The project was offered to the chamber through a selected bidding system. The project was partially motivated by the city government's desire to bolster the capacity of the chamber, but its main vision is improving the service delivery capacity of the center through a partnership.

3.7.1.2. Lehulu Kifiya Unified Billing System

The Ministry of Communication and Information Technology launched a build, own, operate and transfer (BOT) model of PPP with Kifiya Financial Technology to reform the delivery of services and operation of the country's utility billing system. A private contractor was selected through competitive tendering, and the terms and conditions of the agreement are considered consistent with Ethiopia's procurement practices. The concessionaire is paid through a price cap-type tariff mechanism.

3.7.2. Rationale for PPPs

The projects support private participation in public services, granting the power to invest, control and manage public goods to private companies and linking compensation to performance. Accordingly, boosting private participation in the

rendering of public goods and increasing efficiency and service standards seem to be major driving force behind the undertaking of these PPP projects.

3.7.3. Lessons Learned

- The projects symbolize the classic PPP model. So the attempt and taste made to undertake such models can be the groundwork for expanding PPP in Ethiopia.
- PPP contracts offer advantages to both the public and private sectors. They enable access to improved services, expertise and technologies and bring out financial gains that result in profit sharing. The size of dividends or the operator's ability to generate profits is directly related to performance and efficiency. In addition, the price-cap mechanism is why the projects are not causing prices hikes for consumers. Thus, such attributes of PPPs could be a benchmark for undertaking similar projects using the model.
- Certain risks are associated with revenue flows, like in the Lehulu case, and were caused due to inaccurate projections. This could indicate a degree of risk for the operator.
- Risk sharing by the government is mainly done through a mechanism of in-kind contributions, but no standard system exists for sharing risks in monetary terms. So the public sector should have a stake in sharing monetary risk to further leverage private appetite to engage in PPPs.
- Private operators have some degree of freedom in administrating PPP projects. The government also maintains a degree of control over project implementation. Yet further efforts are required to increase harmony among the public and private sectors.
- The strengths and weaknesses of these types of projects mainly emanate from what is done in the preparatory and contracting phases. Thus, rigorous project preparation and contracting seem imperative.
- Disparity in institutional arrangements and understanding of PPP among PPP actors are observed.

3.8. Prospects and Challenges Ahead

Ethiopia is stepping up its efforts to build soft and hard infrastructure; however, worry over financing is going to be a big headache. This desire is making the country look at other funding options, and based on this interest, financing modality based on PPP principles is a good candidate.

Accordingly, the modality has good prospects for PPP development in infrastructure, especially roads, railways, energy, telecommunications and IT, and transportation, to mention a few (UNDP, 2015). In the same vein, development of industrial and agricultural infrastructure also has other subsectors that can be done through PPP

arrangements.

In addition, the gap between the delivery of and demand for public services in Ethiopia highlights the urgent need for PPP arrangements, especially in education and health, for boosting the quality of social services (UNDP, 2015). These potential sectors are especially pertinent to Ethiopia under its national plans for social and economic development.

Despite rising interest in the use of the PPP funding modality in Ethiopia, PPP implementation has remained sluggish and limited. A coherent outlook on challenges is a base for articulating similar policy for undertaking PPP, so the following bullet points are flaws and constraints that need attention to expand the PPP approach in Ethiopia.

- The institutional configuration used in implementing PPP is not well versed with the standard PPP approach. In addition, the country apparently is not in full possession of administrative arrangements, which is favorable toward PPP projects.
- Ethiopia has no specific legal and regulatory frameworks for PPP, and such an absence can lead to unsolvable disputes.
- PPP's need for a high investment capital threshold can limit private involvement in PPP. The limited capital that is owned by the private sector is also subject to capital competition. To avoid this situation, incentives that only apply to PPP businesses are needed.
- Lack of awareness by both public and private entities has prevented PPP's adoption in the country.
- PPPs are complex ventures that require both public and private partners to have knowledge on PPP markets and techniques; both partners seem to lack such capacities. Another prevalent constraint is poor skills in contract negotiations on the part of both partners (Asubonteng, 2011).
- PPPs in Ethiopia are implemented in ad hoc manner and guided by traditional procurement manuals, thus the country lacks formal PPP-environment that leverages the use of PPP as a mode of public procurement.
- Other operational constraints could derail the formulation and implementation of potential PPPs, and such constraints include access to land, access to and cost of capital, weak skills in adaptation and application of new technologies, and inferior manufacturing skills for equipment and accessories (Asubonteng, 2011).

In general, the challenges and barriers mentioned above emphasize issues deemed significant to good PPP performance. Thus, the success of PPP in Ethopia could revolve around observing these challenges and articulation of adequate enabling environments.

4. Institutional Framework of Korean PPP

4.1. Legal Framework

4.1.1. Components and Hierarchy of Legal Framework

Korea's PPP legal framework consists of the Act on Public-Private Participation in Infrastructure (PPP Act), the Enforcement Decree of the PPP Act, the Basic Plan and detailed implementation guidelines for different sectors. Such legal arrangements provide consistent, transparent and flexible guidance. The PPP Act lays out the Basic Plan and implementation guidelines, all of which cover policy directions, implementation procedures and government support in detail. The hierarchy of the legal framework for PPPs is as follows:

- PPP Act
- Enforcement Decree of PPP Act
- Basic Plan for PPP Projects
- Implementation Guidelines

The PPP Act encompasses the overall systematic frame of PPP planning, implementation, management and supervision, as well as promotion of investment facilities. The Enforcement Decree enumerates details granted by the act. As the core components of the PPP legal framework, both of them clearly define eligible infrastructure, procurement methods and process, and policy supports.

Other than the PPP Act, the implementation of PPP projects is also based on the Basic Plan. Drafted by the Ministry of Strategy and Finance (MOSF), the plan is reviewed and approved by the PPP Review Committee. It is then annually updated and offers policy directions, details of project implementation procedures, financing directions, risk-sharing mechanisms, payment systems of government subsidies and documentation directions.[39] Meanwhile, the Public and Private Infrastructure Investment Management Center (PIMAC) of the Korea Development Institute (KDI) takes charge of support tasks in drafting the Basic Plan. In short, once the PPP Review Committee determines the core policy direction, Ministry of Strategy and Finance (MOSF) decides on the Basic Plan's direction considering the year's circumstances, and then PIMAC draws up a detailed plan.

39) KDI, Public-Private Infrastructure Investment and Deposit Insurance in Mongolia, 2011 KSP

〈Table 4-7〉 Overview of Legal Framework of Korean PPP

	Contents	Legislation· Amendment
PPP Act	• Project Eligibility • Implementation Methods & Procedures • Special Clauses on PPP Projects • Supervision & Monitoring • Other Important Issues	National Assembly
Enforcement Decree	• Matters Delegated by PPP Act • Matters Necessary for Enforcement of PPP Act	President (within entrust of PPP Act)
Basic Plan	• PPP Policy Directions • Detailed Procedures & Methods in Implementing PPP	Ministry of Strategy and Finance (MOSF)
Implementation Guidelines	• Methods for VFM, RFP, tender evaluation, standard concession agreement, refinancing	PIMAC (with approval of MOSF)

4.1.2. Transition of PPP Act

Having gone through multiple legal amendments, the PPP Act and the Enforcement Decree govern Korean PPP projects. The comprehensive legal framework of the Korean PPP system was initially designed in 1994 along with the legislation of the Act on Promotion of Private Capital Investment in Social Overhead Capital. Prior to this, private investment projects proceeded based on individual laws, for instance, those on private roads and harbors.

The PPP Act was completely revised in 1999 after the Asian financial crisis. A comprehensive plan had been introduced to facilitate private capital solicitation and became legalized as the new PPP Act to effectively replace the previous one. The revised act strengthened risk-sharing mechanisms, which greatly encouraged private participation in infrastructure development. With the new PPP Act, the Korean government established legal grounds that met international standards for private investment.

The PPP Act was amended again in 2005. In addition to the build-transfer-operate (BTO) type of private investment, the build-transfer-lease (BTL) type was introduced, enabling private investment in projects deemed difficult to break even in from fee collection only. Before the revision, the main focus of PPP projects had been transportation infrastructure, but since 2005, the spectrum of eligible facilities has expanded to social infrastructure facilities including those of education, welfare, culture, environment and defense. In addition, the act established PIMAC, a PPP-

specialized agency, within the KDI to provide technical assistance to the MOSF and procuring authorities.

4.1.3. Nature of PPP Act

Three legal aspects should be considered in the Korean PPP Act. First, as a procedural act, it defines the implementation process of PPP projects. By clearly defining the procedural elements of procurement, bidding, evaluation, negotiation and policy support, the law ensures accountability and transparency of the implementation process of PPP projects. Second, the act has both a promotional and regulatory nature, regulating not only PPP projects to ensure fiscal soundness, but also encouraging them to induce private participation to balance public and private interests. Third, the act is a special law in the sense that it supersedes and prevails over other related laws. For example, the act grants exemptions to PPP projects from strict government regulations on national property management. This is advantageous to PPPs because it grants the authorization and permission required to obtain under the related laws. If a PPP project in Korea follows the legal procedure as specified by the PPP Act, matters such as authorization are "considered to have been granted." Giving PPP projects priority over other laws and granting permission to them could be needed to facilitate and expedite PPP implementation.

4.1.4. Main Features of PPP Act

4.1.4.1. Solid Foundation of Legal and Institutional System

Under the aforementioned legal framework of PPP, a solid legal foundation for long-term investment has been created. Details of the PPP system, enforcement ordinances and regulations are in the form of written statutes and apply to all parties taking part in PPP. The legal system of PPP effectively guarantees that any PPP contract between public and private parties is legally binding. Since the PPP Act is prevalent, a project that follows the law is considered to have received authorization and permission required under other relevant laws. The solid foundation of the legal framework has helped facilitate the implementation of PPP projects in Korea.

4.1.4.2. Comprehensive Package of Support

To promote private participation in infrastructure investment, a comprehensive package of government support has been introduced in legal arrangements for PPP. The package includes authorization and permission, land expropriation rights, supplementary project, financial support, favored charges and tax, and buyout rights. In particular, the statutory privilege of concessionaires to manage and operate infrastructure facilities is granted as property rights registered with the competent

authority. Under this privilege, they have the right to expropriate and use public land free of charge. Based on the right to manage and operate, concessionaires can create security interests as required to secure financing for a project. Moreover, the government provides substantial financial support and risk sharing, such as construction subsidies, termination payments, minimum revenue guarantee (MRG) and a new risk sharing system to replace MRG. The Infrastructure Credit Guarantee Fund guarantees the credit of PPP project participants. Instead of providing direct lending, the Korean government guarantees debt repayment provided by commercial sources if the private party goes into default. Unsolicited project proposals by the private sector are strongly encouraged. The competent authority may give preference to the first proposer when evaluating the written proposal of a PPP project from the private sector.

4.1.4.3. Sound Management under Fiscal Discipline

In the Korean legal framework for PPP, many provisions are on the sound management of individual PPP projects as well as overall fiscal management. Before implementation, thorough examination of economic feasibility is necessary. Feasibility analysis and the value-for-money (VFM) test are required for both solicited and unsolicited projects costing 200 billion KRW or more. PPP projects are managed under a comprehensive and unified framework of fiscal management. Projects costing more than 200 billion KRW are reviewed by the PPP Review Committee (PRC), which also deliberates on major PPP issues. An entire chapter is dedicated to PPP in the Five-year National Fiscal Management Plan, which takes a mid-term outlook at government expenditures, so that PPP investments are considered from the perspective of overall fiscal management. The National Assembly approves the annual ceiling for aggregate expenditures for BTL-type PPP projects.

4.1.5. Components of PPP Basic Plan

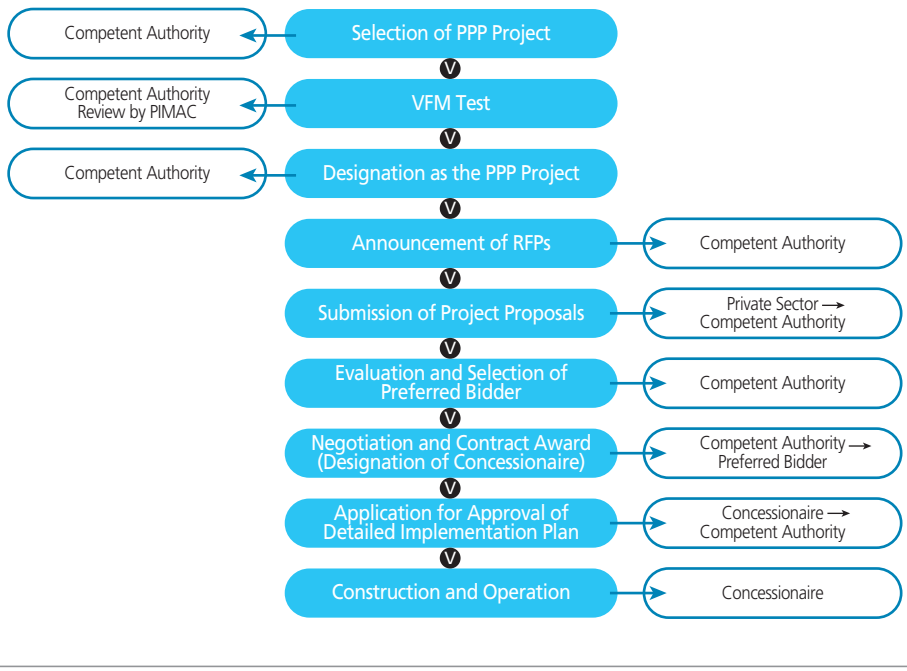
The PPP Act requires the MOSF and PIMAC to issue the Basic Plan, which covers PPP policy and general guidelines. Comprehensive issues are also raised in the stages of PPP. The following legal details are to be included in the annual Basic Plan:[40)]

- Direction of PPP policy for each infrastructure facility sector
- Details on the investment scope, types and conditions of PPP projects or those subject to PPP.
- Details on management and operation of PPP projects
- Details on support for PPP projects
- Miscellaneous policy details on PPP projects

40) Article 8 of Act on Public-Private Partnerships in Infrastructure

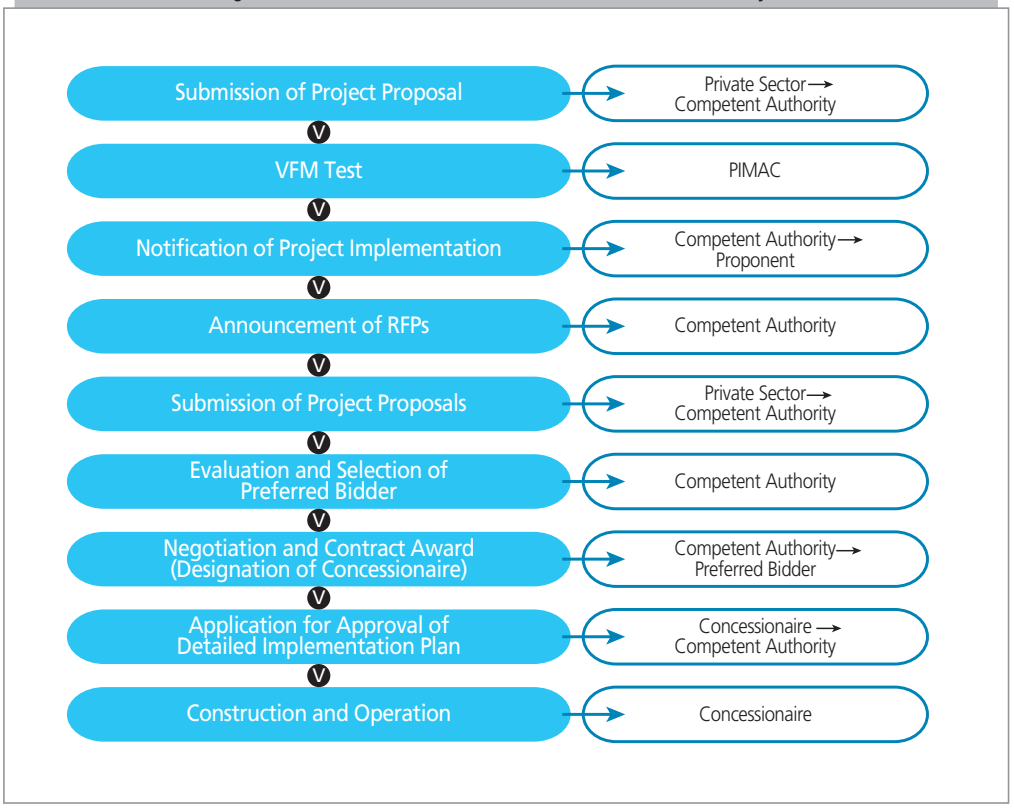
The annual Basic Plan, established by the MOSF in accordance with such legal specifics, includes the core policy direction of the PPP system, what needs to be focused on during implementation, and the main investment plan of each sector. The Basic Plan also provides overall guidelines on PPP development such as project implementation procedures, financing options, risk sharing mechanisms, payment schemes for subsidies, PPP management and operation, dispute resolution, and documentation instructions. Promoting competition is highly encouraged in the PPP procurement process so that proposals that serve the government's purpose and provide value for money can be selected. Universally applied procedures enhance the transparency of PPP projects. PIMAC has developed PPP implementation guidelines with approval from the MOSF to foster transparency and objectivity in PPP implementation.

[Figure 4-4] Procurement Procedure for Solicited Projects



Source: KDI.

[Figure 4-5] Procurement Procedure for Unsolicited Projects



Source: KDI.

4.2. PPP Participants and Stakeholders

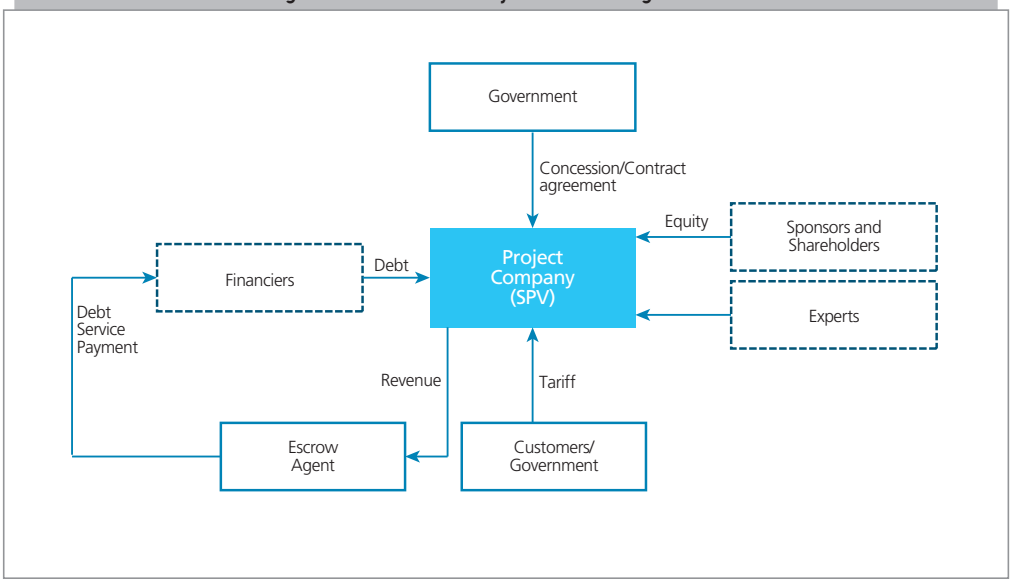
4.2.1. Private Sector Party

Private sector participants who wish to implement a PPP project shall establish a project company, a legal entity which acts as the concessionaire upon the awarding of a PPP contract. Construction companies, financial investors and professional operators generally form a special purpose company (SPC) that serves as their consortium for the PPP project. The SPC cannot engage in businesses other than those approved by the competent authority when designated as the PPP concessionaire.

Debt finance and equity investment enable private funding by the SPC. To secure a project's financial stability during construction, the required minimum equity ratio is 25 percent or more, which can be lowered to 20 percent if an equity investment by financial institution exceeds half of the total.[41] A minimum ratio of 10 percent

41) KDI, 2012 Modularization of Korea's Development Experience: Public-Private Partnerships: Lessons

[Figure 4-6] Private Party and Financing Structure



Source: KDI.

is required over the operational period. In the PPP financing structure, loans are also organized in the form of syndicated loans. Project finance lenders depend mostly on a project's cash flow, as reflected in their security arrangements and protection mechanisms that mainly consist of secured interests over all project assets and controls over the entire cash flow of the PPP company in the form of reserve accounts.

4.2.2. Public Sector

Public sector participants in PPP projects in Korea and their roles can be categorized as follows:

- Competent authorities or line ministries are under concession agreements.
- Ministry of Strategy and Finance (MOSF) is the policymaker for PPP. MOSF also organizes and operates the PPP Review Committee (PRC) and the PPP Project Dispute Mediation Committee.
- The National Assembly passes a resolution on expenditure ceiling for BTL projects.
- Korea Infrastructure Credit Guarantee Fund guarantees project debt through counter-guarantees.

MOSF and relevant line ministries, or competent authorities, are major players

from Korea on Institutional Arrangements and Performance, 2013

in Korea's PPP system under the PPP Act. The MOSF is a central government agency responsible for implementing the act, the Enforcement Decree and the Basic Plan. Its responsibility also includes developing national PPP policies and investment plans, and preparing the draft budget for PPPs.[42] On the other hand, line ministries and local governments as competent authorities operate specific facilities and sign concession agreements with private participants.

Fiscal discipline is an important issue in interactions between the MOSF and line ministries. The power to regulate fiscal expenditures must be given to a central government ministry responsible for managing the law. Because the line ministries, which are the initial contact points between the public and private sectors, do not inform the MOSF frequently, MOSF often has difficulty managing PPP projects. So MOSF tightly controls public expenditures in the implementation stage.

Furthermore, an entity is needed to deliberate on the main direction of PPP policy. In Korea, the PRC is responsible for such functionality and organized and managed by MOSF. Chaired by the head of the MOSF and composed of vice ministers from relevant line ministries and experienced private sector experts with professional knowledge of PPP,[43] the PRC has the role of considering matters related to major PPP policies and key decisions in implementing large-scale PPP projects.[44]

4.2.3. PPP Unit: PIMAC

The PPP Act grants statutory ground for the establishment and entitled tasks of a PPP unit. The Public and Private Infrastructure Investment Management Center (PIMAC) of the Korea Development Institute (KDI) is the support institution for PPP.[45] PIMAC was founded in 2005 after the amendment of the PPP Act, and took over and has similar responsibilities with the Private Infrastructure Investment Center of Korea, which was founded in 1999 under Korea Research Institute for Human Settlements through the PPP Act of 1998.[46] PIMAC manages the core activities in PPP project implementation and functions as both a comprehensive support institute and think tank specialized in PPP.

The mission and functions of PIMAC stipulated in the Enforcement Decree of the PPP Act include:

42) ADB, Public-Private Partnership Infrastructure Projects: Case Studies from the Republic of Korea, Volume 1: Institutional Arrangements and Performance, 2011, p. 9
43) Article 6 of Act on Public-Private Partnerships in Infrastructure
44) KDI, 2012 Modularization of Korea's Development Experience: Public-Private Partnerships: Lessons from Korea on Institutional Arrangements and Performance, 2013
45) Article 23 of Act on Public-Private Partnerships in Infrastructure
46) Organization for Economic Cooperation and Development (OECD), Dedicated Public-Private Partnership Units: A Survey of Institutional and Governance Structure, Paris: OECD, 2010

- Cooperate with the MOSF in devising the Basic Plan
- Establish implementation guidelines
- Support line ministries by reviewing and commenting on specific projects in the procurement process, including feasibility study, value-for-money test, request for proposal and concession agreement
- Handle ex-post management such as revalidation of VFM test, advice for change of concession agreement, and review of refinancing plan

PPP involves multiple steps such as project initiation, bidding, evaluation, negotiation and contract. PPP staff should understand the nature of PPP, and be knowledgeable in demand projection, financing and related regulations. To raise understanding of responsibilities and ensure smooth business operations, PIMAC has developed educational programs on PPP for capacity building of relevant authorities, financial institutions and private sector personnel. In addition to such technical assistance, policy research is done on PPP programs and policy advice is given to the government.

4.3. Performances of Korean PPP System

Korea's PPP performance has generally received positive reviews. The PPP system has improved over time to achieve stability and maturity. A favorable environment for infrastructure development and the government's concerted support to invigorate PPP financing over the past decade have had a positive effect on the system. The government's strong commitment to PPP also strengthened the private sector's confidence and facilitated private participation in PPP projects.[47] Consequently, Korean PPPs have contributed to economic growth by mobilizing additional capital from the private sector, and expanded infrastructure capacities available to the public. Moreover, PPP projects are reducing cost and time over-runs, which enhances the efficiency of investment in social infrastructure facilities.[48]

47) ADB, Public-Private Partnership Infrastructure Projects: Case Studies from the Republic of Korea, Volume 1: Institutional Arrangements and Performance, 2011, p. 163
48) *Ibid*., p. 137

〈Table 4-8〉 Public and Private Infrastructure Investment Trends

(Unit: Trillion KRW, %)

	'98	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12
Private Investment (A)	0.5	1.0	0.6	1.2	1.0	1.7	2.9	2.9	3.1	3.8	3.9	2.7	2.2	2.4
Government Investment (B)	12.7	15.2	16.0	16.0	18.4	17.4	18.3	18.4	18.4	20.5	25.4	24.5	24.4	23.1
A / B (%)	3.9	6.6	3.4	7.5	5.6	9.8	16.1	15.9	17.0	18.5	15.4	11.0	9.0	10.3

Source: KDI.

〈Table 4-9〉 PPP Projects by Procurement Scheme

(Unit: Billion KRW, %)

Procurement Scheme		Number of Projects	%	Project Cost	%	Average Project Cost
Concession Type	BTO	202	31.4%	67,955	69.0%	336
	BOO	7	1.1%	1,232	1.3%	176
	BOT	4	0.6%	658	0.7%	165
	Subtotal	213	33.1%	69,845	70.9%	328
Service Purchase Type	BTL	430	66.9%	28,640	29.1%	67
Total		643	100.0%	98,485	100.0%	153

Source: KDI.

〈Table 4-10〉 PPP Procurement Performance by Facility Type

(Unit: Trillion KRW, %)

Number of Projects and Project Cost			Facility Type				
			Road	Port	Rail	Evironmnent	Others
BTO	No. of Projects	207 (100%)	80 (38.7%)	17 (12.2%)	9 (4.3%)	70 (33.8%)	31 (15.0%)
	Project Cost	65.5 (100%)	38.4 (58.7%)	6.3 (9.6%)	12.6 (19.5%)	5.2 (7.9%)	2.9 (4.4%)

Number of Projects and Project Cost			School	Sewage Pipe	Military Resident	Rail	Others
BTL	No. of Projects	423 (100%)	191 (45.1%)	92 (21.8%)	71 (16.8%)	3 (0.7%)	66 (15.6%)
	Project cost	25.3 (100%)	7.6 (30.0%)	6.7 (26.5%)	5.6 (22.1%)	2.5 (9.9%)	3.0 (11.9%)

Source: KDI.

This is why Korea has focused on PPP projects and still utilizes them as an important policy measure for economic growth. An ADB report (2011)[49] shows how private investment in social infrastructure facilities affected the economy by analyzing its ripple effects on GDP growth, inducing production and creating jobs and value added.

An ADB report and subsequent studies have described many success factors of the Korean PPP system. To derive potentially useful lessons from Korea's experience in establishing a PPP framework in Ethiopia, key factors of the Korean system can be recapitulated from those studies as follows:

- Institutional Framework for Private Participation
- Government's Risk Sharing Policy
- Unified Framework for Fiscal Discipline
- Leading Role of MOSF
- Role of PPP Institution: PIMAC

The first three factors are related to the desirable features or configuration of the PPP system, and mentions what elements should be incorporated into the PPP framework. Korea's experience shows the importance of institutional setting for private participation in construction and operation of infrastructure. Private parties are given statutory privilege to promote investment and financing. Financial support policies such as construction subsidies, Infrastructure Credit Guarantee and risk sharing over the operational period are also notable PPP characteristics. The most prominent feature of the Korean PPP, however, is the unified approach in fiscal management, in which the same rules of fiscal discipline and methods for feasibility study are applied to both PPP and government projects.

To draw a practical lesson from Korea's experience, the organizational or institutional aspects should be looked at closely. The final two factors, the roles of the MOSF and PIMAC, are related to the strategy of forming a desirable PPP framework. The two organizations have facilitated the firm establishment and smooth operation of the Korean PPP system. Continuous development of the law and relevant regulations reflect a strong commitment of the Korean government, especially MOSF, to strengthen the private sector's confidence in PPP. PIMAC has also played a pivotal role in the Korean PPP system's success by providing technical assistance and capacity building. In particular, PIMAC's detailed guidance for implementation enhanced transparency in PPP procedures.

49) It is highly recommended to consider this report as reference for evidence of PPP contributions to the Korean economy.

5. Policy References for Ethiopian PPP

5.1. Background and Strategy

5.1.1. Potential Benefits of PPP

PPP can be defined in multiple ways. Nevertheless, a simple definition is "a long-term contract between a private party and a government agency for providing a public asset or service, in which the private party bears significant risk and management responsibility (PPIAF, 2014)." PPP should be understood within a spectrum of private participation in infrastructure, ranging from conventional government procurement to privatization at the private participation level. So the PPP concept needs to be distinguished from those of outsourcing, joint venture and privatization.

Why do many countries like Ethiopia want to introduce PPP as an alternative method of providing public facilities and services? PPPs usually bring benefits to both the public and private sectors. The potential benefits for the government are fiscal flexibility, efficiency gain, and quality service.

- Fiscal flexibility implies that when faced with a budget constraint, the government can utilize PPP as a financial option to fill the infrastructure gap in a timely manner. Given the constraint, selected projects could be run through PPPs and the savings from those projects could be diverted to others. In other words, PPP enables the government to expand its fiscal space.
- Efficiency gains come from selecting the most efficient provider in the market through open bidding. Minimizing life cycle costs can be done by integrating DBFO (design-build-financing-operation) works into a single contract, and the possibility of cost and time overruns is lower (less optimism bias).
- Quality service is ensured since private operators tend to be more responsive to consumer feedback and preferences. A portion of government payments can be subtracted as a penalty when operators fail to meet expected output quality.
- Public sector reform is another potential benefit. PPP will encourage competition between public and private parties, and provide expertise and experience rarely available at public agencies.

Among the few studies on Ethiopian PPP issues, almost all assert that PPP could be an essential strategy for the country's sustainable development. For instance, Weseni and Watson (2014) argue that responding to the growing demand for infrastructure development and the improvement of service delivery in Ethiopia, consideration of PPPs as a model for public services development is increasingly popular. The underlying benefits of such arrangement have been enumerated and

continued under the view of the Ethiopian government that challenges exist in managing and selecting the right PPPs.[50] Gebre-Egziabher and Clacey (2011) said the way local economic development is undertaken in studied areas come in the form of partnership. The authors asserted that "even if the program is government dominated, it is a good initiative because such partnerships will give room for more expanded participation of sectors.[51]" In the same manner, the African Development Bank stresses the need to find co-financing opportunities by sector to bridge a country's funding gaps as financial resources from the private sector could support bankable private projects and PPPs (AfDB, 2011).

5.1.2. State of Ethiopia's PPP Policies

All studies mentioned above (Weseni and Watson, 2014; Gebre-Egziabher and Clacey, 2011; AfDB, 2011) clearly emphasize PPP's vital role in Ethiopia, but an effective framework is needed to show how to craft sound policies and mobilize national resources to employ PPP as a development strategy. As mentioned in GTP, the country aspires to achieve economic transformation into a middle income country by 2025 (MOFED, 2010), but the absence of PPP-related regulations and a division to oversee and support overall PPP implementation and expansion remains a policy issue.

According to the AfDB, no overriding inconsistency exists between the government's evolving policies and PPP policy imperatives; yet there is neither a specific framework for PPP nor a PPP unit to manage forthcoming PPP transactions in Ethiopia.[52]

Although no official published policy about PPP exists in Ethiopia, the government has legal and policy documents that vaguely mention the role of partnership between the public and private sectors. In 2002, for instance, the Ethiopian Sustainable Development and Poverty Reduction Program (SDPRP) published vital documents that elaborated on the private sector's importance as a growth engine, considering the critical importance of creating such a partnership for successful industrial development.[53]

The Plan for Accelerated and Sustained Development to End Poverty (PASDEP),

50) T. A. Weseni and R. Watson, "A Conceptual Framework for Building a Homegrown Public-Private Partnership Platform to Deliver Public Information Services in Developing Economies," Ee-JIRF, vol. 4, no. 6, 2014, pp. 12-25

51) Tegegne Gebre-Egziabher and Richard Clacey, Assessment of Local Economic Development (LED) Approach in Ethiopia, Addis Ababa, 2011

52) AfDB, Ethiopia: Economic and Sector Work (ESW), The Roadmap to the Public Private Partnership Framework in Ethiopia, abridged version, 2014

53) MOFED, Ethiopia: Sustainable Development and Poverty Reduction Program, Addis Ababa, 2002

spanning 2005 to 2010, embraced a number of critical factors for Ethiopia, saying "private and public partnership is one of these factors." The plan spoke of "providing better access to services through more efficient utilization of existing infrastructure and building new capacity." Furthermore, the document explained that "a more active partnership between the public and private sectors will be promoted" (MOFED, 2006).

The Growth and Transformation Plan (GTP) for 2010/11 to 2014/15 said "the private sector and NGOs are expected to play a more active role, and thereby significantly contribute to the success of the GTP, where the contributions of the private sector, public and NGOs are included as one critical element of the country's overall capacity to finance the GTP (MOFED, 2010)." AfDB (2011), however, argued that clearer strategies for crowding in private investment interests need to be articulated, especially in the context of the weaknesses in the financial sector and business environment.

All in all, the Ethiopian government and its partners have emphasized the benefits of working with the private sector through partnerships. Issues that still need discussion include the importance of a dedicated PPP policy and institutional framework, favorable sectors or areas of investment to be open for partnerships, and PPP's potential in the context of Ethiopia's development process.[54)]

5.1.3. Diagnosis of Enabling Environment in Ethiopia

The enabling environment for PPP in Ethiopia is in its infant stage, though the country has developed some PPP projects. Comprehensive legal and institutional frameworks on PPP remain absent.

No clear policy on PPP exists in Ethiopia, but the potential role of PPPs in public service delivery and the development process is becoming recognized by a few public policymakers and professionals (PWC, 2011). A need exists, however, for understanding the necessity and benefits of PPPs in the public sector in general. The public sector seems not to recognize the necessity of PPP as an urgent funding source of infrastructure development. The extent of PPP adoption in public service delivery in Ethiopia was limited due to lack of awareness among actors on creating a better and more conducive environment for PPP procurement. PPP's limited implementation in Ethiopia has so far been due to lack of specifically devised and clearly defined policy and institutional frameworks on procuring PPP projects (Asubonteng, 2011).

Moreover, infrastructure development has been led mainly by the public sector,

54) Temesgen A. Weseni, "Prospects and Challenges of Public-Private Partnership in Ethiopia," mimeograph, 2015

which has discouraged PPP. The African Development Bank said the magnitude of Ethiopia's development financing sources, as indicated in the GTP, is predominantly public (AfDB, 2011). The Ethiopian private sector's readiness to effectively mobilize its resources and use its full capacity for achieving partnership development goals has always been questioned due to further uncertainty in factors such as political stability, good governance and willingness by the Ethiopian public sector. In light of this multi-dimensional case, Ethiopia has never had its own generic PPP that might help its national transformation plans such as GTP. In conducive business environment, a recent empirical study conducted by the World Bank on "Doing Business 2014" ranked Ethiopia 166th out of 189 countries in the Ease of Doing Business,[55] which might further signal a cynical perception of PPP procurement and transactions in the country.

It could be too early to get government-wide support to change the perception of PPP. Users of PPP facilities generally pay higher user fees because private investment costs are recovered mainly through tariffs. Due to the lack of skills required to implement PPP projects, officials at line ministries are not active in promoting PPPs. In the case of Ethiopia, people who have lived under a socialist regime are more familiar with price controls on infrastructure tariffs than market-oriented user-charge principles.

5.1.4. Korean Experience in PPP System and Policies

5.1.4.1. Introduction of PPP System: Infrastructure Gap in 1990s

The legislation of the PPP Act in Korea was possible because of the social need for extra funding for infrastructure development. In the 1990s, Korea entered into an "era of motorization," reflected in the tremendous eight-fold growth of the number of registered vehicles from 1980 to 1990. Because of the unprecedented growth of cars in the 1980s resulting from income growth, serious traffic congestion ensued, which considerably raised logistical costs. Increased costs from traffic congestion, along with the infrastructure gap in the early 1990s, particularly that of land transportation, were considered a major setback for sustainable economic growth. This led to social consensus that extra resources must be mobilized for infrastructure development.

Two solutions were adopted to fill the infrastructure gap: the transportation tax of 1993 and the Act on Promotion of Private Capital Investment in Social Overhead Capital of 1994. The law was legislated as a remedy to the poor performance of PPPs based on other individual laws until the early 1990s. In an effort to reform the financial sector through the Privatization Initiative of 1993, project financing to

55) World Bank, Doing Business 2014: Understanding Regulations for Small and Medium-Size Enterprises, Washington DC: World Bank Group, 2013

promote large-scale projects was introduced. The sluggish progress of PPPs, however, did not improve because of the Asian financial crisis in 1997. Only after the PPP Act of 1999 did business gain momentum.

5.1.4.2. Revising the PPP System: Asian Financial Crisis of 1997-98

In the wake of the Asian economic crisis in 1997-98, the Korean government tried its best to promote PPPs. When the crisis hit, Seoul tried to expand effective demand to boost the economy based on the firm belief that the Korean economy had good fundamentals. Given the huge budget deficit, PPP provided a means to circumvent the International Monetary Fund's bailout condition of a budget cut.

At the time of the crisis, the public and private sectors deemed private investment, especially foreign direct investment, as a "virtue." Based on this perception, measures were introduced to actively promote PPPs through risk sharing by minimum revenue guarantee. Also encouraged was unsolicited proposals by awarding bonus points to the original proposer in the project evaluation.

5.1.4.3. Policy Changes for Inducing Private Participation

To encourage private participation, the Korean government has implemented, reinforced and developed support measures in accordance with changes in market circumstances or policy directions. A comprehensive policy support system for private companies was established by the PPP Act of 1994. The system includes land purchases and compensation, construction subsidies and tax benefits. Construction subsidies are provided to private companies only if facility charges must be maintained at an appropriate level, and if concession contracts for each project are set. In addition, the Infrastructure Credit Guarantee Fund was founded for credit guarantee of the private entities, and the credit limit has been constantly expanded since then.

The minimum revenue guarantee (MRG) and buyout right programs were introduced under an amendment to the PPP Act in 1998. MRG was used as a strong mechanism to encourage private participation as the government took the risk of revenue loss, but was abolished 2005 due to the fiscal burden and shift toward a new risk-sharing system. At the same time, the implementation procedures of private proposal projects were streamlined to promote private participation and competition, leading to a significant increase in new private proposals. The expansion of eligible facilities and streamlined procedures for private investment helped increase private participation as well. A second amendment to the PPP Act in 2005 added social infrastructure to transportation facilities in the eligible project list, and also adopted the build-transfer-lease (BTL) type of private investment in addition

to the build-transfer-operate (BTO) type, eventually increasing opportunities for private participation in social infrastructure projects on education, social welfare and the environment.

5.1.5. Strategy to Form PPP Framework in Ethiopia

Considering the state and enabling environment of Ethiopian PPPs and the lessons learned from Korea's experience, strategies to establish a PPP framework in Ethiopia are recommended as follows:

- Over the medium and long run, a law dedicated to PPP is desirable to promote PPPs. Establishing a comprehensive legal framework will build the institutional setup for the PPP system. This, however, will require political and social support. Support from the prime minister and parliament is essential to win overall consent from the Ethiopian people. Fee collection of profit-oriented projects such as BTO can burden Ethiopian users, so a friendly public and media should be sought to understand the benefits of PPPs. A mid- to long-term plan, expertise and objectiveness of implementation must be guaranteed before gaining political and social support for the inevitable use of PPP in national economic development, which will take time.

- In the short run, the Ethiopian government is recommended to refine national PPP policy and develop guidance materials before legislation of its own PPP Act. This will streamline the implementation process of existing PPP projects and illustrate PPP's benefits. So the foremost priority of the Ethiopian government is to articulate policy directions and study the legal framework of PPP. To this end, MOFED is preparing guidelines for PPP under consultation and cooperation with the African Development Bank. The AfDB has released a report on the roadmap to establishing the PPP framework in Ethiopia that reviews the body of knowledge from other countries' experiences in developing PPPs, and suggests policy recommendations and guidelines for the Ethiopian PPP. In this regard, the Ethiopian government's efforts are on the right track, and policy directions presented in the report follow generally accepted PPP principles. Nothing much needs to be added, but certain implications and potentially useful references from Korea's experience might be worth noting, details of which will be provided below.

- A new PPP unit will help complete the aforementioned tasks. Establishing a proper organization to first set up the institutional framework is practically and instrumentally important. Lessons from Korea's experience show the usefulness of a PPP unit like PIMAC. As emphasized in the AfDB report, this PPP unit can and will play many functions and roles in the process of establishing a

workable PPP system in Ethiopia, especially in the initial stage of development. Suggestions based on Korea's experience with PIMAC will be presented below as well.

5.2. Fundamentals of PPP Policy Directions

5.2.1. Establishing Legal and Institutional Framework

One of Korea's most notable achievements in PPP was the introduction of solid legal and administrative frameworks and related institutional arrangements. The legal and administrative system must be both rational and adaptable enough to cope with the private sector's varying modalities. Since procuring ministries or local governments have different regulations for PPP, avoiding confusion over the objectives and procedures for PPP projects is critical. Legal and administrative arrangements were introduced relatively fast in Korea, followed by the emergence of an effective hierarchy of related laws and regulations, including the PPP Act, the PPP Enforcement Decree, the Basic Plan and PPP implementation guidelines.[56)]

Predictability and consistency of laws and enforcement decrees are essential for gaining the trust of private investors and thus facilitating PPP. Above all, Ethiopia needs a solid legal system for PPP implementation and management. The main regulation for PPP projects in Ethiopia is the Procurement and Property Administration Proclamation (No. 649/2009). For PPP implementation, both the private and public sectors should make sure that other regulatory issues mandated by individual acts such as the Act on Roads are cleared. The enactment of the PPP Act is expected to promote sustainable projects. Also, the legal status of the act will be effective in enhancing the private sector's confidence in PPP, which will lead them to actively participate in PPP. Moreover, the act should include more definitive institutional arrangements that clearly stipulate rules and responsibilities of key players.

The experience of Korea in large-scale PPP programs indicates that setting up good legal and administrative frameworks is the foremost priority in introducing a successful PPP system in Ethiopia. A set of laws and regulations that define the basic principles and procedures for project preparation and implementation will lay the fundamental groundwork for such frameworks. After the promulgation of basic laws, enforcement decrees and guidelines can follow rather easily.

Another priority for Ethiopia is to establish a clear and an effective institutional framework. As of now, multiple organizations such as MOFED and MCIT are playing critical roles in implementing PPP projects in Ethiopia. Yet a lack of coordination is

56) ADB, Public-Private Partnership Infrastructure Projects: Case Studies from the Republic of Korea, Volume 1: Institutional Arrangements and Performance, 2011, p. 161

evident among these organizations. Since many stakeholders in the government or public sector are involved in PPP projects, a good institutional arrangement is also a must for success and smooth implementation of the entire process. For administrative settings, the roles of government agencies involved must be clearly defined so that conflicts of functions and interest can be avoided. In addition, interplay between the budget ministry and line ministries for regulating budget operations needs to be defined specifically. Another important thing is that PPP projects should not be initiated outside the regular cycle of investment projects to ensure that the fiscal impact of PPPs is thoroughly considered in overall fiscal framework. In return, the legal and institutional setup for handling PPPs shall support this. Also, the institutional arrangements have to properly regulate public sector entities with power to enter negotiations and make decisions on all types of PPP projects.

In any event, a government agency responsible for important functions such as coordination, investment planning, budgeting and resource mobilization should be placed in a controlling position for promoting PPP projects. In Korea, the MOSF assumes such roles and functions. Sound administrative settings would give a clear signal to the private sector that Ethiopia is ready to implement PPPs with them. Over the transition period, the PPP Committee organized and managed by MOFED, composed of the finance minister and vice ministers of line ministries along with the heads of related agencies, could be an appropriate facilitator of PPP implementation. The committee will make major decisions after discussions and coordination meetings. After this transitory period, the committee may continue to play its role as a consultative group, approving key decisions as well as setting major PPP policies.

In introducing a legal and administrative framework, a government advisory and consultation unit deserves attention. One of the most important elements in Korean institutional arrangements is indisputably the establishment of PIMAC, which has played a central role in Korea's PPP system. First, the rationale for this unit, its functions and organizational structure should be clearly stipulated. The early launch of a PPP unit can provide specialized expertise with continuity in personnel and dissemination of gathered information and knowledge. The PPP unit will not only ensure consistency and quality in PPP projects, but will also induce more global participation in PPPs.

5.2.2. Building Transparent and Competitive Procurement Process

Korea build up a transparent and competitive procurement process, with implementation procedures for PPP projects maintained clear and consistent throughout. Relevant laws and regulations set the functions of government agencies involved in the PPP procurement process. PIMAC played a pivotal role in keeping this process transparent. In developing countries, where such a system does not exist, the private

sector tends to be discouraged from actively participating in PPP projects. Clearly defined process and documentation requirements would certainly ensure an efficient and fair selection process.[57)]

A transparent and competitive procurement process must always be guaranteed if the public sector induced the participation of private players via an open procurement system. International investors especially tend to demand a high level of transparency before considering participation in the process, so detailed procedures are needed. Developing guidelines should help ensure transparency, objectivity and consistency in PPP implementation. They can be effective in capacity building from project design and implementation to management and monitoring for public authorities. Another benefit is raising investor understanding and providing clear explanations. For any procurement system to work effectively, maintaining a non-discriminative, competitive and transparent bidding system is a must. The guideline for PPP bidding needs to be open to the public and comprehensively cover the contents of proposals and conditions of support and financing. A good document on standard bidding will ensure a transparent and smooth selection process, which will help the contracting agency find the best private partner.

Recently, a surge of foreign investment has flowed into Ethiopia. Foreign investors will likely become a major factor to support future PPP projects, so a review of the overall policy environment for the PPP system, especially foreign investment restrictions, is recommended. Considering the particulars of the country prior to implementing a PPP system is important, so transparency might not be a priority. However, for foreign investors as opposed to domestic private partners, a high level of certainty is indispensable. Uncertainty threatens investment and undermines the economic viability of projects.

5.2.3. Inducing Private Participation through Incentives and Risk Sharing

Securing private investment depends on the confidence of private investors in earning a reasonable return on their investments. To attract private participants, proper investment returns must be secured within an acceptable range of risk. In the infant stage of a PPP system, the government of Ethiopia is naturally expected to stay committed in providing support to meet investment requirements. Private infrastructure investors, in particular, will require government guarantees for certain risks that not only offers decent profitability to the private sector, but also enables risk sharing between the private and public sectors.

Given the investment gap in infrastructure in Ethiopia, several financing chal-

57) ADB, *op. cit.*, p. 162

lenges need to be overcome. Despite the clear need to supply infrastructure facilities, providing them entails much uncertainty. So to attract private money, Ethiopia should consider providing incentives, including government risk sharing mechanisms. Attracting sustainable private investment and involvement requires ensuring a level playing ground for private participants with confidence so that such a regime will have long-term longevity.

Although the legal and institutional frameworks are the basis of attracting private investment, such frameworks for PPPs are absent in Ethiopia. In addition, building these frameworks alone may not always guarantee private participation. That is why Korea has strived to induce participation from the private sector even after completing the legal and institutional systems. Especially after the 1997 Asian financial crisis, Korea expanded the list of eligible facilities for private investment, guaranteed revenues for private investors and diversified the procedures of private participation to stimulate weakening private investment.

Revenue guarantee over the operational period can be effective in inducing private participation by enhancing risk sharing. Determined to make the system successful, the Korean government offered a package of support measures and incentives including construction subsidies and minimum revenue guarantee (MRG) to the private sector. When the Asian financial crisis hit the Korean economy, financial market instability and uncertainty soared, resulting in a dramatic decline of private sector interest in PPP projects. The government coped by introducing stronger support measures such as MRG to pursue PPP projects.[58)]

PPP projects should offer fair risk allocation between government agencies and private participants. Depending on the types of risks, different parties can bear risks that they can manage and mitigate best. Impractical or improbable risk transfer on behalf of government agencies could turn out to be counterproductive because it could have negative impact on the private and public sectors. Furthermore, fiscal risk from revenue guarantee entails a long period, especially if optimism bias is in demand forecast. So the level and coverage of guarantee in general should be cautiously determined.

Korea's MRG system entailed a huge fiscal burden, which led to serious damage to the PPP system itself. Because too much taxpayers' money was poured into select PPP projects, MRG became controversial and received negative comments. Although MRG was introduced and effective to facilitate the PPP system in Korea, this result led to its withdrawal from the list of promotional measures. This issue was derived from the nature of the risk sharing system of MRG, in which the private side had to take all risks such as demand, inflation, interest rates, financing and cost increases in

58) ADB, *op. cit.*, p. 163

construction and operation, while the government inclusively gave benefits in return as a form of revenue guarantee. Ethiopia could build a more effective system by setting up a risk sharing system for each risk factor.

In addition to ensuring that risk sharing should be covered at a sustainable level, they should also be administered with caution to prevent abusive practices. Since MRG or other incentives could become a heavy fiscal burden, their implications on the budget should have been carefully monitored and assessed in the process of the PPP system management.[59] In light of Korea's experiences, the government of Ethiopia must continuously pay close attention to the management of the system by developing objective decision rules and guidelines for PPP projects.

Because guarantees come due only upon the occurrence of particular events and involve no immediate expenditure or cost to the government, such commitment to the private may seem appealing to political decision makers. It should be noted that the government must have the necessary financial capacity before making such guarantees. If the government bears the risk of high fiscal costs from explicit guarantees or incentives in PPP contracts, especially for the medium to long term, the expected fiscal impacts of PPPs should be thoroughly considered and reported. Publicly open information ensures that the government and potential private partners are accountable for any outcomes that are agreed upon.

5.2.4. Unified Approach to PPP and Government Project Management

An important lesson from Korea's experience is the importance of managing PPPs within comprehensive and unified frameworks of fiscal management. In 2005, PIMAC was established as a merger of the Public Investment Management Center (PIMA) and Private Infrastructure Investment Center of Korea (PICKO). PICKO was established under Korea Research Institute of Human Settlements in 1999 through the PPP Act for PPP promotion and management. PIMA was established under the KDI in 2000. Established a year after PICKO, PIMA had as its main roles managing government projects, conducting PFS and other due diligence on conventional government projects, and enhancing fiscal productivity. The creation of PIMAC facilitated unified management of PPP and conventional government projects.

The value-for-money (VFM) test was introduced in 2005 after the creation of PIMAC. A PPP project is selected if deemed feasible and delivering VFM. The same methods and dataset used for government projects are also applied to a feasibility study for a PPP project. The introduction of VFM had a substantial impact on PPP management in that the same rules of fiscal discipline for traditional government projects are applied to PPPs. Before VFM, PPP had been used mainly as a tool

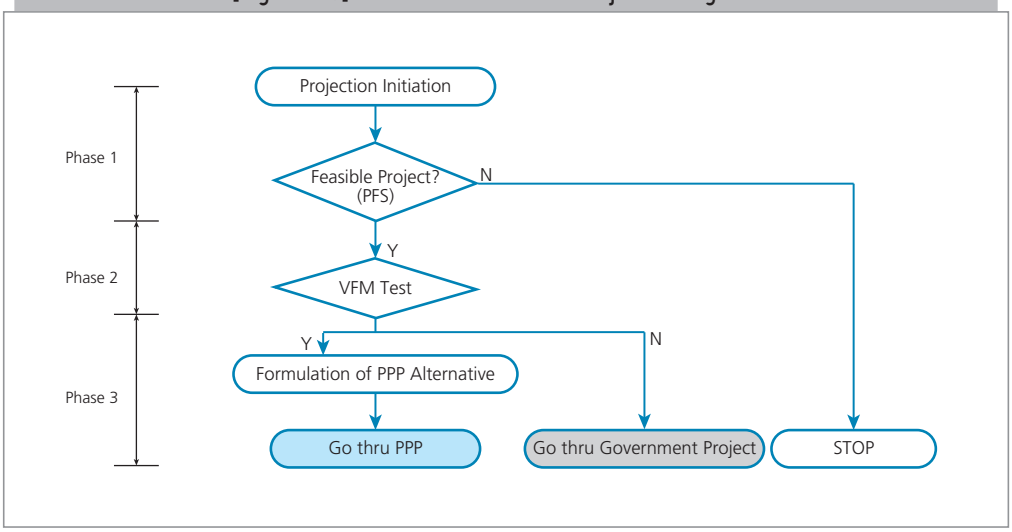
59) ADB, *op. cit.*, p. 28

to expand infrastructure investment. On the other hand, the new paradigm of public investment management (PIM) strengthened fiscal discipline in managing government projects and improving fiscal productivity through close project appraisals.

Unified approaches to PPP and conventional government procurement are carried out in three phases:

- Phase 1: Feasibility study
  The cost-benefit analysis is used to review a project's feasibility from a national economy perspective.
- Phase 2: Value for money test
  The government payment to a PSC (public sector comparator) is compared to that of a PFI (private finance initiative) to determine if the PFI achieves VFM.
- Phase 3: Formulation of PFI alternatives
  Appropriate PFI alternatives are devised based on the results of Phase 2. The level of project cost, user fee and subsidy scale are suggested by the government.

[Figure 4-7] Unified Framework of Project Management



Source: KDI.

In Korea, PPP is part of the Five-year National Fiscal Management Plan, or mid-term expenditure framework (MTEF), covered in one of 15 chapters. The plan provides a comprehensive outlook for the PPP expenditures of various ministries. Introduced in 2004, MTEF is a rolling plan on strategic resource allocation over the next

five years. Key components include major policy directions, mid-term fiscal outlook and management goal, the country's fiscal position, and funding allocation plan by the ministry.

While offering incentives to promote PPPs, fiscal management of PPPs should be considered because government guarantees can often have potentially significant social consequences. In principle, the Korean government set the fiscal management rules that combined payments for PPP projects should be limited to under 2 percent of annual government expenditures. A safeguard ceiling for PPPs emphasized that if a large-scale PPP project is pursued by the government, the aggregate fiscal commitment should not exceed a sustainable level for fiscal soundness and stability. The combined costs of BTL projects ready for tender in the following year are reported to the National Assembly in the same context.

5.2.5. Coordinated and Systematic Capacity Building

The capabilities of PPP-related public institutions and the private sector that manage projects are vital to PPP's success. A typical PPP project tends to have a complicated structure involving both the public and private sectors. Implementation of a well-functioning PPP program requires a wide spectrum of knowledge on various elements, such as the PPP system itself, demand estimation, project design, civil engineering, financing, accounting and laws.[60] For the private sector, understanding the policy direction of PPP projects, their strategy and structure is essential, along with a clear understanding of PPP's legal and regulatory statements and implementation process. On the other end, the government must develop specific technical expertise to conduct project appraisals, prioritization and management, and ensure that PPPs are in line with broader fiscal and economic policy objectives. Moreover, the government needs to negotiate with private partners in the most effective manner.

As these comprehensive and specialized functionalities cannot be achieved in a short period of time,[61] coordinated and systematic efforts to build such capacity for PPP projects are needed. The PPP Act of Korea mandates that PIMAC provides training and education programs for PPP capability improvement. PIMAC has offered training courses for both the public and private sectors.[62] In Ethiopia, the central government lacks the experience of operating a program on developing PPP capability, and the number of experienced project workers in Ethiopia is insufficient at both the government and private levels. To improve PPP capabilities for Ethiopia, the office in charge must have the required capability and develop educational

60) ADB, *op. cit.*, p. 33
61) *Ibid.*, p. 36
62) United Nations, Guidebook on Promoting Good Governance in Public-Private Partnerships, UN: New York, 2008.

training programs to build the capabilities of both public institutions and private counterparts. The scope and focus of PPP education could get broader depending on the nature of the project, but Ethiopia nonetheless needs to start with basic educational programs.

Even if appropriate legal and administrative frameworks are established, the PPP system might not work properly without a competent private sector capable of making sound investment decisions. In Korea, domestic companies have been participating in PPP most actively, while financial institutions have played their part as the most active lenders. Active interactions and dialogue among financial institutions, construction companies and private investors are the unique features of the Korean PPP market that differentiates it from those of other developing countries. In Ethiopia, however, the private sector is still in the early stage of development, which underlines the importance of proactive roles that the Ethiopian government should play in supporting the private sector technically and financially.

Efforts to improve PPP capabilities should be consistently maintained with the changes in the environment for PPP projects and should be supported with a sufficient amount of funding and time. Due to lack of experience and funds in Ethiopia, the self-enhancement of PPP capability is limited. Having the support and cooperation from outside expert groups, especially from abroad, is important and more efforts should go toward working with overseas PPP agencies including PIMAC. The efficient use of external sources will help the country obtain necessary knowledge. Interestingly, many countries have requested capacity building programs from PIMAC in making Korea their benchmark.

5.3. Focal Points in PPP System Development

5.3.1. Establishing PPP Unit

5.3.1.1. Roles

To establish and manage infrastructure for national development, PPP operating organizations play a vital role. Although specific functions of PPP units are different from country to country, they are generally responsible for overall administration of core PPP policies, and development, planning and management.[63] Most OECD member nations and countries with successful PPP programs have their own PPP units.

In the case of Korea, PIMAC was established as a specialized unit for administering

63) Organization for Economic Cooperation and Development (OECD), Dedicated Public-Private Partnership Units: A Survey of Institutional and Governance Structure, Paris: OECD, 2010

the PPP system, and its role has been one of the most typical elements of the country's institutional arrangements. The institution has played a central role in the Korean PPP system as mandated by the Enforcement Decree of the PPP Act. PIMAC was also instrumental in ensuring that operation-level decisions were made according to clearly defined criteria, and in building up the capacity of the public and private sectors.

Forming a dedicated PPP unit in Ethiopia will have many advantages. A PPP unit improves the government's capacity to manage project risks and improve the value of PPPs. And a PPP unit is a way for the public sector to fill the expertise gap with its private counterpart, who is both a contender and partner in project implementation. The roles of a PPP unit can be postulated as follows:

- Policy adviser to the government: The PPP unit provides policy guidance including advice on the contents of national legislation. It can also play a gatekeeper role to make sure PPPs can deliver value for money as an evaluator of feasibility tests.
- Government agency: The PPP unit provides technical assistance to government organizations or competent authorities at various stages of PPP project implementation.
- Training and market promoter: The PPP unit enhances capacity building by providing training programs to public officials engaged in PPPs, promoting PPP to the public and private sectors, and possibly hosting an international forum.
- Researcher: The PPP unit plays as a research institute specialized in PPP programs.

For Ethiopia, a beneficial endeavor would be for these special think tanks to initially work on focused areas of analyzing other countries' experiences, studying how to build a PPP system, providing institutional support and training government officials, in line with the conditions and requirements of PPP development. They can further grow to eventually serve functions like Korea's PIMAC.

5.3.1.2. Location: MOFED

In most countries with PPP systems, PPP units are under a finance ministry or its equivalent. In other cases, they are located within an independent agency or line ministry. The principles of the location of a PPP unit suggested by PPIAF (2007) are as follows:

- In a parliamentary system of government, a PPP unit is effective if under a strong ministry of finance.
- In a non-parliamentary system such as presidential, the best location for a PPP

unit is not clear.

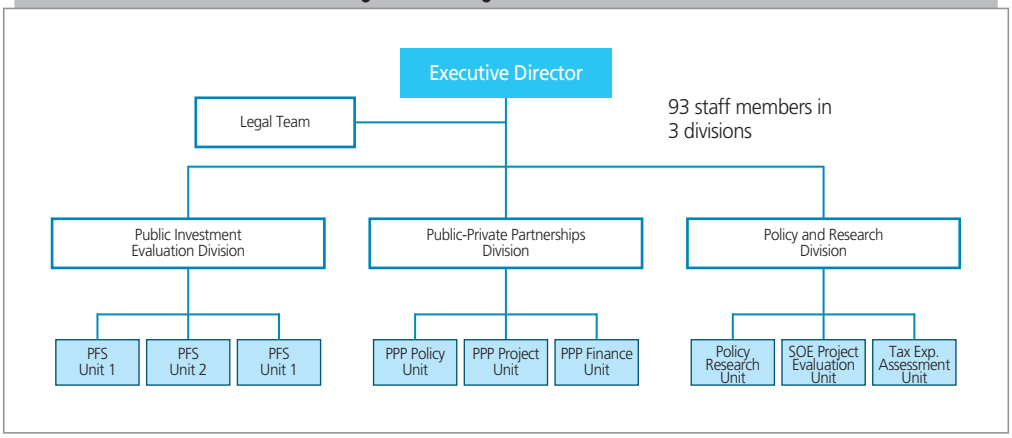
- In a country with a strong planning or policy coordination agency, that agency is a good location of a PPP unit.

One of many essential roles of a PPP unit is deciding whether a project should move forward. MOFED, which plays a gatekeeper role for government projects, seems to be a good location for the PPP unit in Ethiopia. That way, PPP projects can be managed in a unified way along with conventional government projects. Furthermore, establishing a PPP unit within MOFED provides a direct link to other expenditures, capital investment expertise and decision-making processes. An important lesson from Korea's PPP experience is that the government needs to manage PPP projects from a comprehensive fiscal management view.

5.3.1.3. Organization

As a center for information and policy formulation, the PPP unit will be staffed with officials and experts in relevant fields and play an independent role for policy development and PPP-related procurement. As for the PPP unit's organization, PIMAC will provide a good reference. PIMAC's organization consists of three divisions – the Public Investment Evaluation Division, PPP Division, and Policy and Research Division with 93 combined personnel – and nine teams. Their organizational chart is as follows.

[Figure 4-8] Organization of PIMAC



Source: KDI.

Policy references for establishing the Ethiopian PPP unit can be summarized as follows:

- A PPP unit will help improve the capacity of PPP policy and project management, which requires different sets of skills from that of conventional government project management.
- A suggestion is to establish a PPP unit within MOFED, which aims to enhance the efficiency of government spending and discover alternative funding sources.
- The newly created PPP division in MOFED can manage PPP projects in a unified way as conventional government projects.
- The PPP unit can also conduct research to set PPP policy direction and legislate the PPP Act in the mid or long term.

5.3.2. Setting Up in Ethiopian Context

For building a PPP system in Ethiopia, it is crucial to determine the direction and promotional strategies for each step deemed achievable in the Ethiopian context. Ethiopia faces a number of challenges, as it lacks understanding of the PPP system and projects, accumulated domestic private capital, strategic investors with business capabilities and a project financing system for procurement and investment of financial institutions. Above all, domestic capital accumulation might be insufficient to support a significant number of PPP projects. Another important factor is the lack of domestic project sponsors who are financially and professionally competent, not to mention a dearth of qualified practitioners with adequate expertise and experience in project development and implementation. The shortage of experts experienced with the infrastructure projects at both the government and private levels presents another critical constraint.

Introducing a PPP system in Ethiopia should start from selecting a PPP system that could work for the country. The system should be designed in consideration of the country's unique socioeconomic environment. Just as any other development policies, the PPP system tends to improve itself when country-specific political, social and economic circumstances are considered, instead of merely copying successful cases of other countries. So fundamental differences between countries must be thoroughly analyzed before any specific recommendation is made.

From the decade-long endeavor in PPP, Korea has accumulated some insightful lessons and knowledge to share on this matter. This report aims to provide useful references for the Ethiopian government from Korea's experiences gained from its efforts to promote private investment for PPP. Korea's PPP system could serve as a reference system for Ethiopia, but using it as a benchmark has limitations stemming from differences in economic and financial market conditions. Certain assumptions taken for granted in formulating the Korean system might not be true for Ethiopia. Likewise, measures and policies that proved to be effective in Korea might not be in

Ethiopia.

The economic and industrial structures of Korea in the initial stage of its PPP system differed dramatically from those of Ethiopia. Such differences should be considered to make the implementation of an Ethiopian PPP system more practical and feasible. When Korea was trying to introduce PPP, industrialization had already begun, which directly led to higher demand for infrastructure development. This helped the Korean government persuade citizens that the implementation of PPP system is a necessity. In this regard, Ethiopia needs to put efforts into developing social consensus that implementing the PPP system is inevitable to expand infrastructure.

Also important is to find an appropriate measure that can enhance private participation to complement public resources under Ethiopia's circumstances. In this respect, the Ethiopian government needs to make a decision on which methods to pursue first in its economic structure between BTO, which provides concessions to yield earnings, and BTL, a service purchasing model more suitable for building social infrastructure including education and social welfare facilities. In general, the BTO type is popular in developing countries, whereas BTL is more common in advanced countries. Korea is carrying out both types of private investment projects. BTO projects were mainly implemented at first, but since the 2005 revision of the PPP Act enabled BTL, the number of such projects has increased. As Ethiopia lacks accumulated private capital within the country, the start of small-scale service contracting is advised whose types have seen success in Ethiopia, and then expand to providing concessions that require large capital, reflecting implementation performance.

At the same time, acceptance of unsolicited projects can be a key measure for inducing private investment. Korea displays a high proportion of unsolicited projects compared to solicited projects, which is rare for developed countries. Most developed countries shun unsolicited proposals by the private sector. Although solicited projects are more desirable in that the government can initiate PPP projects based on its overall investment plans and priorities, unsolicited projects have advantages since they encourage private sector creativity and innovation, and can accelerate project delivery as well as showing market interest in public service delivery. Transparency issues do exist, however, and they may not be identified within the government budget or policies. Ethiopia's private sector still lacks business capabilities and the economic situation is uncertain, thus the chance of unsolicited projects to be fully utilized remains low. But considering the benefits they can offer, Ethiopia should try to lay an institutional foundation for this project type. Furthermore, Ethiopia can examine how the minimum revenue guarantee (MRG) system can be applied to serve as an incentive program, since it attracts a high amount of private investment albeit

its flaws, as demonstrated in Korea's experience.

In implementing the PPP system, Ethiopia needs to analyze and prioritize which areas of infrastructure need private investment the most, especially from abroad. In Korea, PPPs were pursued in conventional infrastructure such as roads, railroads and ports due to the emergence of manufacturing's need for distribution infrastructure. Unlike Korea's case, however, Ethiopia's industrial structure is mainly focused on agriculture. Consequently, the country's demands could be different and geared toward infrastructure such as dams, irrigation and power generation facilities. So the Ethiopian government is advised to consider pursuing PPPs in those areas of high demand.

Korea has pursued and succeeded in many large-scale projects costing as much as US$1 billion. The reasons behind such success include the social demand for infrastructure development, as well as support from construction companies with extensive experience in proceeding with large-scale projects and financial corporations that accumulated substantial amounts of private financial capital. In Ethiopia's case, however, small-scale projects must be completed first, since the domestic private capital remains limited in the country.

Considering that Ethiopia's domestic capital market has not yet matured and thus difficult to pursue PPP projects solely with domestic capital, attracting foreign investment should be the main target in the initial stage of implementing the PPP system. In such case, since the main PPP players would be foreign investors, it is important to conduct surveys and interviews with them to grasp their demands and risks. Furthermore, the country's strengths and weaknesses from the perspective of foreign investors must be analyzed and applied in devising support measures.

5.3.3. Evolving into Well-Functioning System

Establishing a well-functioning PPP system in Ethiopia requires a strategic approach from the initial stage. To ensure a smooth and transparent PPP process, a regulatory framework with a set of necessary provisions is needed, as well as an appropriate institutional arrangement. In dealing with issues associated with introducing legal and administrative systems, Ethiopia could launch related subsystems one by one after considering its unique socioeconomic environment and financial market situations.

In retrospect, however, Korea had to overcome similar limitations in establishing its PPP system. All practical issues confronted in the process of consolidation had to be taken care by the government through continuous negotiations and consultation with private entities. Before achieving a well-functioning PPP system of its own,

Ethiopia should rectify those limitations in steps as a long-term process. In doing so, attention should go toward tailoring the PPP system effectively, considering the country's unique socioeconomic environment. The proper procedures and institutional arrangements should be in place to monitor PPP projects and refine the PPP system.

Korea's PPP history shows that the country's PPP system has been evolving since the PPP Act was enacted in 1994. The Act underwent two major revisions in 1999 and 2005 to adapt to market changes and meet the government's needs. Such progress in the PPP system reflects the government's strong will and commitment to improve the system to achieve its objectives. No doubt that this positive evolution has helped strengthen the private sector's confidence in PPP.[64)]

Considering the complexities Ethiopia has to confront in introducing the PPP system, the possibility of a well-functioning PPP system emerging within a short period of time is unclear. The system needs to be refined continuously since unexpected situations can occur. In Korea, even after the introduction of legal and administrative frameworks, no PPP projects existed for several years until MRG and other governmental support were introduced via a basic law revision. The same MRG eventually became an extreme burden to the government and had to be removed from the law. In other words, the government needs to constantly make changes and improvements to achieve a desirable PPP system.

In PPP projects, the action plan is just as important as organizing the institutional framework. As previously mentioned, Korea after the PPP system was implemented dealt with many cases of trial and error before setting the current system and procedures. So further research on the PPP system and a detailed action plan are needed even after the system is established in Ethiopia.

5.4. Concluding Remarks

Ethiopia faces constraints and difficulties that hinder the development of a well-functioning PPP system. Among others, the country lacks basic legal and institutional frameworks and a government commitment to promote private investment in PPP. Establishing a PPP system as an alternative to traditional government funding modality for infrastructure investment is impossible without a solid legal and institutional framework as well as a supporting policy scheme.

An encouraging development is the implementation of several PPP projects even in the absence of a comprehensive legal and institutional system or an explicit policy initiative on PPP. To pursue PPP projects in infrastructure, however, many new

64) ADB, *op. cit.*, p. 161

regulations and processes are needed to facilitate and support a well-functioning PPP system. Also, organizations and institutions engaged in the PPP process should be strengthened to make the system fully operational and effective.

This report suggests that a good short-term strategy for Ethiopia is to refine national PPP policy and develop guidance materials before the legislation of its own PPP Act. The priority is to articulate PPP's policy directions and legal framework. MOFED is preparing guidelines for PPP under consultation and cooperation with the African Development Bank (AfDB). The AfDB's report on the roadmap toward establishing the PPP framework in Ethiopia suggests policy recommendations based on a review of the experiences of many countries in developing PPPs. Those policy directions presented in the report are based on generally accepted principles of PPP, and in this regard, the effort of the Ethiopian government seems right on track. More important for the Ethiopian government is to go further and put into action along with the direction already suggested. This is the most essential and real lesson obtained from Korea's development history. Implications and potentially useful references might be worth noting from Korea's PPP experiences as presented in this report. Nevertheless, it is also emphasized that those references should be carefully interpreted and adopted within the perspective of Ethiopia's own context when the framework and ingredients of the Ethiopian PPP system are designed and implemented.

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