

Data Collection Survey
on
Human Resource Development
in
the Industry Sector
in
the Middle East Region

FINAL REPORT

January 2012

UNICO International Corporation
NTT Communications Corporation

MEE
JR
11-007

currency exchange rate

	1US\$→JPY	1US\$→LE
As of December 3, 2011	78.00	6.00

Abbreviation

	Abbreviated name	Official Name
A	AIAT	Arab Institute for Advanced Technology
	AOI	Arab Organization for Industrialization
C	CAPMAS	Central Agency for Public Mobilization and Statistics
	CEI	Chamber of Engineering Industries
E	EELU	Egyptian E-Learning University
	EEPC	Egyptian Export Promotion Center
	E-Just	Egypt-Japan University of Science and Technology
	eLCC	e-Learning Competence Center
	EU	European Union
F	FEI	Federation of Egypt Industries
	FTTC	Foreign Trade Training Center
	FTTH	Fiber to the home
G	GIZ	International Zusammenarbeit GmbH
I	ICT	Information & Communication Technology
	IELA	International E-learning Association
	IMC	Industrial Modernization Center
	ITC	Industrial Training Council
	ITI	Information Technology Institute
J	JICA	Japan International Cooperation Agency
L	LE	Egyptian Pound (currency)
M	MCIT	Ministry of Communications and Information Technology
	MEEA	Middle East E-learning Association
	MKI	Mubarak Kohl Initiative
	MOE	Ministry of Education
	MoHE	Ministry of Higher Education
	MoMM	Ministry of Manpower &. Migration
	MoPIC	Ministry of Planning, International Cooperation
MoTI	Ministry of Trade and Industry	
N	NTRA	National Telecom Regulatory Authority
	NSSP	National Skill Standard Program
O	OJT	On the Job Training
P	PQIC	Products Quality Improvement Center
	PVTD	Productivity and Vocational Training Department
S	SDP	Skills Development Project
	SFD	Social Fund for Development
T	TCC	Technology Competency Center
	TSS	Technical Secondary School
	TVET	Technical and Vocational Education and Training
V	VTC	Vocational Training Center

CONTENTS

Page No.

Introduction

1. Introduction	1
2. Objective of the Study	2
3. Study Area	2
4. Scope of the Study	3
5. Activity phases	4
6. Organization of this Report	5

Chapter 1 Summary of the Study and Findings

1.1 Summary of the Current State Study and Analysis	1-1
1.1.1 Current State of the Labor Sectors in Middle East Countries	1-1
1.1.2 Current State of Industrial Human Resource Development and Industry Needs in Egypt	1-2
1.1.3 Potential Use of Information Technology for Employment Promotion and Major Issues	1-3
1.1.4 Key Considerations to the Formulation of the Development Scenario	1-4
1.2 Proposed Development Scenarios	1-5

Chapter 2 Current State of Labor Sector in the Middle East Countries and Major Issues

2.1 Current State of Labor Sectors in the Middle East Countries	2-1
2.1.1 Comparative analysis of GDP, population, and workforce	2-1
2.1.2 Unemployment in the Middle East Countries	2-4
2.1.3 Industrial structure and labor force in the Middle East countries	2-7
2.2 Labor Sector in Egypt	2-15
2.2.1 Recent trends in population, workforce, and unemployment	2-15
2.2.2 General background and factors for the high unemployment rate	2-17
2.2.3 Industrial structure and labor force in Egypt	2-21
2.3 Labor Sector in Jordan	2-26
2.3.1 Recent trends in population, workforce, and unemployment	2-26
2.3.2 Unemployment rate: background and factors	2-28
2.3.3 Industrial structure and workforce	2-30

Chapter 3	Current State of Industrial Human Resource Development and Industry Needs in Egypt	
3.1	Industrial Human Resource Development Policies of the Egyptian Government	3-1
3.1.1	Positioning of Human Resource Development in National Policies	3-1
3.1.2	Industrial Human Resource Development in the Formal Education System	3-5
3.1.3	Current state of TVET-related support by major donor organizations	3-8
3.2	Current State of Existing Programs Relating to Industrial Human Resource Development	3-13
3.2.1	Current State of TVET Organizations and Major Issues	3-13
3.2.2	Current State of Public Technical Support Centers and Major Issues	3-16
3.2.3	A formal certification system for professional skills	3-19
3.3	Attitude Survey of University Students and Companies Relating to Job Seeking and Employment	3-21
3.3.1	Objective and Scope	3-21
3.3.2	Analysis of Survey Results (Attitude Survey of New University Graduates)	3-21
3.3.3	Major Findings from the Survey Results and Analysis	3-29
3.4	Industrial Human Resource Development Needs in the Private Sector	3-31
3.4.1	Survey of Companies' Perspectives on Recruitment and Employment	3-31
3.4.2	Recent Trend in Direct Investment by Japanese Companies (Middle East Region and Egypt)	3-41
3.4.3	Current State of Recruitment and Employee Training (including Japanese companies operating in Egypt)	3-48
3.4.4	Industrial Human Resource Needs by Key Sectors	3-52
Chapter 4	Potential Use of Information Technology for Employment Promotion and Major Issues	
4.1	Current State of ITC Infrastructure Development in the Middle East Region	4-1
4.1.1	Telecommunications market	4-1
4.1.2	Current State of E-learning in Egypt	4-15
4.1.3	Current State of E-learning in Middle East	4-19
4.1.4	Issues Relating to E-learning Service	4-21
Chapter 5	Development Scenarios for Industrial Human Resource Development in the Middle East Region	
5.1	Key Considerations to the Formulation of the Development Scenario	5-1
5.1.1	Review and Analysis of Major Issues	5-1

5.1.2	Strategic Direction Relating to Development Scenario Formulation.....	5-5
5.2	Development Scenario Proposals.....	5-9
5.2.2	Analysis of Industrial Impacts of the Development Scenarios	5-48
5.2.3	Opportunity for Region-wide Deployment of the Development Scenarios	5-55

FIGURES AND TABLES

Page No.

Chapter 1	Summary of the Study and Findings	Chapter 1	Summary of the Study and Findings
Fig.1-1-1	Strategic direction relating to formulation of development scenarios.....	1-4	
Fig.1-2-1	Conceptual view of the project to support IT human resource development and the fostering of the IT industry.....	1-7	
Fig.1-2-2	Conceptual view of the job matching network.....	1-10	
Fig.1-2-3	Conceptual view of engineering skill testing project	1-13	
Fig.1-2-4	Conceptual view of automotive mechanics training project	1-16	
Fig.1-2-5	Job Place Support for EdyEgypt Program Participants.....	1-19	
Chapter 2	Current State of Labor Sector in the Middle East Countries and Major Issues		
Fig.2-1-1	Composition of Population by Age Group in the Middle East Countries.....	2-4	
Fig.2-1-2	GDP Share by Industry in the Middle East Countries (%).....	2-8	
Fig.2-1-3	Working Population in Japan and Selected Southeast Asian Countries.....	2-11	
Fig.2-1-4	Share of Working Population by industry (%).....	2-11	
Fig.2-1-5	Workforce Participation by Sex (%)	2-15	
Fig.2-2-1	Employment Rates by Age Group and Sex in 1999.....	2-16	
Fig.2-2-2	Employment Rates by Age Group and Sex in 2002.....	2-17	
Fig.2-2-3	Employment Rates by Age Group and Sex in 2011.....	2-17	
Fig.2-2-4	Unemployment population by age group (UNIT:1000).....	2-18	
Fig.2-2-5	Unemployment Rates in the 15 - 29 Years Group by Education and Sex (%)	2-19	
Fig.2-3-1	TVET System in Jordan	2-29	
Table 2-1-1	Abstract Information in the Middle East Countries.....	2-2	
Table 2-1-2	Working Population in the Middle East Countries.....	2-3	
Table 2-1-3	Yearly changes in Unemployment Rates of the Middle East Countries.....	2-6	
Table 2-1-4	World Ranking of Oil Reserves.....	2-14	
Table 2-2-1	Relationship between Educational Background and the Number of Unemployed Persons	2-19	
Table 2-2-2	Relationship between Unemployment Rate and Education.....	2-19	
Table 2-2-3	Main reason for being unemployed, age 15-29, Egypt 2009.....	2-21	
Table 2-2-4	GDP by Industry (%).....	2-22	
Table 2-2-5	Number of Employees by Industry (unit: hundred).....	2-22	
Table 2-3-1	Classification of Jordanian Companies by Key Sector and Company Size.....	2-28	

Chapter 3 Current State of Industrial Human Resource Development and Industry Needs in Egypt

Fig.3-1-1	New Industrial Human Resource Training System of MOTI	3-5
Fig.3-1-2	Educational System in Egypt	3-6
Fig.3-2-1	The Technology Transfer System	3-17
Fig.3-3-1	Purpose of Attitude Survey in the Context of the Problem Solving Process	3-21
Fig.3-3-2	Age Distribution of Survey Respondents	3-22
Fig.3-3-3	Desired Career after Graduation.....	3-22
Fig.3-3-4	Job Seeking Method	3-23
Fig.3-3-5	Frequency of Job Application	3-23
Fig.3-3-6	Time to Start Job Seeking Activity	3-24
Fig.3-3-7	Desired Job Types	3-24
Fig.3-3-8	Desired Employment Status	3-25
Fig.3-3-9	Priority Factor for Employment	3-25
Fig.3-3-10	Major Reasons for Rejection of Job Application (Overall).....	3-26
Fig.3-3-11	Major Reasons for Rejection of Job Application (Science/Engineering Majors).....	3-26
Fig.3-3-12	Major Reasons for Rejection of Job Application (Liber Arts Majors).....	3-27
Fig.3-3-13	Reason for Resignation	3-27
Fig.3-3-14	Expectation for Job Assistance by Public Organizations	3-28
Fig.3-3-15	Major Factors for Employment Problems	3-28
Fig.3-4-1	Breakdown of Companies by Employment Size.....	3-31
Fig.3-4-2	Breakdown of Companies by Capital.....	3-31
Fig.3-4-3	Breakdown of Companies by Annual Sales Amount	3-32
Fig.3-4-4	Share of Technical Workers in Total Workforce	3-32
Fig.3-4-5	Composition of Employees by Historical Background	3-33
Fig.3-4-6	Average Age and Length of Service (Technical/Non-technical Workers).....	3-34
Fig.3-4-7	Turnover Rates by Industry Type (2006 - 2010).....	3-34
Fig.3-4-8	Reasons for Resignation.....	3-35
Fig.3-4-9	Type of Employment.....	3-35
Fig.3-4-10	Recruitment Method.....	3-36
Fig.3-4-11 (1)	Employment Method	3-37
Fig.3-4-11 (2)	Employment Method by Company Size.....	3-37
Fig.3-4-12	Reasons for Avoiding Use of the Public Employment Support System	3-37
Fig.3-4-13	Areas of Improvement Demanded for Workers with University Education	3-38
Fig.3-4-14	Areas of Improvement Demanded for Workers with Vocational Training	3-39
Fig.3-4-15	Employee Education Methods.....	3-39
Fig.3-4-16	Areas of Improvement Demanded for Job Applicants (SMEs).....	3-39

Fig.3-4-17	Areas of Improvement Demanded for Job Applicants (LEs).....	3-40
Fig.3-4-18	Population Growth Forecast in Emerging Countries by Income Class.....	3-43
Fig.3-4-19	Increasing of the Middle Class in the Rising Countries and Regions.....	3-44
Fig.3-4-20	Screen Image of the “baty.com” site.....	3-50
Fig.3-4-21	Screen Image of the “waset.net” site.....	3-50
Table 3-1-1	Labor Force and Employment Estimations for 2007-2012.....	3-1
Table 3-1-2	Growth and Investment Targets in the Industrial Sector.....	3-4
Table 3-2-1	TVET Programs by MOE.....	3-14
Table 3-2-2	PQIC's Program Record (September 2006 – December 2010).....	3-18
Table 3-4-1	Japan’ s Foreign Direct Investment by Region and Country (Net, Based on International Balance of Payments).....	3-42
Table 3-4-2	Local Subsidiaries Invested by Japanese Companies in Middle East and North Africa, by Country (Equity Share of 10% or higher).....	3-45
Table 3-4-3	Local Subsidiaries Invested by Japanese Companies in Saudi Arabia, UAE, Turkey, and Egypt (Equity Share of 10% or higher).....	3-46
Table 3-4-4	List of Japanese Manufacturing Companies Operating in Egypt.....	3-47
Table 3-4-5	Job Advertisements Published on the Recruitment Service Sites.....	3-49
Chapter 4	Potential Use of Information Technology for Employment Promotion and Major Issues	
Fig.4-1-1	Recent Changes in the Number of Fixed line Phone Subscribers in Selected Middle East Countries.....	4-2
Fig.4-1-2	Graph Showing Change in Fixed line Phone Ownership in Selected Middle East Countries.....	4-3
Fig.4-1-3	Fixed Line Subscriber Population Trend in Egypt.....	4-4
Fig.4-1-4	Fixed Line Subscriber Population Trends in Urban and Rural Areas.....	4-4
Fig.4-1-5	Graph Showing Changes in Fixed Line-based Internet Subscriber Population in Selected Middle East Countries.....	4-5
Fig.4-1-6	Graph Showing Changes in the Internet Connectivity Rate in Selected Middle East Countries.....	4-6
Fig.4-1-7	Graph Showing Changes in Broadband Line Subscriber Population in Selected Middle East Countries.....	4-7
Fig.4-1-8	Graph Showing Changes in the Broadband Connectivity Rate in Selected Middle East Countries.....	4-8
Fig.4-1-9	Recent Trends in Internet User Population and Connectivity Rate in Egypt.....	4-9
Fig.4-1-10	Breakdown of Internet Connectivity by Type of Line (As of 2011).....	4-10
Fig.4-1-11	Broadband Line Service Market Share in Egypt (2008).....	4-11

Fig.4-1-12	Graph Showing Changes in Cell Phone Subscriber Population in Selected Middle East Countries	4-12
Fig.4-1-13	Graph Showing Changes in the Cell Phone Ownership Rate in Selected Middle East Countries.....	4-13
Fig.4-1-14	Changes in the Cell Phone Subscriber Population and Ownership Rate in Egypt.....	4-14
Fig.4-1-15	Cell Phone Service Market Share in Egypt (2008)	4-15
Fig.4-1-16	Image of eLCC's E-learning Course (Business Computer Basics).....	4-17
Table 4-1-1	Recent Changes in the Number of Fixed line Phone Subscribers in Selected Middle East Countries	4-1
Table 4-1-2	Recent Trend in Fixed line Phone Ownership in Selected Middle East Countries	4-2
Table 4-1-3	Recent Changes in the Number of Internet Subscribers Using Fixed Lines in Selected Middle East Countries	4-5
Table 4-1-4	Recent Changes in the Internet Connectivity Rate in Selected Middle East Countries	4-6
Table 4-1-5	Recent Changes in the Number of Broadband Line Subscribers in Selected Middle East Countries	4-7
Table 4-1-6	Recent Changes in the Broadband Connectivity Rate in Selected Middle East Countries	4-8
Table 4-1-7	Recent Changes in Internet Line Subscriber Population by Type of Line	4-10
Table 4-1-8	Recent Changes in the Number of Cellular Phone Subscribers in Selected Middle East Countries	4-11
Table 4-1-9	Recent Changes in the Cell Phone Ownership Rate in Selected Middle East Countries	4-12
Table 4-1-10	Recent Changes in Mobile Internet User Population in Egypt.....	4-14
Chapter 5	Development Scenarios for Industrial Human Resource Development in the Middle East Region	
Fig.5.1.1	Development Scenario Formulation Process	5-9
Fig.5.2.1	Structure and Management of the IT Engineer Training and Examination System in Egypt	5-13
Fig.5-2-2	Educational Broadband Network	5-14
Fig.5-2-3	Conceptual view of the project to support IT human resource development and the fostering of the IT industry.....	5-19
Fig.5-2-4	Implementation Procedures for Development of the Job Matching Databank for Young People	5-22

Fig.5-2-5	Conceptual view of the job matching network.....	5-26
Fig.5-2-6	Conceptual view of engineering skill testing project	5-32
Fig.5-2-7	Conceptual view of automotive mechanics training project	5-38
Fig.5-2-8	Preliminary Implementation Schedule	5-44
Fig.5-2-9	Job Place Support for EdyEgypt Program Participants.....	5-47
Fig.5-2-10	IT Industry Workforce Trend.....	5-49
Fig.5-2-11	IT Industry Sales Trend.....	5-49
Fig.5-2-12	IT Company Trend	5-50
Table 5-2-1	Number of IT companies and & Employ	5-39
Table 5-2-2	Estimation of Initial Cost.....	5-42
Table 5-2-3	Estimation of Running Cost	5-42
Table 5-2-4	Estimated Revenue Stream.....	5-43
Table 5-2-5	Expected Revenue and Cost	5-46

Introduction

1. Introduction

The Middle East region has traditionally been playing an important role as a crossroad for civilizations in the east and west since ancient times. At the same time, the region is ridden with conflicts, which are caused by various factors, including racial, religious, and political, as seen in the Palestine problem. Most recently, people's movement demanding democratization has originated in Tunisia and has spread to Libya and Egypt, resulting in the toppling of the long-lived dictatorships. The revolutionary wave of demonstrations is now expanding into the entire Middle East region and North Africa, constituting one of major element of today's global instability. It is pointed out that the wave of the turmoils reflects people's dissatisfaction with the current administrations, including the political system, as well as the sense of alienation, which have been induced by high unemployment (especially people with advanced education), a large number of people working in the informal sector, and the increase in the sense of inequality due to the expansion of income differentials.

To help cope with such problems facing the Middle East countries, the Japanese government announced, at the Sea Island Summit in 2004, the assistance for vocational training as part of Partnership for Progress and a Common Future with the Region of the Broader Middle East and North Africa¹ (BMENA). So far, Japan has been implementing vocational training programs for 10,000 people and reeducation support programs for young people who have left school without completion. Meanwhile, JICA has been carrying out various projects in the region, which focus on human resource development. Recently, however, the situation facing the Middle East is changing dramatically, calling for a new approach to human resource development. In particular, it becomes apparent that the new approach should combine efforts on two fronts; to attract direct investment that is conducive to job creation, and to train workers to meet the needs of industries in such way to improve the investment climate. The parallel efforts seem to be imperative for the amelioration of the employment problem that is a root cause for social instability. Furthermore, as the problem is widely seen in the Middle East and North Africa, an assistance program needs to be designed to benefit the entire region, rather than focusing on a single country, thereby to help maximize effectiveness and efficiency of development assistance.

Against this backdrop, JICA has agreed to conduct preliminary research and study on industrial policies of the Middle East countries, major issues, the job market environment, and

¹ "Partnership for Progress and a Common Future with the Region of the Broader Middle East and North Africa" has been initiated in response to the proposal of the U.S. made at the 2004 Sea Island Summit for the purpose of supporting reform efforts by the Middle East countries in the areas of politics, economy and society. The Japanese government has announced to provide support in a variety of areas including human resource development.

the intent of Japanese companies to invest in the region, for the purpose of designing a new cooperation scheme that makes effective use of Japan's expertise and experience, while confirming target sectors and cooperation schemes suitable for Japan's ODA efforts in terms of viability. The study is entitled "Basic Study for Industrial Human Resource Development in the Middle East Region" and was conducted between August and December 2011.

2. Objective of the Study

The overall goal and the primary objective of the Study are as follows (excerpt from JICA's terms of reference for the study).

(1) Overall goal

The overall goal of the Study is stated as follows: "an industrial human resource development scheme in partisanship with private companies, which makes effective use of IT, is implemented to effectively promote investment by Japanese companies in the Middle East region, and as a result, the region's employment conditions are improved, including the increase in job opportunities, while the region's political stability and economic development is achieved.

(2) Primary objective

The primary objective of the Study is to collect and analyze information required to design a new scheme focusing on industrial human resource development for the region's industries as a key instrument to promote job creation and investment (including industrial policies in the Middle East countries, issues facing them, employment conditions, awareness of people in relation to employment, and the intent of Japanese companies to invest in the region), select priority sectors in consideration of efforts made by other donors, and develop an effective approach to development assistance by the Japanese government and industry.

3. Study Area

As implied in the overall goal and the primary objective, the Study should cover the Middle East region as a whole. However, due to a limited study period, the primary focus is placed on two countries, Egypt (to be covered by field survey) and Jordan (to be covered by research and study based in Japan).

A definition of the Middle East used for the purpose of the study is based on that generally accepted in Europe and the U.S., namely the UAE, Yemen, Israel, Iraq, Iran, Egypt, Oman, Qatar, Kuwait, Saudi Arabia, Syria, Turkey, Bahrain, Jordan, Lebanon, and Palestine (source: Wikipedia). The Ministry of Foreign Affairs of Japan includes Afghanistan, while classifying Egypt into Africa. While there are some other classifications that include Egypt as

part of North Africa, the Study adopts the European/America version of the definition (including Egypt). It should be noted, however, that the analysis of the labor sector in Chapter 2 include data on Tunisia and Morocco in North Africa as reference, which have potential to attract investment by Japanese manufacturers.

4. Scope of the Study

As the Study is primarily designed to develop an innovative approach for JICA to the human resource development scheme for industrial development of the Middle East countries, the scope of the Study includes the following items. Also, activities to be undertaken as part of the Study will include not only field surveys of organizations and companies in Egypt (including those to be contracted to local consulting firm) but also document research, information gathering via the internet, and interview surveys of Japanese companies.

- (1) Confirmation of the need and background for project implementation
 - 1) Confirmation of current state of the labor sector
 - 2) Understanding of issues facing the labor sector
 - 3) Understanding of the needs of local industries in relation to industrial human resource development
 - 4) Understanding of assistance projects conducted by other donors for the labor sector, and issues relating to project implementation

- (2) Collection of information relating to existing vocational training institutes and industrial human resource development organizations
 - 1) Collection of information on vocational training institutes and industrial human resource development organizations and their activities

- (3) Formulation of a development scenario for vocational training and industrial human resource development
 - 1) Comparison and alignment of the human resource needs of industries and priority areas set by individual vocational training and human resource development organizations

 - 2) Study and draft out of a desirable vocational training/human resource development scheme to maximize employment opportunities and confirm a possibility of PPP in context of scheme development and management

 - 3) Evaluation of possibility of a devised vocational training/human resource development model in terms of contribution to industries in the target countries

- 4) Confirmation of the process, schedule and financial and economic feasibilities for the future development scenario (business model)
- 5) Development of proposals and recommendations for vocational training and industrial human resource development in the Middle East

5. Activity phases

The Study has been carried out in the following five phases.

- (1) First phase work in Japan
 - 1) Collection, assortment and analysis of readily available data and information on the labor sector in the Middle East countries
 - 2) Finalization of study policy, methodology and plan
 - 3) Development of detailed study plans
 - 4) Preparation and submission of the Inception Report (IC/R) and survey questionnaires
- (2) First field survey
 - 1) Presentation of IC/R to related organizations and discussion
 - 2) Establishment of the field survey support scheme and preparation for subcontracting work
 - 3) Information gathering and interview survey of and consultation with local organizations and related parties
 - 4) Conceptual design
- (3) Second phase work in Japan
 - 1) Compilation and analysis of collected information
 - 2) Collection, compilation and analysis of information obtained from Japanese organizations and companies
 - 3) Listing of fields and items requiring supplemental research and study
- (4) Second field survey
 - 1) Collection of supplemental information
 - 2) Compilation and analysis of the results of the questionnaire surveys commissioned to a local firm
 - 3) Formulation of a preliminary development scenario
- (5) Third and fourth phase work in Japan
 - 1) Assortment and analysis of documents, information, and survey results that have been obtained

- 2) Preparation and presentation of the Draft Final Report (DF/R) to related organizations and discussion
- 3) Preparation and submission of the Final Report (F/R) (fourth phase work in Japan)

6. Constitution of this Report

This report is comprised of five chapters, as well as the introduction. Chapter 1 presents an overall summary of the report, including basic data and information used in the study and the proposals made by the study team. Chapters 2 through 4 discuss the study results according to the specific themes being focused on. Finally, Chapter 5 presents a development scenario in the form of proposals, as developed on the basis of the study results. Note that, while it was organically mandated to create a development scenario that helps the entire region to enjoy its benefits, proposals presented in the report target Egypt as the first country to apply the approach because its conditions relating to implementation of proposed programs are relatively well known.

Chapter 1
Summary of the Study and Findings

Chapter 1 Summary of the Study and Findings

1.1 Summary of the Current State Study and Analysis

The Study attempts to examine possibility of a new approach to industrial human resource development in the Middle East region, which can contribute to job creation and investment promotion, by collecting and analyzing data and information concerning the region's labor sector, vocational training and human resource development activities, and industrial needs. It then makes a set of proposals for human resource development in the region. This chapter summarizes the results of analysis and outlines the five development scenarios proposed for Egypt.

1.1.1 Current State of the Labor Sectors in Middle East Countries

The Study analyzes the labor sectors of the Middle East countries from the standpoints of industrial structure, working population, unemployment rate, and labor force participation ratio, with detailed analysis of Egypt and Jordan with regard to the background for unemployment problems including their industrial structures. The current state of the labor sectors is summarized as follows.

- (1) The labor sectors in the region are classified into three types according to their social and economic conditions. The majority are countries with relatively high GDP per capita equivalent or close to that of middle income countries and a relatively high unemployment rate of 10-15%, above the world average. These countries also show high rates of population increase.
- (2) The region's relatively high unemployment rates are partially attributable to small presence of the agricultural sector that absorbs surplus labor in many countries.
- (3) While high mobility of the workforce is seen within the region, companies in most countries tend to hire persons with work experience to result in a relatively high unemployment in the young age group.
- (4) There are four key factors that create and aggravate high unemployment in the region: (i) supply and demand imbalance in the labor market (massive supply vs. limited demand);

(ii) low “employability” of young people¹; (iii) absence of an effective job information and matching system; and (iv) social and cultural factors relating to job seeking and employment.

1.1.2 Current State of Industrial Human Resource Development and Industry Needs in Egypt

Chapter 3 presents the results of research and study focusing on Egypt, including its industrial policy, labor market, the current state of industrial human resource development and issues, and the human resource needs of industries. They are summarized as follows.

(1) Industrial human resource development

- Although there are a large number of public vocational training schools throughout the country, industries are not satisfied with quality of their graduates in terms of competence and skills.
- While efforts are made to address the “employability” issue relating to young people by improving TEVT content under the assistance of international donor organizations, there is still a significant gap between the industrial needs and the ability of schools to meet them, as well as a perception gap.
- Vocational training that meets requirements for the national qualification system is being introduced under the support of the private sector. This will allow objective metrics of personal competence and skills to be used for employment promotion.
- The next five-year plan (to be started in July 2012) sets human resource development and employment promotion as important policy agenda. Meanwhile, international donor organizations intend to continue support in these areas.

(2) Employment support for young people

- Most of vocational training institutes and universities (particularly public ones) are not actively involved in promoting employment of their students.
- The existing public job information and matching service only provides a limited amount of recruitment information and does not function as an effective matching system to take into account the job seeker’s qualification or employability. A matching system that provides such sophisticated service is provided on a fee basis

¹ “Employability” generally means a person’s ability that makes him or her worth employing and is often used when a person tries to change jobs or return to work, as indicative of his or her potential value to a new employer. For the purpose of this report, however, the word is defined as a person’s broad assets that are expected or demanded by a potential employer and should cover not only professional knowledge and skills but motivation and attitude of all types of job seekers, including new graduates.

and targets university graduates and persons having a similar educational background, who can find a high paying job

(3) Human resource needs of industries

- The UAE, Saudi Arabia, Turkey and Egypt account for a combined total of 75% of investment made by Japanese companies in the region. The sectors receiving major portions of Japanese investment are focusing on commerce. Furthermore, Japanese companies mainly make relatively small investment, such as the operation of a liaison office and contract manufacturing. For instance, nearly 70 Japanese companies (including news media) have their office in Egypt, of which the manufacturing sector accounts for only eleven companies. They employ less than 4,500 persons in total.
- Voice is raised by Egyptian companies as well as Japanese companies to demand the fostering of supporting industries, including parts suppliers. In particular, press work, plastic molding and die design techniques need to be upgraded urgently from the viewpoint of foreign investment promotion.

1.1.3 Potential Use of Information Technology for Employment Promotion and Major Issues

The Study analyzes the current state of IT infrastructure development in the region and e-learning and issues relating to it from comparative perspectives of Egypt and the entire region.

- (1) Except for a handful of countries, IT infrastructure development in the region is in a rapid progress. In particular, Israel, Bahrain and the UAE are considered to be at the same level as Japan in various telecommunications services, including broadband lines. On the other hand, there is still a large IT divide between urban and rural areas, as clearly seen in Egypt.
- (2) Under the leadership of a recently established Middle East E-learning Association (MEEA), e-learning is increasingly propagated by efforts of various educational institutions and companies in the region. However, its function is currently limited to education, while little effort is made to provide job placement support for people who have completed e-learning education.
- (3) While the Internet and e-learning are becoming popular in the country, the IT industry does not capitalize on it, and the government needs to promote further IT infrastructure development, including advanced technology, and human resource development for full-fledged growth of the IT industry.

1.1.4 Key Considerations to the Formulation of the Development Scenario

Based on the above results, Chapter 5 reviews the issues relating to the formulation of actual development scenarios and determines strategic direction related thereto. In the first step, potential development areas, which are expected to be highly effective in terms of ROI, are selected in consideration of the three key factors, “industrial human resource development,” “applicability to the ME region,” and “the PPP business model building.” Then, a set of development scenarios are proposed to meet the goal of promoting industrial human resource development/vocational training in these areas.

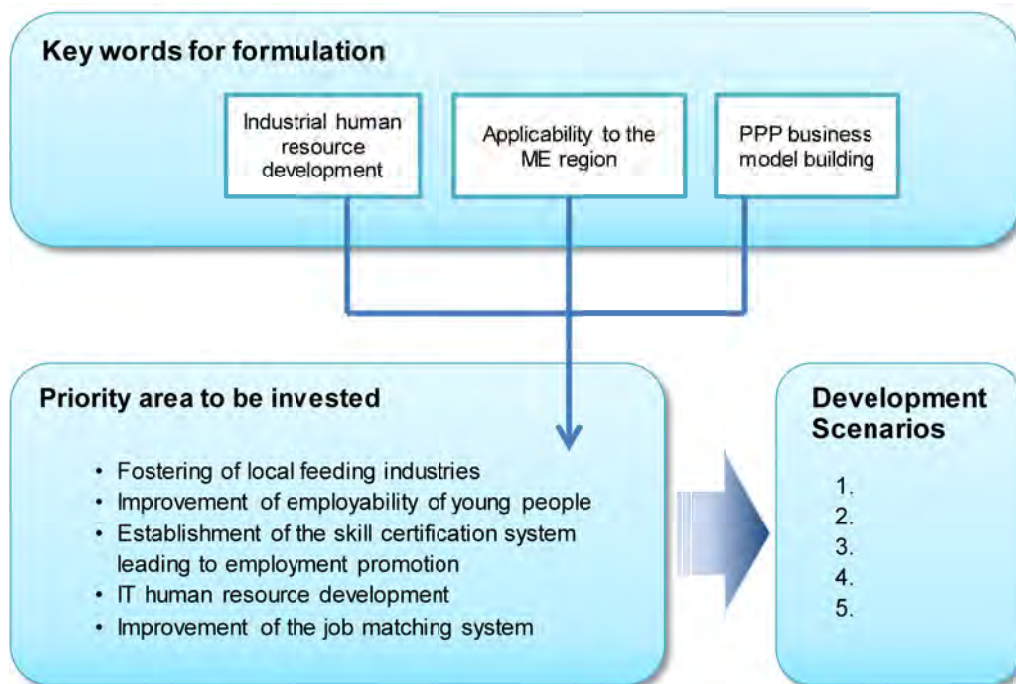


Fig.1-1-1 Strategic direction relating to formulation of development scenarios

1.2 Proposed Development Scenarios

The five development scenarios proposed in Chapter 5 are outlined as follows.

Development Scenario 1:

“Project to support IT human resource development and the fostering of the IT industry”

(1) Objective

- To develop IT human resources and foster the IT industry by promoting IT infrastructure development and introducing the IT engineer examination system, with employment growth as a secondary effect.

(2) Project outline

In order to help promote the two priority issues set forth by the MCIT (Ministry of Communication and Information Technology), the IT engineer examination system operated by Japan will be introduced and implemented as an effective means to upgrade IT skills of university students. For this purpose, the Educational Broadband Network will be established to interconnect universities and IT companies as a backbone for driving the IT industry. It also aims to promote employment growth as a secondary effect.

IT human resource development

- 1) A formal IT engineer examination system will be established by the Egyptian government as national qualification in the field, including an examination center responsible for test administration. The Egyptian and Japanese governments will conclude an agreement to mutually recognize their IT engineer examination systems and results.
- 2) IT education and training will be conducted at universities and training institutes to teach knowledge and skills required for the IT engineer examination. The major target is university students for the purpose of teaching sufficient IT knowledge and skills before graduation. In addition, e-learning will be provided as part of the entire education platform with view to extending IT education to the whole country, regardless of age or sex.

Fostering of the IT industry

- 1) Under the leadership of the Egyptian government (MCIT), the Educational Broadband Network will be established by the consortium organized by local telecommunications carriers and Japanese companies to link universities and IT companies. Telecom Egypt will install fiber optic broadband lines to universities (or wireless devices if installation is not feasible). It is assumed that the network infrastructure will be operated in the form

of PPP, under participation of the Egyptian and Japanese governments and companies in both countries.

- 2) A Wi-Fi (wireless LAN) network will be installed at universities to build the infrastructure to provide access for PCs, cell phones and other devices.
- 3) Under the leadership of the Egyptian government (MCIT), the Educational Platform consortium will be organized by content provider to help provide a variety of services, such as educational service for university students and in preparation for the IT engineer examination, e-learning, and job placement service.
- 4) After the consortium has been formed, the Educational Platform will be developed on the basis of technical specifications proposed by member content providers, who will develop their own system and launch content service on the Educational Platform.

Expansion of employment opportunity

- 1) To operate the IT engineer examination system on a continuous basis, efforts should be made to secure a sufficient number of examinees and increase the number of certified IT professionals. The government needs to consider a regulation to require IT companies to hire a certain number of certified professionals and tax incentive for companies that hire IT professionals.
 - 2) A database on university students and certified IT professionals will be developed as part of the education platform to allow information exchange between employers and job seekers, thereby to expand employment opportunity, including the hiring of a qualified person by a right company.
- (3) Expected benefits
- 1) An increasing number of university students throughout the country will obtain national qualification as the IT engineer examination, forming the basis of future development of the IT industry.
 - 2) Improvement of IT knowledge and skills among university students
 - 3) Expansion of IT education benefits from university students to students of secondary school and workers, resulting in the increase in population with IT knowledge and skills.
 - 4) Vitalization of the IT industry (increase in the industry's GDP share, the number of companies and employees)

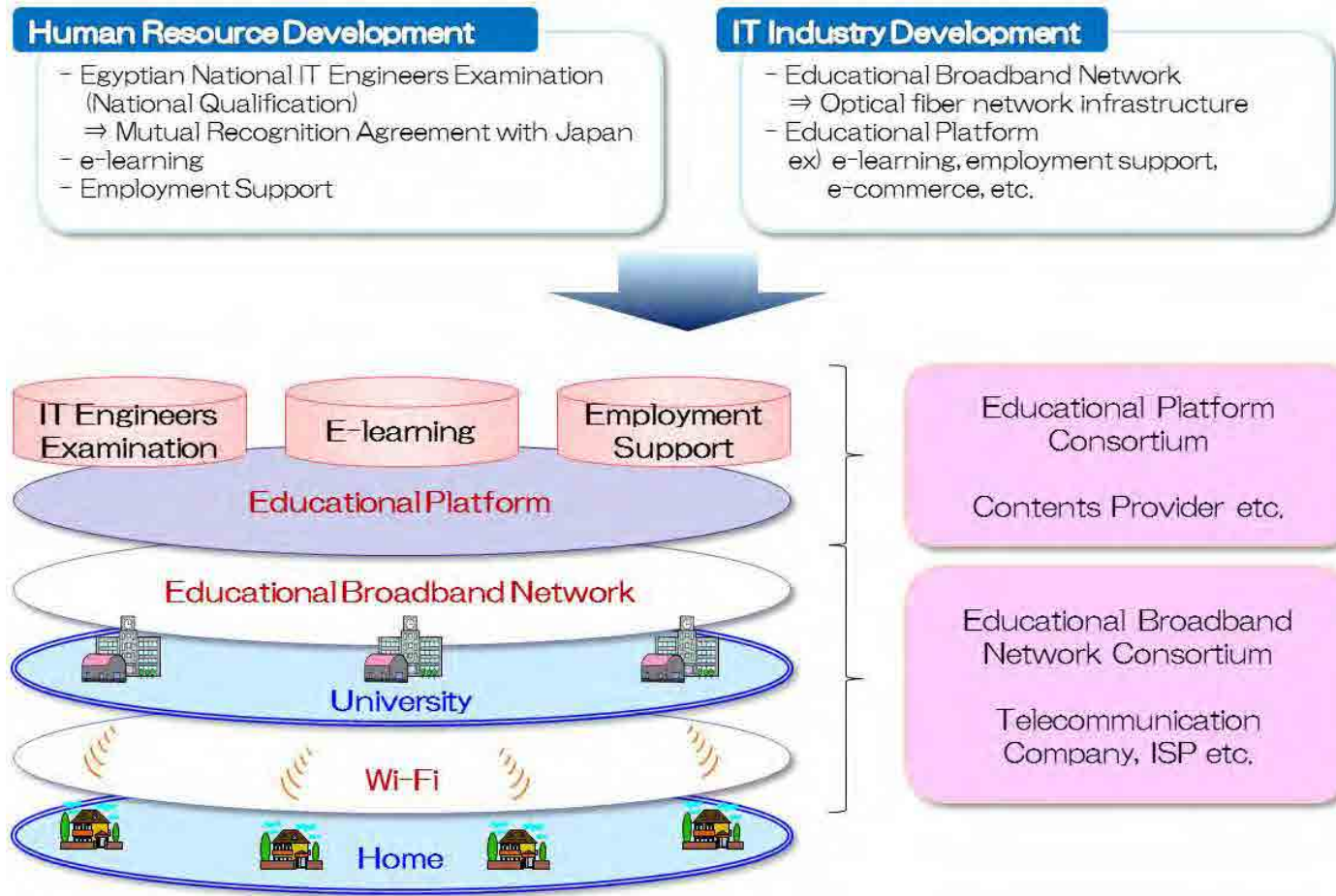


Fig.1-2-1 Conceptual view of the project to support IT human resource development and the fostering of the IT industry

Development Scenario 2:

“Project to improve the public job placement system”

(1) Objective

- To help increase the employment rate by improving the existing public job placement system.

(2) Project outline

Based on MoMM’s job information service (on the Web site), the present system will be modified and redesigned to promote effective job matching for the young age group. The system is capable of performing automatic screening of data on job seekers and employers. This function will allow job seekers to clearly define their competence and desirable employment conditions, and qualifications and working conditions for employers. This way, employers and job seekers will be able to find the best opportunities and conditions for both of them, leading to effective job matching and employment.

Major areas of improvement

Major areas of improvement in comparison to the MoMM’s present service system are outlined below.

- To develop an effective job matching system by using existing digital information and data on job seekers and employers, a software program to perform matching service will be developed and implemented (software development will be contracted to a private company).
- MoMM-JMNY will launch service to send counselors to TVET and PVTD for on-site guidance on employment support.
- Efforts will be made to promote collaboration with vocational training facilities, both public and private, with an aim to provide employment support for job seekers who need to learn advanced technology. Such facilities include MoMM’s training centers and skill training centers operated by the private sector.
- A new division will be established to encourage companies to increase hiring.
- Obtaining certification under NSSP will be promoted to students and graduates of TVET and PVTD as an effective means to expand employment opportunity.
- Advertisement activities will be conducted to improve public recognition of the job seeker network.

(3) Expected benefits

- 1) Industrial human resource development

As the new service is provided in close collaboration with industries, information on the actual HR needs can be collected. By incorporating the needs into the curriculum of training organizations that are in a collaboration agreement, it will benefit both job seekers and companies.

2) Employment promotion

The new service will create a large number of employment opportunities for young people in a fair manner.

Companies that hire employees through the MoMM will be able to find qualified employees and assign them to suitable jobs and posts, leading to streamlining of work and cost reduction relating to recruitment. Also, nationwide deployment of the job information system will promote labor mobility, while achieving high quality job matching and creating employment opportunities.

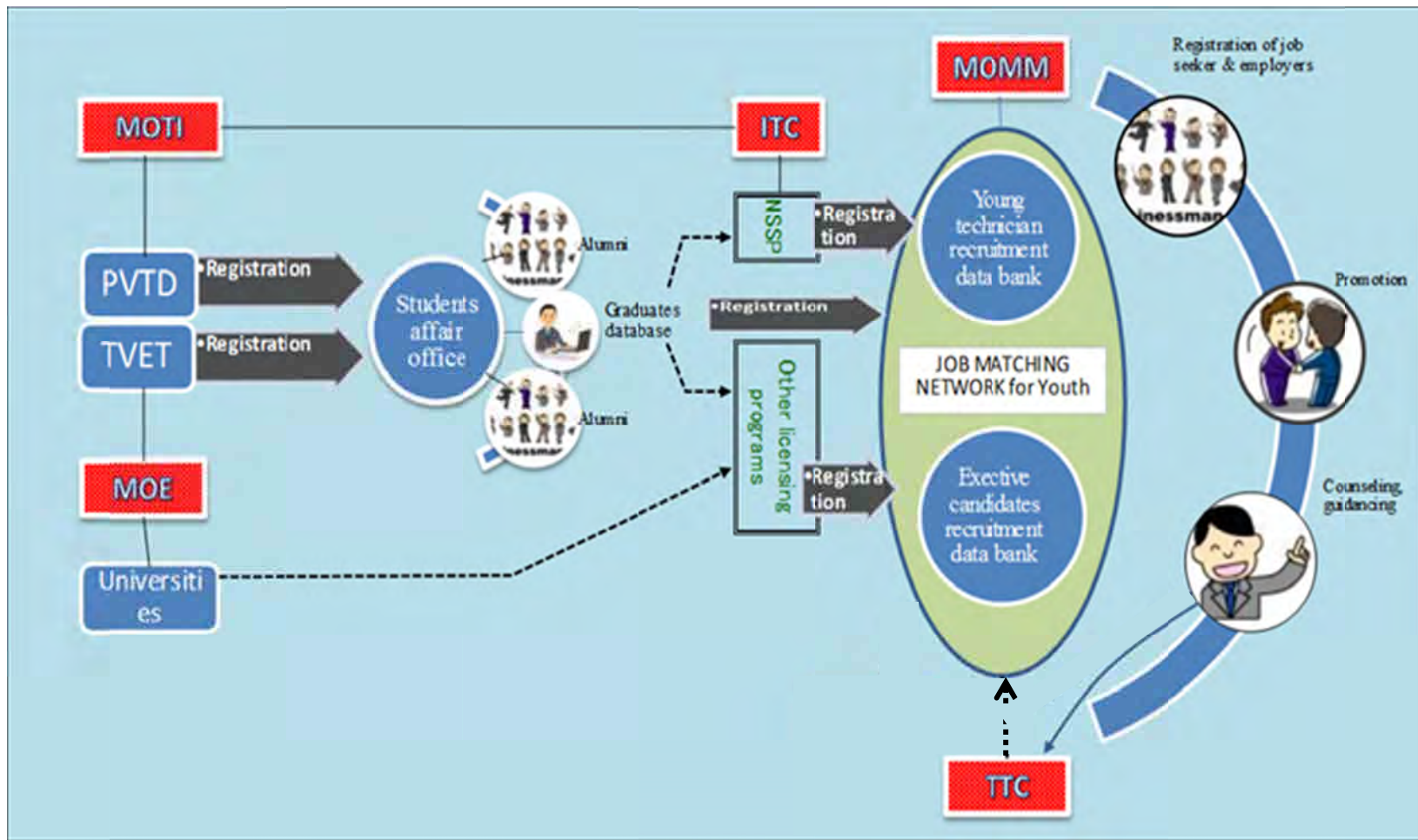
For job seekers, participation in the above retraining system allows them to prepare an appropriate resume, resulting in the reduction of the unemployed period and employment promotion.

3) Investment promotion

The service will help companies to find workers who have skills that meet their needs, thereby providing a significant incentive for foreign companies that seek investment opportunity in the country.

4) Mitigation of social insecurity

The project will also contribute to reduction of poverty and mitigation of social insecurity by increasing employment opportunities that lead to the decline in the unemployment rate. At the same time, provision of job placement support service for youth population that is often inaccessible to public support is important from the viewpoint of social fairness and justice, which is a key factor for social stability.



Source : JICA study team

Fig.1-2-2 Conceptual view of the job matching network

**Development scenario 3:
“Project to promote engineering skill training”**

(1) Objective

- The project designed is to teach knowledge and skills at international levels required by engineering industries (Egypt NSS level 3) to young people in Egypt, thereby contributing to development of the Egyptian industry. In the future, the network will be expanded to regions outside Cairo so as to disseminate the skill examination system to other Middle East countries. (* NSS means the National Skill Standards.)

(2) Project outline

- 1) The E-J Engineering Skill Training Center will be established by joint efforts of the Egyptian and Japanese governments and related organizations.
- 2) The establishment of the center will be prepared under collaborative efforts by related organizations in Egypt and Japan. It is assumed that initial investment (construction, equipment, development of the course curriculum and textbooks, and training of trainers) will be funded under financial assistance of the two governments. At the same time, possibility of using the existing facilities will be studied. The project will cover 4 trades/5 operations at initial stage.
- 3) In preparation for the establishment of the center, staff members and trainers will be hired and trained by foreign instructors. Trainers will be persons experienced in each field, who will be dispatched from companies or the Federation of Egyptian Industries (FEI).
- 4) In Phase 1, the center will admit maximum 30 trainees for each course, which will be increased subsequently. Thus, the five courses will start with a total of 150 trainees at maximum.
- 5) Trainees are required to have passed the entrance examination or have reached a specific level of standard.
- 6) The center's operation and training record will be audited and assessed periodically.

Note that a person who has completed any of the above training courses will be exempted from the practical skill test for NSS Level 3 but will be required to pass a final examination, which will be administered by ITC. Trainees who have passed the final examination will be certified and registered with National Qualification Agency (NQA), which will be established by the Egyptian government.

(3) Expected benefits

1) Industrial human resource development

Workers who have international level engineering skills are capable of showing them according to an objective standard, leading to the upgrading of production technology of local manufacturers, including supporting industries.

2) Employment promotion

Availability of the objective skill certification system will promote a good match between human resources and industrial needs, contributing to industrial growth and job creation.

3) Investment promotion

The resultant quality improvement of locally made industrial products will help boost production as a result of increased import substitution and exports, resulting in growth of investment in the manufacturing sector.

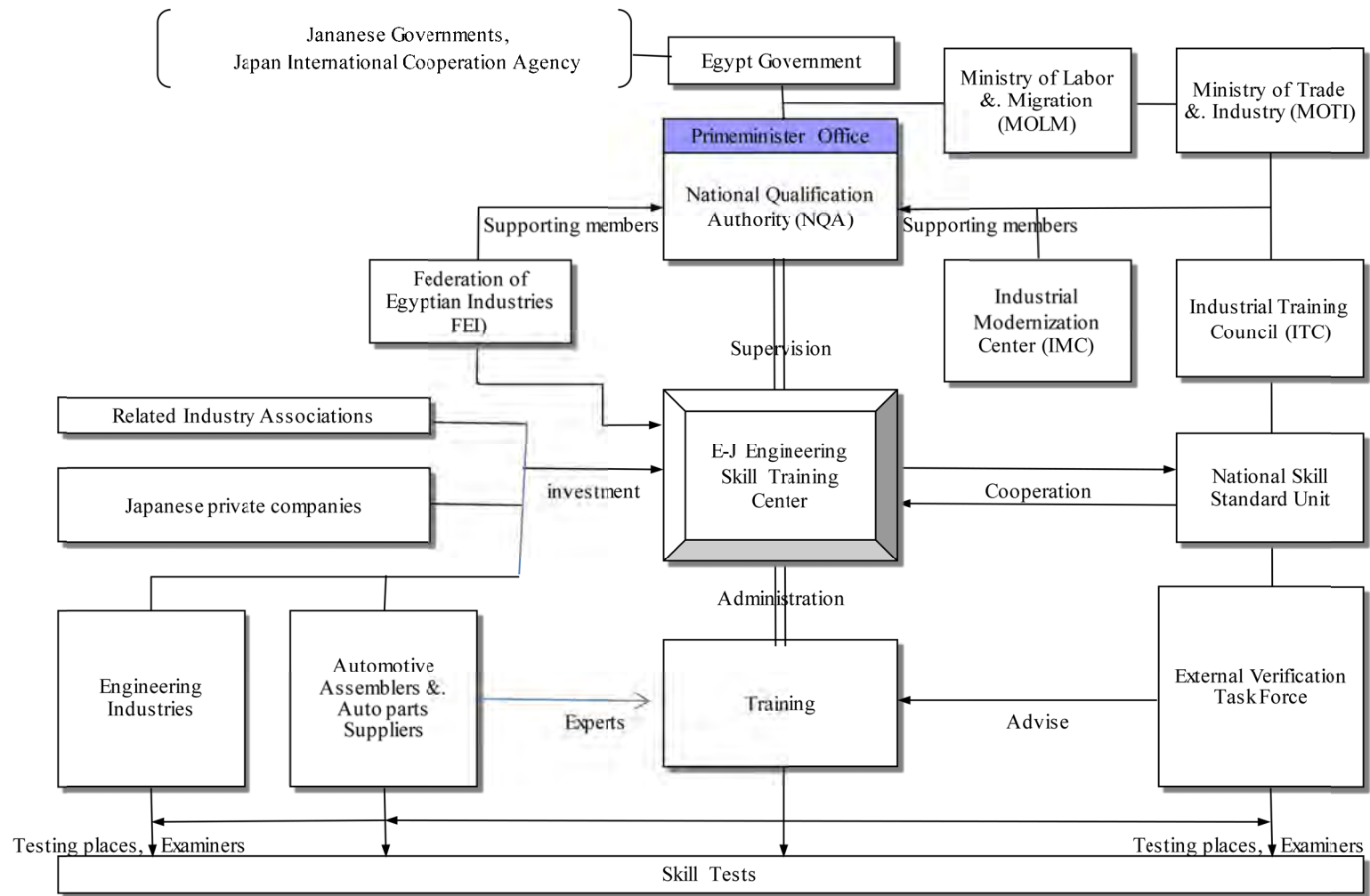


Fig.1-2-3 Conceptual view of engineering skill testing project

**Development Scenario 4:
“Project on E-J Automotive Mechanics Training”**

(1) Objective

- To assist young people in obtaining certification for the NSS Level 3 automotive mechanic (the highest level) by teaching maintenance skills that meet international standards, thereby allowing them to make contribution to society by helping achieve the safe and comfortable road transport environment.
- To increase employment opportunities by supplying a larger number of certified automotive mechanics whose demand is expected to increase in the future.

(2) Project outline

- 1) The E-J Automotive Mechanics Training Center will be established by joint efforts of the Egyptian and Japanese governments and related organizations. In making a final decision, detailed design study will be conducted, and based on its results, investors and contributions, the training fee, and division of responsibilities among related organizations will be determined.
- 2) In principle, initial investment (construction, equipment, development of the course curriculum and textbooks, and training of trainers) will be funded under financial assistance of the two governments.
- 3) In preparation for the establishment of the center, staff members and trainers will be hired and trained by foreign instructors.
- 4) Then, operation of the automotive mechanics training center (one-year) will started with class capacity of 120 persons. It is intended to expand the center’s activities in and outside the country with the center functioning as the core facility.
- 5) The center’s operation and training record will be audited and assessed periodically.

Note that a person who has completed any of the training course will be exempted from the practical skill test for NSS Level 3 but will be required to pass a final examination, which will be administered by ITC. Trainees who have passed the final examination will be certified and registered with NQA, which will be established by the Egyptian government.

(3) Expected benefits

1) Industrial human resource development

Automotive mechanics having international skill levels are produced at the rate of over 100 annually (to be increased to 200 in the third year and later).

2) Employment promotion

With an increase in the number of automotive mechanics with skills that meet international standards, repair shops and service centers will gain public confidence and face growing demand, which leads to further job creation.

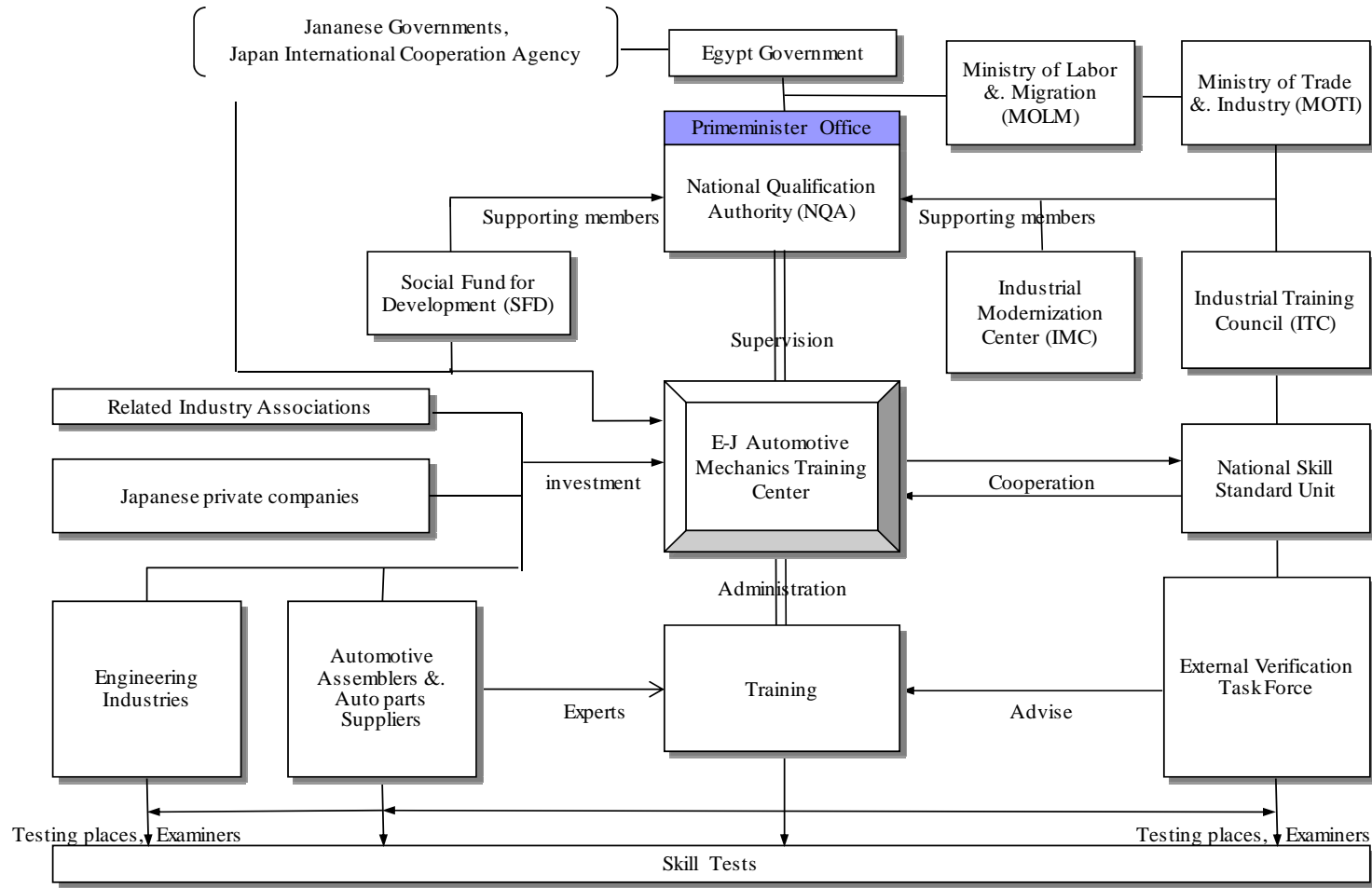


Fig.1-2-4 Conceptual view of automotive mechanics training project

Development Scenario 5:

“Project to provide employment support for graduates of the EduEgypt program”

(1) Objective

- To provide service that helps persons who have completed the EduEgypt program to find a suitable job in the IT industry according to their qualification, thereby to create employment opportunities.

(2) Project outline

Under the project, a company specialized in employment support service will be founded with equity contribution by the Japanese government, the Egyptian government (MCIT) and private companies in both countries. The company will provide the following information services.

1) Provision of job information from IT companies to persons who are expected to complete the EduEgypt program

First of all, the employment support company will operate a system to receive job information from IT companies and to distribute it automatically to the program participants. For IT companies, recruitment activity can be improved in terms of quality and quantity because the system allows them to send a job offer directly to human resources who are trained to serve as competent IT professionals. At the same time, the program participants can obtain job information from potential employers in a timely manner. Furthermore, companies offering the internship can strengthen ties with potential employees by distributing information on their internship program. This way, IT companies are expected to increase opportunities to identify and select human resources that meet their needs, while allowing the program participants to make preparation for job seeking by gaining work experience and learning appropriate skills.

This service will be operated on a business model to collect an information service fee from IT companies, while the program participants can receive information with free of charge.

2) Provision of information on persons who are expected to complete the EduEgypt program to IT companies

A system will be developed to register information provided by the program participants (e.g., skills and area of interest and specialization) on a database, to select candidates having qualifications demanded by prospective employers, and to provide their information for IT companies. In Egypt, few objective data to measure competence and

skills of individuals are used. If additional data are collected and used to meet the needs, it will require a much higher cost to find a right match because it takes considerable time and effort to select appropriate candidates by understanding the diverse needs of individual companies, while checking accuracy or authenticity of information provided by each job applicant (i.e., tradeoff between cost and quality of information). On the other hand, because the project focuses on the IT industry, the needs of companies can be narrowed down and categorized into a limited set of data. Furthermore, use of the "EdyEgypt" program for accurate assessment of professional knowledge and skills helps create a business model to provide high quality service at an economical cost.

To ensure effective functioning of the human resource database, it is imperative for the MCIT to require the program participants to register necessary information. At the same time, efforts should be made to maximize reliability of registered data by adding the performance record of the program participants in cooperation of universities and research organizations.

This service will be operated on a business model to collect an information service fee from IT companies, while the program participants can receive information with free of charge.

(3) Expected benefits

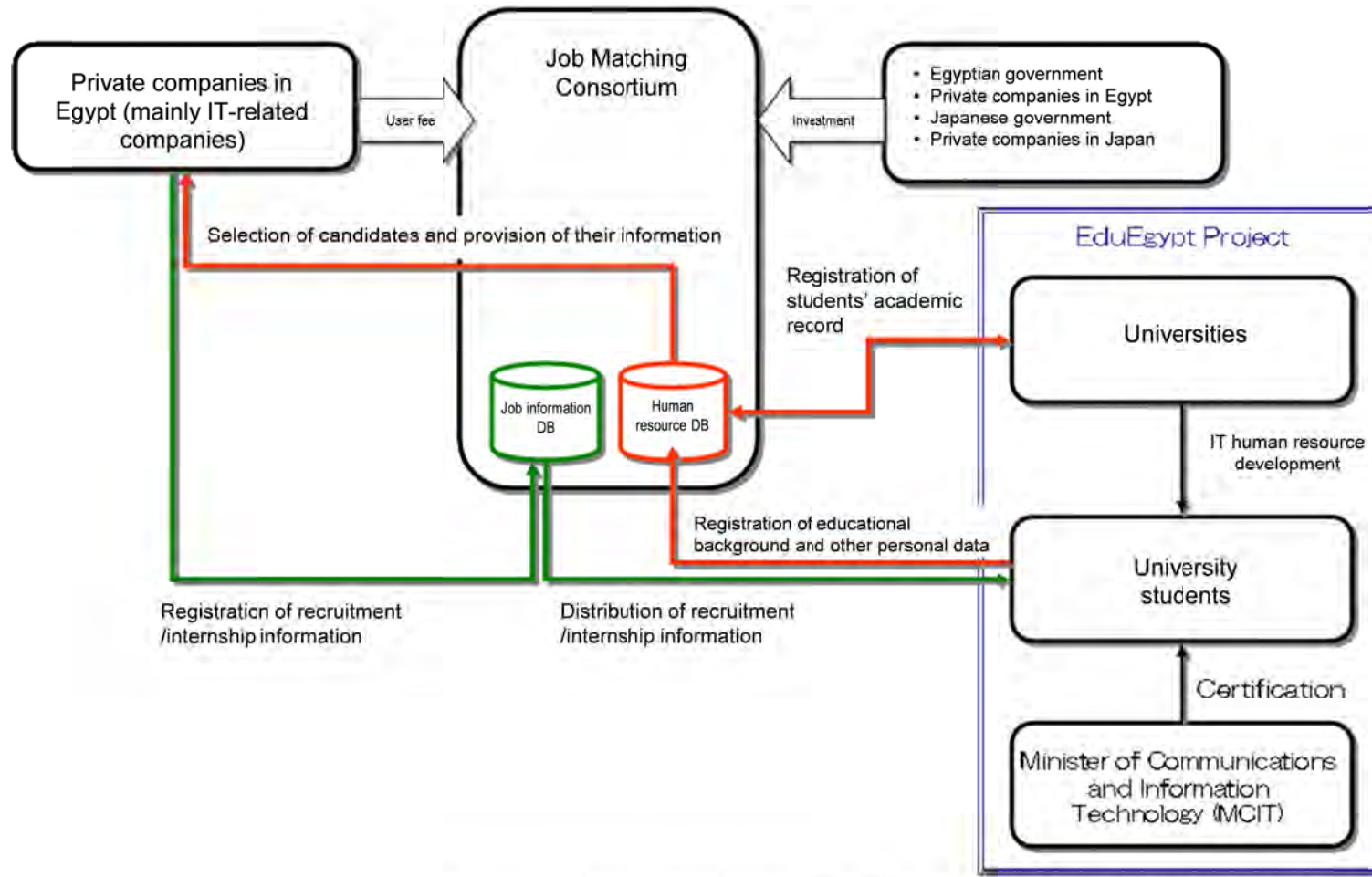
1) Industrial human resource development

As the project will be implemented in close collaboration with the EduEgypt program, it will not be directly involved in industrial human resource development. Instead, it is expected to provide an indirect means of promoting IT human resource development by allowing IT companies to hire the program participants as interns.

As the EduEgypt program's purpose is to fill the gap between IT skills trained at school and actual resource requirements by the industry, the project is expected to help the program to achieve the goal by providing indirect support for training of IT engineers who can meet the needs.

2) Employment promotion

As a major issue relating to employment in Egypt is the need to develop the work environment that accepts new graduates of higher educational institutions, the project to help the EduEgypt program achieve its objective will contribute greatly to employment promotion.



*The IT human resource development service continues to be provided by the ongoing EduEgypt system.

Fig.1-2-5 Job Place Support for EdyEgypt Program Participants

Chapter 2

Current State of Labor Sector in the Middle East Countries and Major Issues

Chapter 2 Current State of Labor Sector in the Middle East Countries and Major Issues

2.1 Current State of Labor Sectors in the Middle East Countries

2.1.1 Comparative analysis of GDP, population, and workforce

(1) Regional summary table on socioeconomic indicators

Table 2-1-1 summarizes socioeconomic, educational, employment, and IT environment related indicators on the 16 Middle East countries, which have been obtained from various sources via the Internet, including “Human Development Report 2010” by UNDP (United Nation Development Program), the World Bank’s “World Development Indicators Online, 2011,” and “Industrial Development of Authority of Egypt 2008.” Note that few data on Iraq and Palestine are available for unknown reasons (e.g., foreign policy reluctant to information disclosure, or the lagging of information infrastructure development). The Middle East countries in Table 2-1-1 are those included in the study area specified in “Introduction.” It should be noted, however, that the analysis of the labor sector in Chapter 2 include data on Tunisia and Morocco in North Africa as reference, which have potential to attract investment by Japanese manufacturers, although the analysis of these two countries has mainly focused on industrial structure and relevant data on their labor sectors are summarized in Table 2-1-1.

Table 2-1-1 Abstract Information in the Middle East Countries

Subjects/Middle East Countries	Egypt	Jordan	Syria	Saudi Arabia	Iran	Iraq	Yemen	UAE	Qatar	Turkey	Lebanon	Bahrain	Kuwait	Palestina	Oman	Israel	Morocco	Tunisia		
General Index	Population (Million) 2009	83	6	21.1	25.4	72.9	31.5	23.58	4.6	1.4	74.82	4.2	0.791	2.8	4.0	2.85	7.17	32.7	10.7	
	Population Increase ratio (%)	1.8	2.4	2.5	2.3	1.3	2.5	3.5	2.5	9.6	1.5	0.7	2.0	2.4	2.7	2.3	2.5	1.07	1.2	
	GDP (Million US\$)	188,413	25,029	52,177	375,766	338,187	65,837	26,909	230,252	98,313	730,318	34,528	20,595	148,024	n.a.	59,946	202,101	88,900	40,300	
	GDP per capita (US\$ 2009)	2,270	4,172	2,473	14,794	4,639	2,090	1,141	50,055	70,224	9,761	8,221	26,037	52,866	n.a.	21,034	28,187	2,769	3,903	
	GNI per capita (US\$ 2008)	5,889	5,956	4,760	24,726	11,764	-	2,387	58,006	79,426	13,359	13,475	26,664	55,719	n.a.	25,663	27,831	n.a.	n.a.	
	Real GDP growth ratio	4.6	2.3	4.0	0.6	2.3	4.2	3.6	-0.7	8.6	0.7	9.0	n.a.	2.3	n.a.	12.3	4.0	3.2	3.7	
	Industrial structure (in GDP %)	('2009)	('2009)	('2009)	('2009)	('2007)		('1999)	('2007)		('2009)	('2009)				('1999)		('2009)	('2009)	
	Primary (Agriculture)	13.7	2.9	21.0	2.9	10.2	n.a.	16.7	1.8	n.a.	9.3	5.3	n.a.	n.a.	n.a.	2.6	n.a.	17.1	18.3	
	Secondary (Industry)	37.3	31.6	33.7	50.6	44.5	n.a.	42.0	60.6	n.a.	25.8	16.5	n.a.	n.a.	n.a.	47.3	n.a.	31.6	31.9	
	Tertiary (Services)	49.0	65.5	45.3	46.4	45.3	n.a.	41.4	37.6	n.a.	64.9	78.2	n.a.	n.a.	n.a.	50.1	n.a.	51.4	49.8	
	Sector wise growth ratio (%)																			
	Primary (Agriculture)	3.2	18.4	6.0	0.6	6.2	n.a.	1.2	n.a.	n.a.	3.5	3.5	n.a.	n.a.	n.a.	6.7	n.a.	n.a.	n.a.	
	Secondary (Industry)	5.7	1.0	-2.3	-2.8	7.9	n.a.	4.8	n.a.	n.a.	-8.4	3.0	n.a.	n.a.	n.a.	-1.7	n.a.	n.a.	n.a.	
	Tertiary (Services)	4.3	3.5	4.5	4.0	6.4	n.a.	2.3	n.a.	n.a.	-3.2	8.7	n.a.	n.a.	n.a.	0.8	n.a.	n.a.	n.a.	
	Number of establishments (manufacturing only), 2006	9,196	20,575	99,659	n.a.	16,018	n.a.	39,605	189,105*UA	2,666	309,841	n.a.	n.a.	n.a.	13,779	483	20,944	7,841	64,519	
	Number of Japanese companies (2008)	46	5	1	28	34	n.a.	2	306	1	64	2	5	3	n.a.	3	7	19	10	
FDI/GDP/(2009) under bar=2008	0.036	0.097	0.124	0.098	0.009	0.022	0.005	0.053	0.083	0.014	0.138	0.012	0.011	n.a.	0.032	0.023	0.022	0.037		
Population below US\$1.25 a day	L.T.2.0	L.T.2.0	n.a.	n.a.	L.T.2.0	n.a.	17.50	n.a.	n.a.	2.60	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2.50	2.60		
Birth rate (per 1000)	25.00	27.00	24.40	19.40	18.50	29.4	34.30	20.00	15.50	18.30	15.1	16.80	21.60	n.a.	23.90	19.50	25.78	19.72		
Language, used in the country	Arabic	Arabic	Arabic	Arabic	Farci, Arabic	Arabic	Arabic	Arabic	Arabic	Turkey	Arabic	Arabic	Arabic	Arabic	Arabic	Arabic	Hebraic, Arabic	French, Arabic	French, Arabic	
Academic Index		('2007)	('2008)	('2009)	('2009)	('2007)	('2007)	('2007,2008)	('2009)	('2009)	('2008)	('2009)	('2009)	('2009)	('2009)	('2009)	('2008)	('2009)	('2009)	
	Elementary school enrollment ratio (M)	102.1	96.5	124.8	100.7	103.2	111.1	94.5	106.1	106.6	100.6	104.3	107.7	95.6	79.0	84.7	109.9	92.0	97.0	
	Elementary school enrollment ratio (F)	97.1	97.2	119.6	97.0	102.3	93.5	76.0	104.7	105.2	98.0	102.0	105.4	94.0	78.7	83.1	111.5	87.0	98.0	
	Secondary school enrollment ratio (M)	n.a.	86.6	75.3	104.0	85.3	58.7	n.a.	94.8	71.9	86.8	77.9	94.8	88.7	84.2	93.1	89.4	37.0	67.0	
	Secondary school enrollment ratio (F)	n.a.	89.9	74.2	89.7	80.8	43.8	n.a.	95.6	105.8	76.9	86.5	98.1	91.1	90.1	89.5	90.6	32.0	76.0	
	Higher education enrollment ratio	28.9	40.7	n.a.	32.8	36.5	n.a.	10.1	30.4	10.2	38.4	52.5	n.a.	n.a.	45.7	26.4	59.7	12.3	31.6	
Mean years of schooling (adults aged 25yrs and above) ('2010)	6.49	8.65	4.88	7.78	7.20	5.56	2.50	9.47	7.28	6.47	n.a.	9.42	6.10	n.a.	n.a.	11.91	4.40	6.50		
Employment Index	Unemployment Ratio (2010)	9.0	12.5	8.3	10.8	14.6	15.3	35.0	2.4	0.5	12.0	n.a.	15.0	2.2	n.a.	15.0	6.7	9.6	n.a.	
	Employment to population ratio (Ratio of population ages 15-64) ('2008)	43.20	37.90	44.80	50.90	48.90	37.10	39.00	75.90	76.90	42.30	45.90	61.00	65.30	30.20	51.40	50.40	46.10	41.00	
	Formal employment (Ratio of total employment 2000-2008)	75.20	n.a.	57.50	n.a.	56.80	n.a.	n.a.	98.40	99.50	64.60	n.a.	n.a.	n.a.	63.90	89.60	91.50	47.10	64.30	
	Formal employment (Ratio of female to male ratio 2000-2008)	0.71	n.a.	0.81	n.a.	0.72	n.a.	n.a.	1.01	1.01	0.73	n.a.	n.a.	n.a.	0.85	0.98	1.04	0.67	n.a.	
	Unemployment ratio by level of education (primary or less 2000-2008)	n.a.	n.a.	n.a.	n.a.	8.30	n.a.	n.a.	2.40	n.a.	9.00	n.a.	n.a.	n.a.	24.70	n.a.	14.00	8.80	n.a.	
	Unemployment ratio by level of education (secondary or above 2000-2008)	n.a.	n.a.	n.a.	n.a.	33.20	n.a.	n.a.	7.90	n.a.	22.40	n.a.	n.a.	n.a.	41.80	n.a.	19.10	54.20	n.a.	
Ratio (%) of employed respondents who are satisfied their own job	84.00	80.00	-	92.00	71.00	64.00	74.00	84.00	89.00	71.00	69.00	n.a.	89.00	n.a.	89.00	80.00	69.00	73.00		
IT Environment	Internet users per 100 people	16.60	27.00	17.30	31.50	32.00	1.00	1.60	65.20	34.00	34.40	22.50	51.90	36.70	58.80	20.00	47.90	33.00	27.10	
	Broadband subscriptions per 100 people	0.90	2.20	0.10	4.20	0.40	n.a.	n.a.	12.40	8.10	7.80	5.00	14.20	1.40	9.10	1.20	23.90	1.50	2.20	
	Personal computers per 100 people	3.90	7.20	8.80	68.30	10.40	n.a.	2.80	33.10	15.70	n.a.	10.20	74.60	n.a.	n.a.	16.90	n.a.	5.70	9.80	
	Literacy ratio (over 15yrs old ratio)	66.40	92.20	83.60	85.50	82.30	77.60	60.90	90.00	93.10	88.70	89.60	90.80	94.50	94.60	86.70	n.a.	56.40	78.00	
	Income Gini coefficient (2000-2010)	32.10	37.70	-	-	38.30	-	37.70	-	41.10	41.20	-	-	-	-	-	39.20	40.90	40.80	

Data Source: Employment Index and IT Environment data and "Mean years of schooling 2010" has derived from UNDP Human Development Report 2010, World Development Indicators Online (April 2011) World Bank

Data in Academic Index and General Index except Cyprus is quoted from World Development Indicator Online (April 2011) World Bank. Data of Cyprus is sourced from Japan Center for International Finance (General information of Cyprus June 8, 2010)

Note: Industrial data in Egypt: IDA (Industrial Development Authority of Egypt: http://www.ida.gov.eg/ehsa2eyaata_en.html) statistic, 15/10/2008, The World Factbook 2011

Number of establishments (manufacturing only), 2008: United Nations Industrial Development Organization, DataMarket database

*UA: Number of non governmental establishment in 2005, Ministry of Economy, Statistic report 2011

Number of Japanese companies: Toyo Keizai Data Bank Series (overseas advance Japanese companies), JETRO world wide business information

(2) Population and rate of increase

1) Population

The total population in the 16 countries is approximately 370 million people, accounting for 5.3% of the world total about 7 billion (as of November 2011). The average population per country is 23 million.

Egypt has the largest population, totaling 83 million, followed by Turkey (75 million) and Iraq (73 million). Bahrain has the smallest population (0.8 million), followed by Qatar (1.4 million) and Kuwait (2.8 million).

2) Population growth rate

The region undergoes rapid population growth to reflect high birth rates. According to CIA World Factbook 2011, the average birth rate for the Middle East countries excepting Palestine (no data available) is 22.1 per 1,000 persons, exceeding the world average of 19.5. Assuming that no control measures are taken, the region's population is expected to increase at an annual rate of roughly 8.2 million persons. Yemen shows the highest birth rate (34.3), which is equivalent to an annual increase by 80,000 persons on the basis of the 2011 population (2.36 million). Egypt's birth rate is 25, equivalent to an annual rate of increase of 2 million.

(3) Working population

Table 2-1-2 shows total population and working population in the Middle East countries. The region's total working population is 245 million persons, which represent around 65% of total population. The ratio of working population to total population varies among the countries. Qatar shows the highest ratio of 85%, followed by the UAE (83%). As discussed in the following section, the two countries ranked highest in the labor participation rate, indicating that the bulk of population is at work.

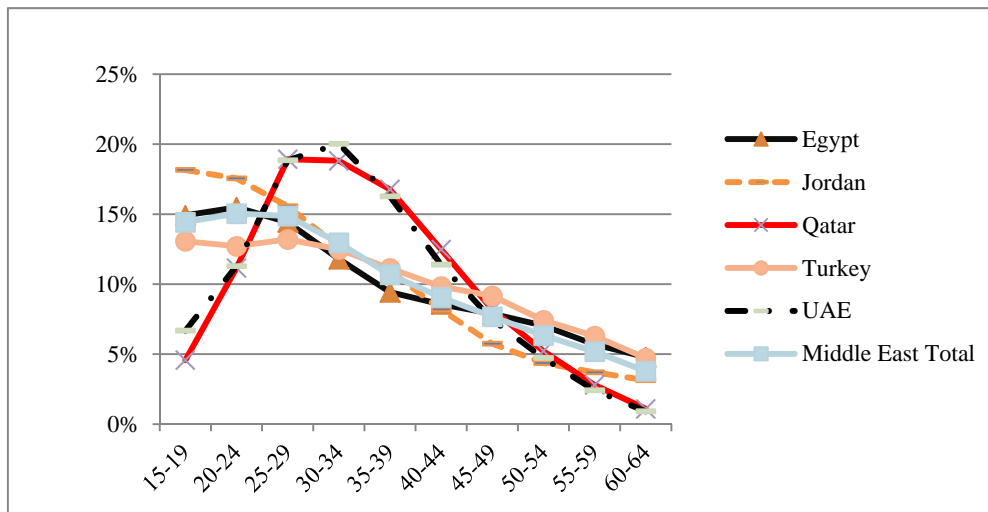
Table 2-1-2 Working Population in the Middle East Countries

Country	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	Working Population (WP) (15-64)	Total Population (TP)	WP to TP (share)
Egypt	7 820	8 123	7 562	6 184	4 944	4 490	4 138	3 690	2 983	2 507	52 441	83 133	63%
Jordan	680	658	583	474	410	307	215	163	139	118	3 747	6 363	59%
Qatar	73	177	300	299	266	198	130	83	45	17	1 588	1 872	85%
Turkey	6 531	6 352	6 596	6 239	5 563	4 914	4 576	3 710	3 146	2 356	49 982	74 311	67%
UAE	435	736	1 228	1 305	1 060	743	487	308	157	60	6 520	7 896	83%
Middle East Average	2 209	2 304	2 277	1 984	1 636	1 388	1 176	971	794	579	15 319	23 705	65%

Source: World Population Prospects 2011

The ratio of working population to total population in Egypt is 63%, more or less the regional average. In contrast, Jordan's ratio is relatively low at 59%. The following graph plots composition of population by age group in Egypt, Jordan, Qatar, Turkey, and the UAE

on the basis of the regional average data (Fig.2-1-1). As seen in the graph, Egypt's age distribution is similar to that for the entire region, whereas Jordan has a very high ratio of the young age group of 15 – 19 years old in comparison to other countries. On the other hand, the largest age group in the UAE and Qatar is 25 – 39 years old. As the peak level does not seem to be caused by a baby boom, it reflects active inflow of people from neighboring countries in response to strong labor demand in these countries. This is confirmed by comparing the ratio of working population to total population for Egypt, Jordan, Qatar, and the UAE. The ratio for the first two countries remains at a relatively low level of 60%, making a sharp contrast to around 85% for Qatar and the UAE. In consideration of their economic state, it is reasonable to conclude that around 20% of working population in the two countries comes from other countries, rather than a highly skewed age distribution.



Source: United Nation Population Statistic 2011

Fig.2-1-1 Composition of Population by Age Group in the Middle East Countries

2.1.2 Unemployment in the Middle East Countries

(1) Condition of unemployment in the Middle East countries

- 1) Division by unemployment rate (countries with higher unemployment rates (over 8.7%) and those with lower ones)

According to CIA World Factbook 2011, the world average unemployment rate is 8.7% in 2010. In contrast, the average unemployment rate for the Middle East countries (except for Palestine and Lebanon where no data are available) is 10.6%. They are then roughly divided into two groups, i.e., the one showing unemployment rates higher than the world average, and the other far below than the world average (lower than 5.0%).

Notably, the clear division in the unemployment rate does not necessarily reflect their resource endowment (i.e., oil-producing vs. non-oil-producing countries. While the UAE,

Bahrain, Qatar, and Kuwait show relatively low unemployment rates, below 5%, Saudi Arabia and Iran surpass the world average. Other oil producing countries, Oman and Yemen, contribute negatively to the region's unemployment rate due to the weakness of their general economic power as well as ineffective economic policy. In particular, the unemployment rate in Yemen is at an extremely high level of 35% due to political instability, depletion of existing oil wells, and other problems.

The number of unemployed persons in Egypt and Jordan can be estimated, from their working populations (56 million in total) (Table 2-1-3), at around 5.6 million. This is equivalent to around 80% of the UAE's population and 90% of Qatar's.

2) Countries having a high risk of further deterioration

In the Middle East countries including North Africa, there are waves of demonstrations demanding economic reforms or resignation of leaders since the beginning of 2011. Following the political changes in Tunisia and Egypt, political turmoil persists in Libya, Syria, and Yemen. Oman is no exception to this. As the country does not have as much economic resources as other oil producing countries in the region, citizens take a lead organizing demonstrations to demand reforms. Sultan Kabus ben Said, who reigns over the four decades, has announced allocation of \$2.6 billion to reforms.

Oman has previously been viewed as a "politically stable" country, although it faces chronic economic problems. In response to the intensification of the social unrest, other Gulf countries have been alarmed by its possible spreading to their own countries and provide massive financial aids for Oman and Bahrain. According to Al Jazeera's reports in August, it is still not certain as to whether the government efforts to appease citizens by using funds provided by other oil producing countries in the Gulf work to end the present turmoil and persuade citizens to accept the present ruling system.

(2) Recent change in unemployment rate

1) Before and after the global financial crisis

Table 2-1-3 shows the yearly changes in unemployment rates of the Middle East countries between 2000 and 2010, on the basis of data obtained from various sources including CIA World Factbook and UNDP. Notably, the table contains vacant cells because relevant data are not published by some countries for various reasons or reliable data are not available from accessible sources. For these cells, estimation has been made by using references such as a journal reporting economic conditions in the Middle East region.

Table 2-1-3 Yearly changes in Unemployment Rates of the Middle East Countries

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Egypt	11.5	12.0	11.0	9.9	10.9	9.5	10.3	9.1	8.4	9.4	9.7
Jordan	15.0	15.0	16.0	16.0	16.0	15.0	12.5	15.4	12.6	12.9	13.4
Syria	20.0	20.0	20.0	16.0	12.3	12.5	10.0	9.0	8.6	8.5	8.3
Saudi Arabia	n.a.	n.a.	25.0	25.0	25.0	25.0	13.0	13.0	11.8	10.5	10.8
Iran	n.a.	n.a.	15.7	16.3	11.2	n.a.	n.a.	15.0	12.5	11.8	14.6
Iraq	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15.2	15.3	n.a.
Yemen	n.a.	n.a.	n.a.	35.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
UAE	n.a.	2.4	2.4	2.6	2.7	n.a.	3.1	3.2	3.4	3.7	4.2
Qatar	n.a.	2.7	n.a.	n.a.	n.a.	n.a.	n.a.	0.7	0.4	0.5	0.5
Turkey	7.3	5.6	10.8	10.8	10.5	9.3	10.2	10.2	10.7	14.1	12.4
Lebanon	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	20.0	9.2	n.a.	n.a.	n.a.
Bahrain	n.a.	n.a.	n.a.	n.a.	n.a.	15.0	n.a.	n.a.	3.8	n.a.	3.7
Kwait	n.a.	n.a.	7.0	2.1	2.2	n.a.	n.a.	n.a.	4.9	4.2	3.2
Palestina	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	22.8
Oman	n.a.	n.a.	20.0	n.a.	15.0	n.a.	n.a.	5.5	n.a.	n.a.	n.a.
Israel	n.a.	9.0	10.4	10.7	10.7	9.0	n.a.	7.3	6.1	7.6	6.4
Japan	4.7	5.0	5.4	5.3	4.7	4.4	4.1	3.8	4.0	5.1	5.1
World										8.7	8.8

Source: CIA World Factbook 2011

The overall trend in the region's unemployment rate is characterized by a steady decline between 2000 and 2007, albeit some variations among individual countries. In 2007, however, the global financial crisis broke out as a result of the bursting of housing bubbles in the U.S., followed by the crisis of the financial system triggered by the distrust of sub-prime loans. It clearly halted the improvement of the unemployment rate in the region in 2008. Then, the situation continues to aggravate in some countries (as of 2010), while other countries experience upturns. For instance, the UAE has enjoyed rapid economic expansion due to the influx of investment, but has faced the outflow of funds and the suspension of investment projects after the financial crisis. While a significant slowdown was feared, it has regained momentum, including the labor market that remains relatively stable.

In addition to the Middle East, Morocco and Tunisia (classified as North African countries) are no exception to unemployment problems, which are causing serious national concern. As a result, the need to mitigate negative impacts of population growth on the job market, together with reduction of poverty, is become a major policy agenda for the countries. In fact, Morocco launched a major program for poverty reduction in 2005 – “National Initiative for Human Development: 2006 – 2010” aiming to improve standards of living of population living in poverty (accounting for over 14% of the country's 30 million population) by spending approximately 9 billion in total.

On the other hand, Tunisia has experienced steady economic development under the Ben Ali government since 1987. In the recent few years, the economy has achieved an annual growth rate of around 5%. However, it faced a high unemployment issue, especially in a younger age group with high education, partly due to a skewed population distribution

(the 30 years and younger population accounts for the majority) Despite various efforts made by the government, the unemployment rate remained at a lofty 13.3% in 2010 and that for people with high education over 20%. It further aggravated due to the deterioration of the European economy triggered by the financial crisis. Popular protests erupted to demand the government to tackle with poverty and unemployment and led to the collapse of the Ben Ali regime, generally referred to as the Jasmine revolution (based on country and regional information published by the Ministry of Foreign Affairs).

2) Oil producing and non-oil producing countries

Based on 2008 data, there is a significant difference in unemployment rate between oil producing countries¹ and non-oil producing countries, and the former's unemployment rate falls below the world average. However, Oman and Yemen, which are classified as oil producing countries but which supply capacity is small, are considered to have a relatively high unemployment rate (close to those in non-oil producing countries) due to various factors including the political unrest.

2.1.3 Industrial structure and labor force in the Middle East countries

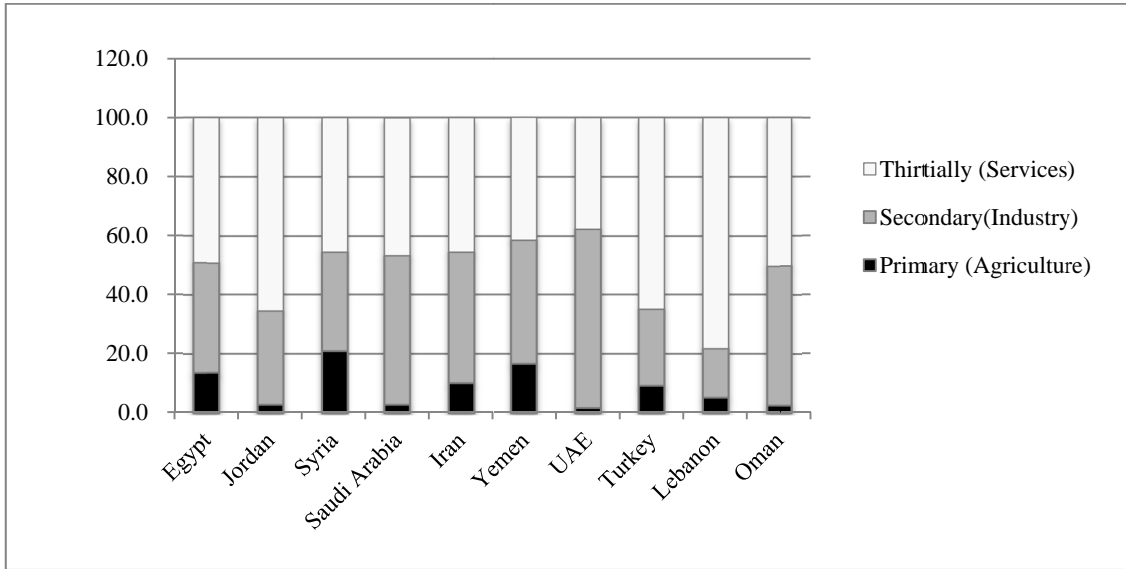
(1) Economic Scale by Industry

Fig.2-1-2 tabulates GDP share by industry in the Middle East countries (where statistical data are available). In terms of the regional average, the primary industry accounts for 8.6% of GDP, the secondary industry 39.0%, and the tertiary industry 52.4%. The three sectors in Morocco and Tunisia represent 17.7%, 31.8%, and 51.6%, respectively (average for the two). The primary sector's share is more than twice the average for the Middle East.

The small share of the primary sector reflects the region's climate conditions. As the Middle East countries are largely located under the desert or subtropical climate zone and thus do not have much arable land. For instance, the UAE has a very small primary sector, while the secondary industry accounts for nearly 60% of GDP (Fig.2-1-2). The country's economy is largely driven by industries relating to natural resources (especially crude oil and LNG). On the other hand, the primary sector's GDP contribution is less than 3%. On the other hand, Tunisia has the Sahara desert in south (accounting for around 50% of the total land area), which is contrasted with vast farmland in the northern part that face the Mediterranean, totaling about 5 million hectares (32%). The agriculture mainly produces

¹ There is no unified definition of "oil producing countries." While a popular dictionary defines them as "a country that produces and exports oil," there are countries that meet the definition but that do not produce enough oil to satisfy domestic demand. Yemen is an example and does not earn sufficient revenues from crude oil exports to compensate for basic imports (food and machinery).

wheat, olive and vegetables, and the country is self-sufficient in food supply. Similarly, Morocco has rich agricultural land, which accounts for 21% of the total land area. Thanks to a temperate climate on the Mediterranean side, the country produces a variety of crops, especially fruits, which represent 15 – 20% of GDP (15.4% in 2009).



Source: UNDP Human Resource Report 2011

Fig.2-1-2 GDP Share by Industry in the Middle East Countries (%)

On the other hand, Lebanon’s industrial structure is characterized by dominance of the tertiary sector that serves as a major driver for the national economy by accounting for nearly 80% of GDP. While country does not have natural resources that can meet domestic demand, it has a long tradition of earning revenues by serving as a resort area for residents in neighboring countries (only one country having no desert in region) and a commerce and trade center linking the East and the West. Thus, the tertiary sector is a primary economic resource for the country (DiscoverLebanon.com and other sources).

There are countries where the secondary sector has more or less the same size as the tertiary sector, namely Saudi Arabia, Iran, Yemen, and Oman. In all the countries, the secondary sector is dominated by the petrochemical industry. It should be noted, however, that Yemen differs from the other three countries in that its oil exports do not exceed domestic demand and its economy is fairly small, resulting in a high GDP share of the oil sector.

Syria is in a unique position where the primary, secondary and tertiary sectors have roughly equal weights in GDP. The secondary sector is led by the petrochemical industry and the fertilizer industry, which are run by large state enterprises. On the other hand, the textile industry is largest in terms of the number of establishments. In addition, Syria has a

wide variety of thriving industries, including food processing, salt, iron and steel, cement, and sugar.

Jordan and Turkey are characterized by a relatively high GDP share of the tertiary sector (over 60%). Jordan's economy is primarily founded on the service industry, including tourism. The country has popular tourist attractions, including the Dead Sea, the Red Sea, and Petra (ancient ruin), which earn substantial revenues for the tertiary sector. It also has natural resources (phosphorous and natural gas) that contribute significantly to GDP. In particular, the country has the third largest producer of phosphorous ores in the world. In addition, textile and food processing industries are thriving. Although their GDP contribution is relatively small, they employ a large number of workers. Moreover, migrant worker, said to be as big as 0.6 million peoples, is the strong supporting power to the international balance of payments by money transfer from outside of the country (Public Vocational training/industrial Engineering Education in Jordan by S. Nakahara, <http://countrystudies.us/journal/>, and others).

Turkey serves as a gateway between Asia and Europe, divided by the Bosphorus. Its culture and urban landscape that harmonizes the East and the West over thousand years of history attracts a large number of visitors, and tourism and related service form a major economic base of the country. The tourism and service industries are dominated by SMEs, which thus contribute greatly to job creation. At the same time, the secondary industry grows rapidly. In addition to the traditional textile industry, the auto industry is thriving as the country is establishing itself as a regional production base. In comparison to the EU, the country's auto production is almost equal to Germany, France, Spain, and Italy, and boasts over 1 million units annually (JAMGAZINE, March 2011).

Tunisia and Morocco have a similar industrial structure each other. As mentioned earlier, both countries enjoy rich agricultural and fishery productions. At the same time, their manufacturing and service industries are growing firmly. Fig.2-1-2 suggests a good inter-industrial balance in terms of growth.

Tunisia is a major producer of phosphorus ore, ranked fifth in the world. In addition, the country produces natural gas and crude oil, making it self-sufficient in energy supply. Major industries are chemical production associated with local production of minerals, processing of agricultural products, and textile. Moreover, the tertiary sector accounts for over 50% of GDP, primarily consisting of tourism, transportation, and ICT. Thus, the country has achieved a well-balanced industrial mix.

On the other hand, Morocco is endowed with rich fishery resources, including cuttlefishes, octopuses, and sardines. The country is one of the largest fishery producers in

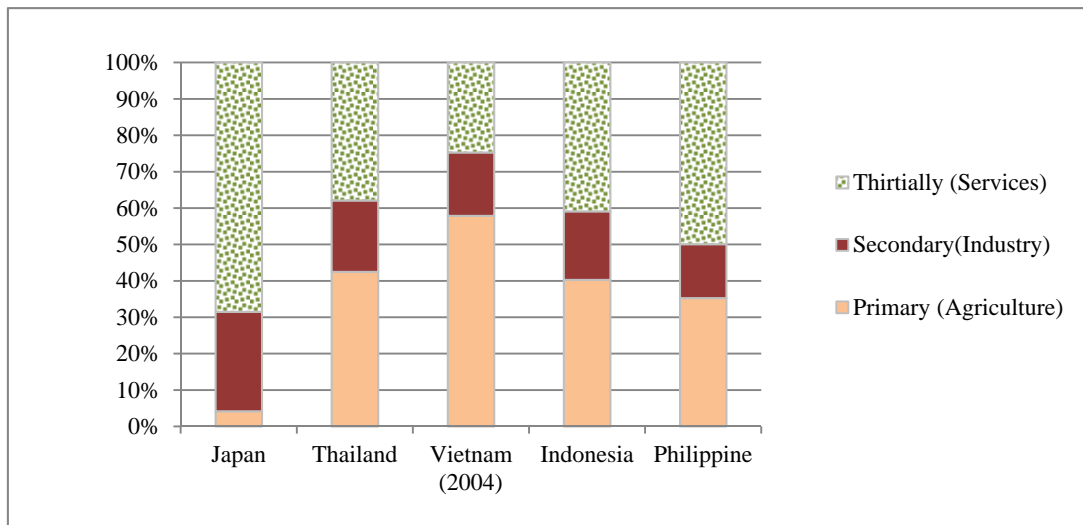
Africa, other than South Africa. It exports most of marine products, contributing greatly to the country's acquisition of foreign exchange. The industrial sector mainly consists of food processing (using local agricultural products) and light industries. Furthermore, the country is known for its rich phosphorus ore reserves, albeit subject to substantial price fluctuations caused by external factors. Tourism also constitutes a major economic base. The country received as much as 8 million visitors in 2008, earning \$7,200 million in revenue (according to the 2008 data published by World Tourism Organization (UNWTO)). In recent years, the country is actively attracting machinery, metal, electronics and ITC industries. Foreign direct investment has been growing rapidly since 2005 partly due to the privatization of state enterprises, covering a variety of sectors including automobile, aeronautical, IT, agriculture, and telecommunication. Investment by Japanese companies is also on the rise.

Overall, Syria is only one country in the region, which shows a relatively high share of the primary sector (over 20% of GDP), followed by Yemen (16%) and Egypt (13%). In the rest of the region, the primary sector's GDP share is around 10% for Turkey and Iran and less than 5% for other countries.

(2) Working population by industry

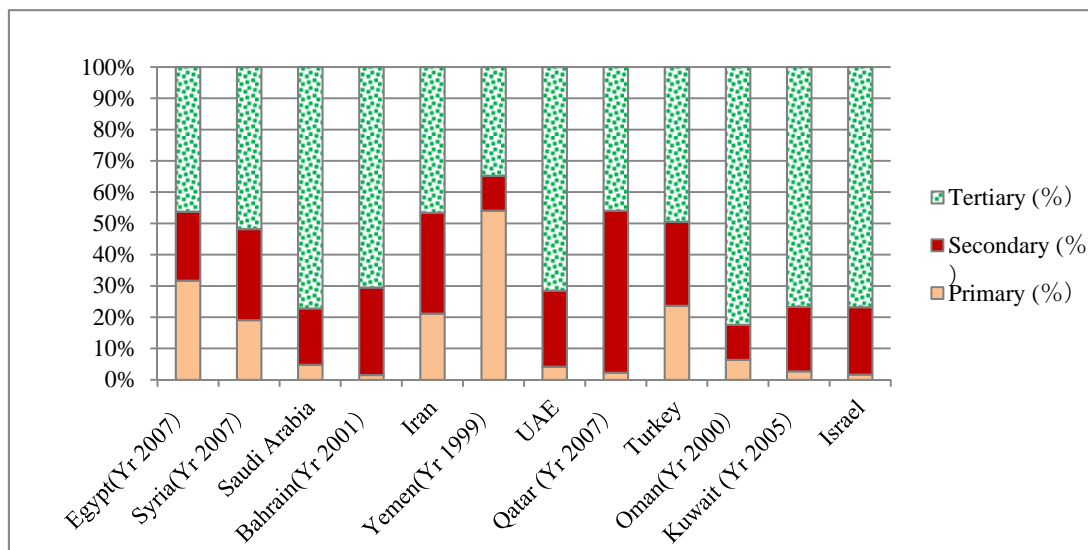
Fig.2-1-3 shows the breakdown of working population in Japan and selected Southeast Asian countries by industry sector. Generally speaking, the distribution pattern in the Middle East region is closer to that in Japan, rather than Southeast Asia.

Based on the composition of working population and the size of the national economy, Yemen, Egypt and Syria can be classified as agricultural countries (Fig.2-1-4). Yemen is the largest agricultural producer and more than 50% of working population is engaged in agriculture, while fishery is also a major economic activity. Benefitted from the largest precipitation in the Arabian Peninsula, agriculture has been thriving from early days, including grain, fruit and coffee (Encyclopedia of the Nations, Yemen, Mapofworld.com, etc.).



Source: ILO Home Page 2009

Fig.2-1-3 Working Population in Japan and Selected Southeast Asian Countries



Source: ILO 2008

Fig.2-1-4 Share of Working Population by industry (%)

On the other hand, Egypt’s agricultural production is supported by a favorable climate and fertile land along the lower Nile, although arable land accounts for only 5% of the total land area. One third of workforce is engaged in farming activity, mainly producing tomato, potato, and melon, which are exported (including processed ones) to other Middle East countries and Europe.

In comparison to the above two countries, Syria is not particularly endowed with natural conditions suitable for agriculture, but the government promotes agricultural production as part of national policy. In addition to food crops, tobacco, cotton, beat, and other cash crops are cultivated and used by light industries, so that their production affects the country's industrial development.

As for employment in the secondary sector, Qatar shows the highest share of workers in the sector. Around 50% of the country's workforce is engaged in manufacturing activity. In the country, the electricity and other infrastructure, IT, and communication are growing rapidly.

Iran is the second largest in terms of workers in the manufacturing sector, as measured by percentage share of total workforce, or around 30%. Iran has long history of handicraft industry, including Persian carpets and potteries. In particular, carpets remain a major industry on strength of traditional value and popularity. In the modern sector, major industries are food processing, paper manufacturing, textile, metalworking, and petrochemical. All these industries other than the petrochemical industry absorb a large number of workers.

Syria ranked third as the secondary industry hires nearly 30% of workforce. The major employer is a labor intensive textile industry, rather than the key industries (petrochemical and fertilizer).

The secondary sector in the UAE holds a high GDP share but absorbs a relatively small number of workers. Its major industries are related to production and processing of natural resources and by nature capital intensive and apparatus based. Instead, the tertiary industry accounts for around 70% of workforce. Strong demand for foreign workers for a wide variety of services - ranging from housework to nursing, child care, security, facility maintenance, and sales - seems to create this skewed distribution. By the same token, large portions of workforce in the secondary sector (over 20% of the total) are foreign workers, especially those engaged in physical labor, such as plant maintenance.

As for Morocco, its secondary sector's high GDP share in comparison to employment (over 30% vs. 21.7%, respectively) indicates that the sector is led by capital intensive industries. More precisely, the traditional industries (textile and leather) continue to serve as a major employer, the chemical industry using phosphorous ore (accounting for 75% of world reserves) contributes greatly in terms of economic output (Note 2). (source: "Middle East Political and Economic Information (Morocco) published by the Japanese consulate general in Dubai; and "Morocco's Economic Outlook," JETRO) As for Tunisia, there is no labor force data with industrial breakdown. It can be concluded that the country's industry

is largely capital intensive by taking advantage of rich phosphorus ore reserves (third in the world).

Finally, Oman is the country where the tertiary sector shows the highest share in terms of employment, followed by Kuwait, Israel and Saudi Arabia (Oman 83%, others 77%). While these data were taken in different years, they seem to depict a general picture where the tertiary sector is the major employer in these countries.

(3) Labor force participation rate

1) Regional characteristics

The average labor force participation rate² in the 16 Middle East countries was 50% in 2008. This means that the number of persons who are in the working age population (15 – 64 years old) but are not engaged in work is more or less the same as the number of persons who belong to the workforce. For instance, the labor force participation rate in Japan is 54.2% (2008). Within the Middle East region, the UAE shows a very high rate of 75.9% to reflect its growing status as a major financial center in the region. In addition to strong labor demand, the high rate seems to come from a relatively high social participation by women in the country. It is substantiated by the high labor participation rate in the PRC (71%) where equal rights for men and women are said to be established in terms of employment.

Qatar shows a similarly high labor participation rate of 76.9%. As in the case of the UAE, the country boasts a high level of GDP per capita and enjoys robust economic growth, as fueled by construction and development of infrastructure, IT, and communication. Thus, the labor force participation data indicate presence of strong demand in some countries.

On the other hand, the low participation rate is found in Palestine and Iraq. Palestine shows the lowest rate to reflect incessant conflicts over the past five decades. In Iraq, while security conditions are one of the worst in the world due to persistent terrorism after the withdrawal of the U.S. security forces, its rich oil resources (the third largest reserves, Table 2-1-4) stand out as huge development potential to attract foreign investors who want to exploit opportunity and construction companies that look for infrastructure projects.

The average labor force participation rate for the 12 Middle East countries (excluding 4 countries showing very high and low rates from the original list of the 16 countries in Table 2-1-1) is 48.4%, thus indicating that nearly one half of people in the working age are engaged in work. Egypt and Jordan show lower rates than the regional average, 43.2% and 37.9%,

² The ratio of working population (including unemployed) to the working age population (15 years and older), as indicated in percentile

respectively. Given the fact that around 60% of the working age population is out of work, their job situation is considered to be relatively bad in the region.

Table 2-1-4 World Ranking of Oil Reserves

Ranking	Country	Amount of Reserves (Billion barrel)
1	Saudi Arabia	264.1
2	Iran	137.6
3	Iraq	115.0
4	Kuwait	101.5
5	Venezuela	99.4
6	United Arab Emirates	97.8
7	Russia	79.0
8	Libya	43.7
9	Kazakhstan	39.8
10	Nigeria	36.0

Source: BP Statistical Review of World Energy, 2008

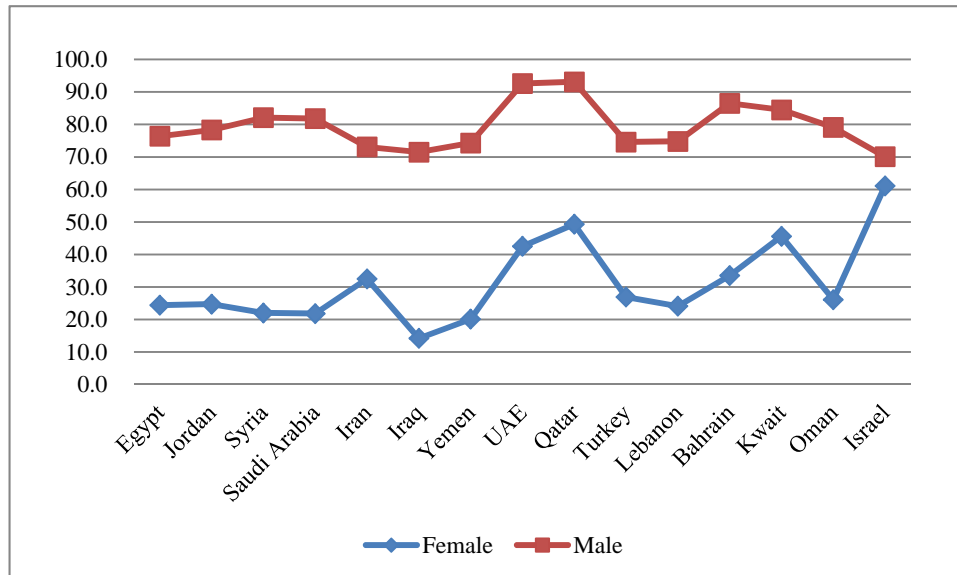
2) Gender impact

A major factor for determining the labor force participation rate, in addition to the market size, is the gender impact (the social participation rate of women). As seen in “Formal employment (ratio of female to male 2000 – 2008” in Table 2-1-1, the ratio is 0.7 for Egypt (the number of female workers is 70% of male workers), whereas that for the UAE, Qatar, and Israel is 1.01, 1.01, and 1.04, respectively. In these countries, female workers outnumber males ones. The region’s social participation by gender in 2011 is summarized in Fig.2-1-5.

As seen in the table, Israel has the highest rate of women’s social participation, accounting for more than 60% of female population. In contrast, the country’s labor force participation rate is slightly over 50% probably because a large number of persons in the working age population serve in the army or work overseas. Other countries showing a high rate of women’s social participation are Qatar, the UAE, and Kuwait. In the four countries, more than 40% of women are participated in economic activity.

On the other hand, women’s social participation rate in Egypt, Jordan, Syria, Saudi Arabia, Iraq, Turkey, Lebanon, and Oman remains at low levels, around or less than 30%. In these countries, the labor force participation rate is also low, accompanied by high unemployment. It can thus be said that women’s social participation rate is closely

associated with economic growth. As seen from the Table 2-1-1, the UAE, Qatar, Kuwait, and Israel rank high in GDP capita, while showing very high women’s participation rates.



Source: Human Resource Development Report 2011

Fig.2-1-5 Workforce Participation by Sex (%)

2.2 Labor Sector in Egypt

2.2.1 Recent trends in population, workforce, and unemployment

(1) Working population and major characteristics

According to the U.N. statistics in 2011, working population in Egypt totals 52.4 million people, of which the younger age group of 15 – 29 years old accounts for 45%. The population pyramid takes a triangular shape with a large bottom, representing a major characteristic of age distribution of the country’s labor force. In particular, the young age group pushes the overall unemployment rate upward, which remains at a relatively high level of 9 – 10% since 2000.

(2) Employment rate of the young age group

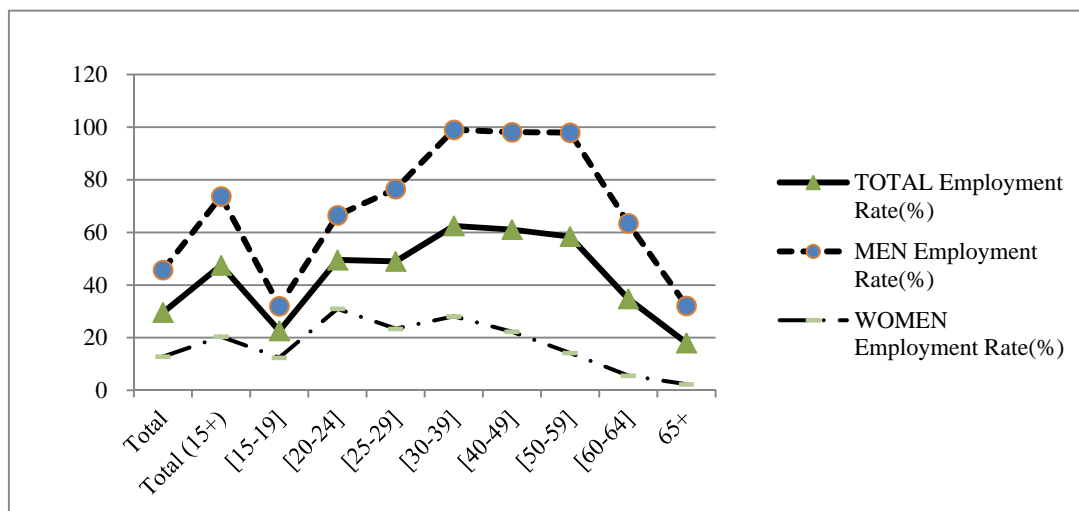
Employment rates by age group, based on CAPMAS’s data, are shown in three graphs (Figures 2-2-1 to 2-2-3). According to the 1999 data, men’s employment rate is lowest for 15 years old, which is the age to complete preparatory education. Then, it increases until the 30 - 39 year age group, where the employment rate reaches nearly 100% and remains at the level until the 50 – 59 year olds group. Thus the statistical data indicate that most of men in ages having their own families are working. This trend is more or less the same as that obtained from statistical data in 2002 and 2007. It should be noted, however, that the

age group reaching the highest employment rate became younger in 2002, by one age group, i.e., over 90% for the 25 – 29 years old group. In comparison to 1999, the age group’s employment rate in 2002 increased by ten percentage points. A major factor for the substantial improvement of the employment rate seems to be the global recession triggered by the Asian currency crisis that broke out in the fall of 1997. In other words, it is reasonable to conclude that the employment rate of the 25 – 29 year group was anomalously low in 1999 as a result of the recession (companies have decreased hiring of the younger age group with little work experience), rather than it grew rapidly in around 2002.

Furthermore, the general tendency in the rise in the employment rate of 25 years and older people reflects the fact that young Egyptians increasingly go overseas for work at the age of 25, resulting in less working population within the country. At present, it is estimated that over 4 million Egyptians are working overseas.

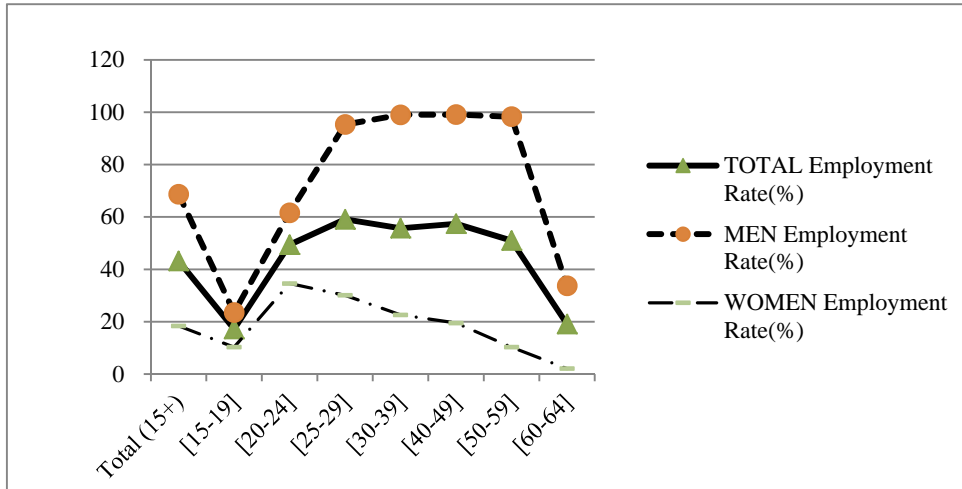
As for the total employment rate, the 1999 data indicate that women’s rate reached its peak in the 20 – 24 years group and declined gradually, except for some resurgence in the 30 – 39 years age group. As a result, the total rate shows some decline in the 25 – 29 years group.

As a result of a slow pace of decline, together with high employment rates of men, the total employment rate ranges between 50% and 60% in the age groups of 20 – 24 to 50 – 59.



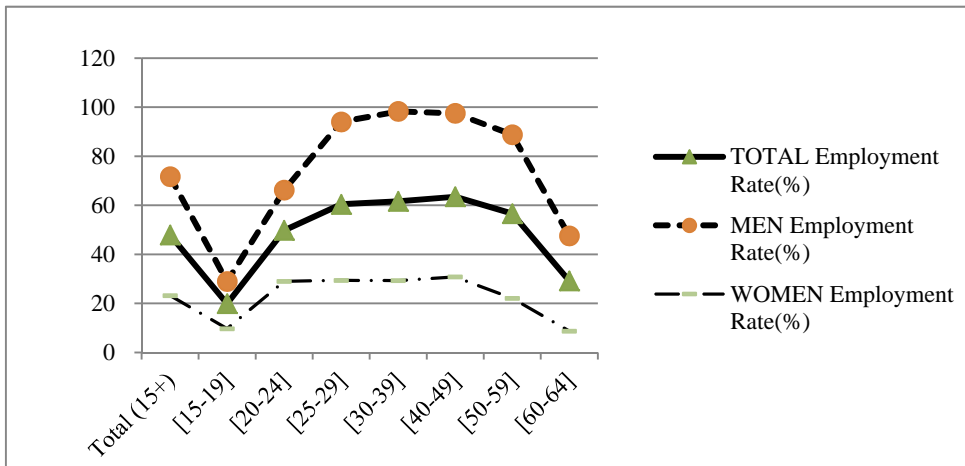
Source: CAPMAS, 2011

Fig.2-2-1 Employment Rates by Age Group and Sex in 1999



Source: CAPMAS, 2011

Fig.2-2-2 Employment Rates by Age Group and Sex in 2002



Source: CAPMAS, 2011

Fig.2-2-3 Employment Rates by Age Group and Sex in 2011

2.2.2 General background and factors for the high unemployment rate

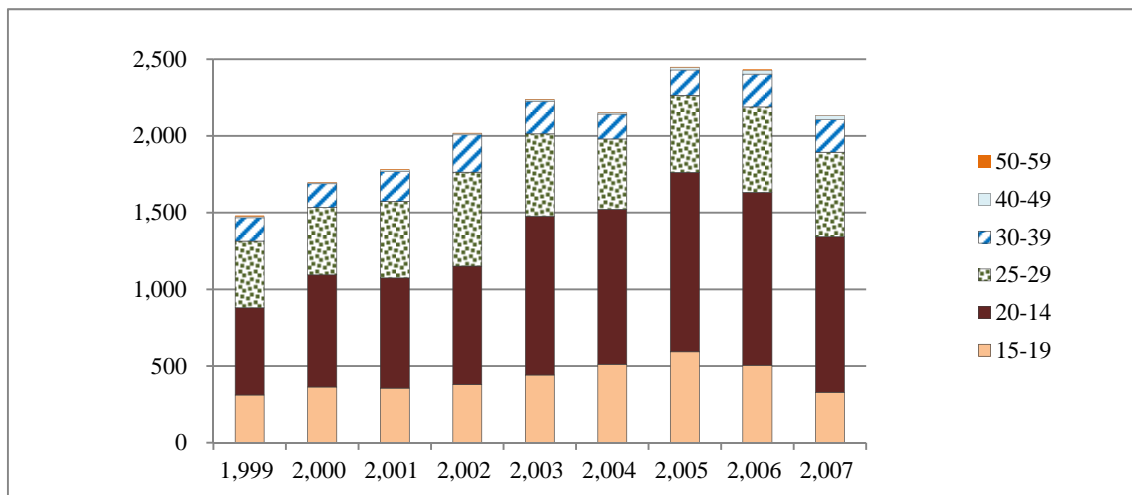
(1) Unemployment in the young age groups

It is pointed out that the difficulty of finding job by young people has been a major factor for the collapse of the former government. As seen in the former three graphs, it is true that the employment rates of the younger age groups were lowest during the period. At the same time, however, the employment rates rose sharply in the subsequent 10 – 15 years, indicating that most people were able to find job by their late 20s. Furthermore, the age group up to 24 years contains a large number of students, who do not work but are not

unemployed³. The study team has estimated the actual number of unemployed persons in the age group on the basis of the results of “Survey of Young People in Egypt (SYPE)” published in January 2011 by the Population Council within the Egyptian Cabinet Information and Decision Support Center.

SYPE is based on face-to-face interviewing of approximately 15,000 young people of 15 – 29 years old. At the time of the survey, 15.8% of respondents were out of work and were actively seeking a job, whereas 21.5% were also jobless but did not have an intention to look for a job. The latter category is even higher for women, accounting for 42.7% of the female 15 – 29 years group interviewed. On the other hand, CAPMAS’s data (2009) show school enrollment data by age. Approximately 15% (median value) of the 20 – 24 years group went to school, and 55% of the 15 – 19 years group. Based on these data, actual working populations in the 15 – 19 and 20 – 24 years age groups (excepting those enrolled in school) are estimated at 3.5 million and 6.9 million, respectively. In reality, however, working population in the younger age group should be adjusted upward in consideration of a fairly large number of dropouts.

The above Population Council report concludes that the country’s high unemployment rate is primarily concerned with young people, especially paying attention to the 15 – 19 years group. ILO’s statistics indicate that around 90% of unemployed persons in Egypt belong to the age group younger than 29 years old, accounting for two thirds of all jobless persons at most (see Fig. 2-2-4).



Source: LABORSTA Labor Statistics Database
Copyright International Labor Organization 1998-2011

Fig.2-2-4 Unemployment population by age group (UNIT:1000)

³ According to the definition presented in “Survey of Young People in Egypt, January 2011” by the Population Council, unemployment in Egypt means that a person has a willingness to work, looks for a job, but is not employed. Thus, a person who has lost intention to work is not included in the unemployed status.

(2) Educational background and unemployment rate

As seen from the relationship between educational background and the unemployment rate, a high unemployment rate for the 15 – 19 years age group is clearly suggested, nearly 50% (one out of two persons). By the same token, one out of three university graduates is unemployed (see Tables 2-2-1, 2-2-2 and Fig.2-2-5).

Table 2-2-1 Relationship between Educational Background and the Number of Unemployed Persons

Education completed	University & above	Secondary	Preparatory	Primary	Literate	Illiterate	Total
Female	4,646	1,044	6,692	556	148	554	13,640
Male	3,798	717	4,803	395	201	217	10,131
Total	8,444	1,761	11,495	951	349	771	23,771

Source: CAPMAS, 2010

Table 2-2-2 Relationship between Unemployment Rate and Education

Education completed	University & above	Secondary	Preparatory	Primary	Literate	Illiterate	Total
Female	34.0	7.6	49.0	4.1	1.1	4.1	100
Male	37.5	7.1	47.4	3.9	2.0	2.1	100
Total	35.5	7.4	48.3	4.0	1.5	3.2	100

Source: CAPMAS, 2010

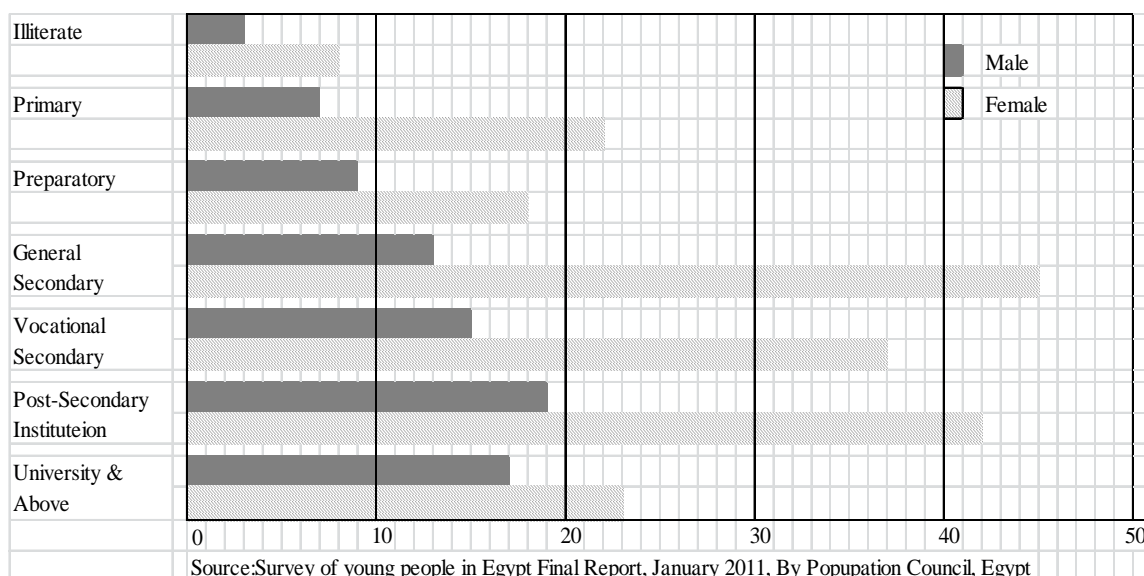


Fig.2-2-5 Unemployment Rates in the 15 - 29 Years Group by Education and Sex (%)

As shown in Fig.2-2-5, women show a higher unemployment rate, twice or more that of men in all the educational levels but university graduate. According to various sources (local companies, trade associations, SME association, universities, the Research Institute on Juvenile Crimes, and foreign aid organizations), this comes from an old convention that women should not work outside and many families prefer their female members to stay at home (i.e., many women in the category are forced or encouraged not to participate in society).

(3) Critical view of industry on the high unemployment issue relating to the young age group

Clearly, the most important cause for the high unemployment rate is the country's small labor market in comparison to demand, as pointed out by all respondents to the interview surveys. At the same time, it is pointed out that the unemployment rate of the young age group is particularly high because industries are disappointed by public education and its quality, i.e., many people who have received school education and training do not have competence or skills that meet requirements set by many companies. As a result, many companies are reluctant to hire new graduates. Also, some criticize that many students do not have a strong motivation to work, which reflects the following social trend in the country, which were cited by many respondents.

For instance, some attribute the high unemployment rate in the younger male group to an indulgent attitude of their parents, who freely provide financial support for unemployed children, depriving them of a motivation to find job. Also, many university students enter a school to obtain the social status of college graduate, rather than acquiring advanced knowledge or skills that are useful for job seeking in a specific field. It is pointed out that these attitudes are one of the country's major social trends. While companies in Egypt incline to hire persons with work experience over new graduates, who are thus placed in a less advantageous position, many students lack a strong desire to find job and wait nonchalantly for an employment opportunity with good salary and working conditions. This attitude is even encouraged by indulgent parents, as discussed earlier. The deplorable trend is often seen among students living in urban areas. On the other hand, students living in rural areas are said to be more aggressive in job seeking due to a more difficult economic condition.

The Population Council's report analyzes the survey results, which include the question to identify main reasons for the above trend, as summarized below (Table 2-2-3).

Table 2-2-3 Main reason for being unemployed, age 15-29, Egypt 2009

Reason	Males	Females	Total
No work available at all	68.4	72.4	70.0
No work suitable to experience/qualification	4.0	12.6	7.5
No work with suitable wage	22.5	8.1	16.6
No work with suitable workplace	2.1	5.4	3.5
No work available with suitable location	2.6	1.5	2.1
Other	0.5	0.0	0.3
Total	100.0	100.0	100.0
Number of unemployed respondents	381	331	712

Source: Survey of young people in Egypt Final Report, January 2011

While the highest percentage response “no work available” reflects the general labor market condition in the country, the second highest one “no work with suitable wage” seems to agree with the criticism that young people are often choosy about employment.

In conclusion, the analysis of the relationship between educational background and the unemployment rate indicates very low employment rates for the male 15 – 19 year group (who completed preparatory education), the female 15 – 25 year group, and new university graduates, in comparison to other groups.

2.2.3 Industrial structure and labor force in Egypt

(1) Industrial composition by GDP share

Egypt’s industrial structure is characterized by a strong presence of the tertiary sector, led by tourism, which accounts for nearly one half of GDP. The tourism industry is associated with a wide range of industries, including transportation, construction, food, hotels and restaurants, and home manufacturing, all together representing more than 50% of GDP. As for the primary and secondary industries, they follow a long-term trend seen in many middle-income countries, i.e., the primary sector declines while the secondary sector (especially the manufacturing industry) expands. Nevertheless, agriculture continues to play an important role in the country’s economic base as it employs around 30% of workforce and agricultural exports increase as of 2010. On the other hand, the manufacturing sector, although showing steady growth, has still to grow fast enough to absorb a large number of persons who enter the job market annually (See Table 2-2-4).

Table 2-2-4 GDP by Industry (%)

	1983	1993	2003	2007	2008	2009
Primary Industry	19.6	16.7	16.7	14.1	13.2	13.7
Secondary Industry	30.0	33.1	34.5	36.3	37.5	37.3
(Manufacturing)	(13.2)	(16.7)	(18.9)	(18.9)	(19.4)	(19.1)
Tertiary Industry	50.4	50.2	48.8	49.6	49.2	49.0

出所: JETRO Cairo Center

(2) Current state of employment by sector

Statistical data on employment by industrial sectors are published by CAPMAS on a single year basis. Its latest annual statistics show employment data in 2010 only.

Table 2-2-5 Number of Employees by Industry (unit: hundred)

Sub-sector	Population
Agriculture, Hunting, Forestry & Cutting of wood trees	68,756
Mining & quarrying	323
Manufactures	26,580
Electric, gas steam, air condition supply	2,050
Water support, drain, recycling	1,164
Constructions, building	24,406
Whole and retail sale vehicles, motorcycles	24,647
Transportation and storing	14,976
Food, residence service	4,507
Information, telecommunications	2,082
Insurance, financials	2,034
Real estate, rent	139
Specialized technical, scientific activities	3,808
Real estate activity, renting & business services	1,496
Public Administration, defense, social security management	18,988
Education	20,835
Health, social activities	5,601
Amusement, arts, activities	1,009
Other activities service	5,272
Services of home service for private households	784
Organizations, the united nations & region	57
Activities not classification	244
Total	229,758

Source: CAPMAS, 2011

As discussed in “(2) Working population by industry” of 2.1.3 “Industrial structure and labor force in the Middle East countries”, Egypt is essentially an agricultural country and its total workforce amounts to 6.9 million. Despite of its large capacity to absorb labor supply, the agricultural sector represents slightly over 14% of GDP.

As for individual sub-sectors, the manufacturing industry hires 2.6 million workers, auto retailers and wholesalers (including motorcycles) 2.5 million, construction and building 2.4 million, and education 2 million.

(3) Sector-specific analysis

Interview surveys were conducted for related organizations to identify industries where human resource needs are significantly expanding or are expected to expand, and the results are summarized below. Based on the surveys conducted so far, the food processing industry expects strong growth of labor demand in the near future, while other industries show no specific prospect for increase in employment.

1) IT-related industries

In Egypt, PC education is already introduced at the primary education level, resulting in wide use of PCs and other devices in the country. On the other hand, there is no significant growth of demand for IT engineers in comparison to other professions. The launching of e-commerce business by individuals seems to be on the rise, but not booming. On the other hand, the emergence of the IT-based authentication system may spur new businesses, which can then create demand.

All in all, as IT is currently used in a wide range of economic and social sectors, it is difficult to estimate overall demand for IT engineers and related professions in the entire country. However, the industry is expected to have continuous demand.

2) Food processing industry

The sector is growing rapidly. Its total sales in 2010 soared to LE 15 billion from LE3.9 billion in 2005). It is the second largest export industry next to textile and garment and exports 40 – 45% of its total output. The largest export market is the Gulf States, followed by Africa, the EU, the U.S., and other Middle East countries. It also attracts a large amount of foreign investment on strength of its rich resources and the large domestic market of 86 million people. It accounts for slightly over 20% of total industrial output and is comprised of as much as 4,500 companies, of which only 60 companies are classified as large enterprises and the rest as SMEs and microenterprises. As it is one of the largest industries in Egypt, including textile, and shows a high export ratio, the industry is expected to serve as a key industry for years to come.

As there is a relatively small number of students graduating from institutions of higher education relating to food processing and agriculture, they are strongly demanded in the labor market. For Instance, Alexandria University sets up a waiting list for companies who want to recruit students majoring in agriculture and related fields. The industry also hires a large number of graduates from vocational training centers. In Borg El Arab alone, around 5,000 persons are newly hired each year.

The food processing industry is expected to enjoy further expansion and human resource demand will grow accordingly.

3) Automobile related industries

The automobile industry in Egypt is relatively young and emerged in the late 1980s. At present, more than 10 automakers are operating in the country and most of them assemble cars on a knockdown (KD) basis, i.e., using imported parts. The industry is built on a broad supplier base and needs a wide range of supporting industries, but local suppliers having technical capability to compete in the global market are limited in number. Meanwhile, automobile sales in the country grow steadily in the late 2000s to reflect healthy economic growth. For instance, unit-based automobile sales grew by 40% in 2006 to 170,000 cars, by 30% to 220,000 in 2007, and to 260,000 in 2008. Although sales declined in 2009 and 2010, still exceeding 200,000 units. In the passenger car market that accounts for 80% of the motor vehicle market, Korean cars have previously gained share with aggressive pricing but recently are losing momentum and Japanese cars (e.g., Sunny) are rapidly catching up. Like the electrical and electronics industry, the automobile industry can become a production base for the EU market as the free trade zone is established as planned. For instance, the number of Japanese automakers that operate in Egypt (currently two) is expected to increase in the near future. Furthermore, the anticipated increase in the number of assembly manufacturers will attract foreign suppliers. For the industry to capitalize on this opportunity, human resource development should be given of priority as part of development of industrial infrastructure.

At present, there is a prospect for moderate growth of human resource demand by automakers, including technicians, albeit not strong. According to the assemblers, they train skilled workers through an in-house, specially designed program and assign them to captive maintenance shops that are specialized in maintenance and repair of respective brands only. While demand for skilled workers can increase moderately according to the growth of the automobile market, those who work at assembly plants tend to stay long, resulting in a small replacement demand. Partly because of this, assemblers do not hire many PVTD graduates.

On the other hand, there is strong demand for skilled workers by automobile related industries, namely parts manufacturers and repair shops. At present, the automotive parts industry – consisting of around 400 companies – strives to improve quality and productivity partly due to strong support by IMC, thus creating large demand for workers having basic skills. Similarly, auto repair shops have a strong need for technicians who have received systematic training.

4) Textile and garment industry

In comparison to the food processing industry, the textile and garment industry is slightly smaller in terms of GDP share and the number of enterprises, while exporting more (on a value basis) on strength of cotton yarns and fabrics that are renowned in the world market. At present, as many as 30,000 companies are registered with Egyptian Business Association, of which 5,600 companies are the members of the textile and garment industry association. Of total, around 3,500 companies seem to operate throughout the year, while the remaining companies suspend business during the period with relatively small demand. The industry's total workforce is 1.8 million people, or 321 workers per company, but most of the 5,600 companies are small in size. Meanwhile, the garment industry alone needs to hire 35,000 workers each year. This suggests a strong need for human resource development in order to produce international quality products. At the same time, however, the textile and garment industry is facing strong competitive pressure from counterparts emerging in Turkey, India, and Bangladesh, and its labor demand will likely decrease in the long run. Furthermore, the textile and garment industry in Egypt has some seasonality in operation and few companies hire workers year-round. Thus, unless strong demand arises for the industry, there is no prospect for a large increase in employment.

5) Chemical and plastics industry

The chemical and plastics industry accounts for approximately 15% of total industrial output and consists of around 3,500 companies, most of which are said to be SMEs. Although one tends to think that the industry has high growth potential by taking advantage of the country's position as a producer of crude oil and natural gas, they actually rely on imported plastics materials heavily. As a result, local production of engineering plastics products – electrical/electronic parts, precision machine parts, and automotive parts – is relatively small, resulting in high prices. This situation works as an unfavorable factor for their development as suppliers of materials to other industries. Similarly, there are a relatively small number of plastics molding companies. The industry as a whole needs to modernize aging production equipment, but it cannot afford to do so because of small demand in the local market. There is a hope, however, for growth of the plastics industry driven by development of the engineering industry, which would lead to an increase in human resource needs.

6) Woodworking and furniture and leather industries

The woodworking/furniture and leather industries are considered to be traditional industries in Egypt. Although they are relatively small in size (in terms of output or the number of companies) in comparison to the above, they have long history of export to Europe. They rely on traditional skills that have been inherited over generations and are often concentrated in a geographical area to form a local cluster. Nevertheless, their future is by no means very bright. For instance, manufacturers of furniture for the export market import materials from Scandinavia and process and assemble them into furniture, which is exported to Europe. As their production cost is relatively high due to the transportation cost, their competitiveness is adversely affected. Also, both woodworking/furniture and leather industries are dominated by small companies that are primarily engaged in flexible production (making a variety of products in small quantities) and are under strong competitive pressure from Chinese and other companies that have volume production capacity.

7) Electrical and electronics industry

While the industry accounts for only 1.8% of total output by the manufacturing industry, it is considered to be very important from the viewpoint of import substitution. Notably there are a relatively small number of joint ventures with foreign electrical and electronics manufacturers, despite a very fast product cycle. This suggests that local manufacturers have not reached at the international technology level. Also, a weak supplier base including supporting industries impedes the improvement of industrial competitiveness. On the other hand, large enterprises are increasingly devoting efforts to promote human resource development and quality improvement, so that they can serve as impetus for full-fledged development of the entire industry so far as the industry's technological base (human resource and production equipment) is established to some degree. In particular, the formation of the free trade zone with the EU is expected to create opportunity for the industry to attract manufacturers that are currently operating in Europe, including Eastern Europe.

2.3 Labor Sector in Jordan

2.3.1 Recent trends in population, workforce, and unemployment

(1) Working population and major characteristics

Jordan has a population of around 6,360,000 (as of 2011), 70% of which are in the 30 years or younger group. The annual average rate of population growth since 2007 is 2.4%, more or less the average for the Middle East countries. Working population is estimated to be around 3,750,000, representing 59% of the total, and the 15 -29 years group account for 51%, higher than 45% in Egypt. The unemployment rate is higher than Egypt and remains at around 13% (the annual average rate of 12.9% between 2006 and 2010), the bulk of which

is found in the 15 – 29 years group. Also notable about Jordan's working population is a large number of immigrant workers, mainly young people from Palestine and Iraq. According to the Labor Ministry's data on the issuance of work permits, immigrant workers coming from neighboring countries account for more than 60% of the country's new employment. (This reflects the fact that many managers in Jordan consider foreign workers to be better than local people (new graduates) in terms of employability.) While Jordan is much smaller than Egypt in terms of population (one thirteenth) and economy (one eighth in GDP), the two countries face the same situation that unemployment and related problems affect the young group most severely.

(2) Employment rate of the young group

A relatively low employment rate of the young group is a phenomenon commonly seen in Egypt and Jordan. However, the employment rate of the 15 – 29 years group in Jordan is lower than that in Egypt. A major factor is the inability to create job opportunities in pace with the rate of population increase. Also, many of jobless persons in the young group tend to change their job repeatedly, thus not working for the same company for a long period of time. There are various reasons for this, including a low salary, a long distance from home to the place of work, and the lack of a skill required for a specific job. At the same time, however, nearly 50% of these people find job within six months from leaving a former job. This means that the group includes people who work and become unemployed repeatedly.

The job hopping seems to be partially attributable to a large number of small enterprises. As seen in Table 2-3-1, which shows composition of companies in Jordan by sector and size, large enterprises employing 100 or more persons account for only 1% of manufacturing companies (totaling around 20,000), those with 10 – 99 employees 6%, and small enterprises having 9 or less employees the remaining 93%. By subsector, many companies are engaged in metalworking, furniture or food processing. On the other hand, large enterprises (500 persons) are mainly found in the garment industry and seem to make products for exporting. A different statistics tells that microenterprises (4 or less employees) represent as much as 94% of the total in the manufacturing sector as well as in the service sector. As they do not add up to sizable employment opportunities within the country, including the primary sector, many Jordanians opt to work overseas (e.g., the Gulf States). The lack of large manufacturing plants is a major factor for the inability of the local job market to absorb the workforce dominated by young people. (In Egypt, there are a number of large enterprises in various industries.) As there are a very few job creation opportunities in the primary sector, the country needs to make innovative efforts to increase employment opportunities in the second and tertiary sectors.

Table 2-3-1 Classification of Jordanian Companies by Key Sector and Company Size

Industry	<500	499-100	99-10	9-1	Total
Metalworking	0	10	65	4,306	4,381
Furniture	0	10	86	3,527	3,623
Food processing	3	41	261	2,908	3,213
Garment	32	40	104	1,948	2,124

Source: Jordan department of Statistics, Establishment Census

2.3.2 Unemployment rate: background and factors

Since January 2011, following the revolts in Tunisia and Egypt, the wave of popular protests broke out in Jordan to express dissatisfaction about unemployment and corruption. Originally, the protests were led by individuals or groups who gathered to raise their voice. Then, they became politicized to demand the amendment of the law governing general elections and the shift in the political system to the constitutional monarchy system. They grew rapidly, both in size and frequency, to an extent that the government could no longer ignore. King Abdulla II has ordered the appointment of a new minister and has announced and launched various measures to appease people, including price subsidy for fuel and food and the salary hikes for government employees. The Bakhit government, which inaugurated on February 9, 2011, holds an open conversation with people and has declared the intention to carry out political and economic reforms. As a result, the situation is subsiding.

As seen in Egypt, Jordan faces a problem that the unemployment rate is highest in the 29 years and younger group. In addition, the young adult group in the country is characterized by a large percentage of people who have completed high education, over 40% of the total. Fig.2-3-1 presents a conceptual view of the country's TVET system including vocational training schools. Notably, "craft and skilled workers" are required to take a longer period of study than those in Egypt, resulting in a higher age of completion. As a consequence, the 17-year old group shows the highest jobless rate. As for university education, Jordan boasts one of the highest enrollment rates in the region, but there are not many employment opportunities for graduates.

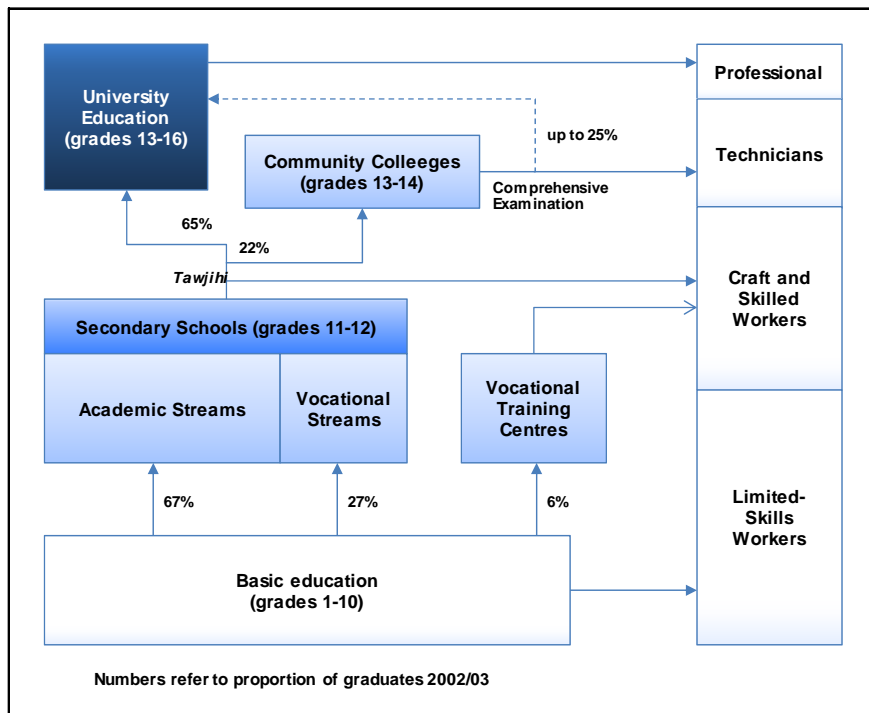


Fig.2-3-1 TVET System in Jordan

Major factors for causing the high unemployment rate in the young adult group - in addition to the small economy including the lack of industries that absorb a large workforce – are related to the following three issues, namely geographical condition, employability, and cultural background including a perception gap about employment. First of all, as in the case of Egypt, the time required for commuting and the means of transportation are critical considerations for Jordanian workers when seeking job. However, many manufacturers are located in industrial estates, which are far away from residential areas, and it is difficult for them to recruit workers, even if commuter bus service is offered. Secondly, some companies are questioning about employability of local workers. Furthermore, workers often leave their companies after they have become aware of insufficient skills required for a specific job. Finally, there are many cases of resignation due to a perception gap about employment, e.g., some workers hold high expectation for salary or working conditions and feel shame to continue working. Some also point out that the unemployment issue is associated with social problems, such as a disparity facing Jordanians of Palestinian origin (accounting for around 70% of total population) in terms of employment and income, and a high rate of population growth that causes a constant inflow of young population into the job market. Although various programs to promote employment are underway, such as the Job Fair and skill development courses, many people are inaccessible to such opportunities, causing a further complication.

To improve the situation, the need to take a multi-faceted approach is suggested, ranging from the improvement of employability of young people and the development of a job market information database, to the changes in immigration policy and the social security program for foreigners.

2.3.3 Industrial structure and workforce

The Jordanian economy has been growing significantly over the past decade. In particular, the annual average growth rate of nearly 8% was achieved between 2004 and 2008. Although growth has slowed down due to the global financial crisis, real GDP grew by 180% and the value of exports by 270% during the period between 1999 and 2009. Major contributors are: 1) healthy growth of exports to the U.S., especially textile products; 2) increase in direct investment by the Gulf States as a result of the rapid rise in crude oil prices in the international market; 3) the influx of rich people from Iraq; and 4) growth of general demand derived from international support for reconstruction of Iraq. They are all external factors, indicating that the Jordanian economy is strongly affected by the world economic and political trends.

The country's industrial structure is highly skewed to the secondary and tertiary sectors, which account for almost one third and two thirds of GDP, respectively, while the primary sector holds a less-than 3% share due to a largely barren natural environment (scant precipitation and desert accounting for 80% of total land area). Traditionally, the country has mainly exported phosphorous and potassium ores and fertilizers. To grow out of the economy depending on mineral exports, the government promotes investment in special economic zones by manufacturers, as well as IT and tourism. As a result, the manufacturing sector increased its GDP share from 14% in 2000 to 20% in 2010. In particular, the garment industry expands rapidly by taking advantage of tariff exemption based on the FTA between the U.S. and Israel.⁴ Over the recent decade, the industry's exports grew more than threefold (230%) and represent 17% of the country's entire export. However, it peaked out in 2008 and has been declining due to increasing competitive pressure from China and other emerging countries. Recently, there is expectation for development of other industries including pharmaceutical.

In conclusion, the manufacturing industry in Jordan has vulnerability in various areas, including weak development of industrial infrastructure, QIZ-enabled exports depending on the U.S. market, and an unbalanced mix of export items, not to mention a small domestic market that prevents industrial development. It therefore needs to make efforts to establish

⁴ The tariff exempted areas, called "Qualifying Industrial Zones (QIZ)," were introduced by the U.S. government in November 1996 for the purpose of reinforcing economic cooperation between Israel and neighboring countries. Tariff exempted exports to the U.S. must meet various requirements, including the use of raw materials originated in Israel.

international competitiveness for exports, especially human resource development required for improvement of quality and productivity. As the country already has a good education system that provides a large number of people with high education in comparison to other Middle East countries, it is now important to connect the existing human resources with new investment projects.

Prospective areas other than manufacturing are ICT (information and communication technology) that can capitalize on abundant human resources and geographical advantage, medical service that is said to be at an advanced level in the region, and hotel and tourism that can be combined with medical service and international convention.

Chapter 3
Current State of Industrial Human Resource Development
and Industry Needs in Egypt

Chapter 3 Current State of Industrial Human Resource Development and Industry Needs in Egypt

3.1 Industrial Human Resource Development Policies of the Egyptian Government

3.1.1 Positioning of Human Resource Development in National Policies

(1) Positioning of human resource development in national development plans

In Egypt, national development plans are manifested as the long-term socioeconomic development vision (1997 – 2017) and the sixth five-year economic development plan currently in effect for the period between 2007 and 2012. The long-term socioeconomic development vision sets forth “human capital development and promotion of employment opportunity (to lower the unemployment rate to 3-5%)” as a key agenda in the area of human resource development. To achieve the goal, the vision sets two strategies: to correct disparities in basic education and promote equal educational opportunity; and to train skilled technicians and workers who will form a fundamental element of the industry. Basically, the vision reflects the government’s strong conviction that it is human resource development that brings about economic development and social stability. It should be noted, however, that the vision presents a general direction of national development from long-term perspectives, and specific measures and actions are prescribed in the five-year economic development plan or human resource development policies of relevant ministries that are formulated on the basis of the development plan.

The Sixth Five-Year Economic Development Plan has been approved by the cabinet led by Prime Minister, Dr. Ahmed Mahmoud Mohammed Nazif, who took office in July 2004. In the area relating to the improvement of employment conditions, the plan sets specific goals, in particular, to create 3.8 million jobs and to lower the unemployment rate to 5.5% (see Table 3-1-1). Also, the plan presents the following items as key elements of strategy and direction for approaching the goals.

Table 3-1-1 Labor Force and Employment Estimations for 2007-2012

Item	2007	2008	2012
Labor Force (million)	22.1	22.6	25.3
Employed (million)	20.1	20.7	23.9
Unemployed (million)	2.0	1.9	1.4
Unemployment Ratio	9.1%	8.4%	5.5%

Source: The Sixth 5 years Economic Development Plan

Remark: Employed figure 23.9 million (yr.2012) – 20.1 million (yr.2007)= 3.8 million (for 5 years)

Education Strategy within the Sixth 5 years Development Plan:

- Fulfilling the actual and urgent needs of the internal and external labor markets.
- Mitigating the labor shortage that is seen in certain fields in order to compensate the emigration of skilled workers.
- Providing vocational training opportunity to jobless, unskilled persons through new training programs.
- Initiating a comprehensive national program to meet the needs of the internal and external labor markets with care to establish a link between the social and economic development needs and industrial human resource development
- Coordinating activities of organizations engaged in industrial human resource development, so as to ensure the best use of available resources.

In order to achieve these goals, the training plan includes the following:

- Completing the construction of training centers envisaged in the previous plans, and budgeting for new centers under the Sixth Plan, concurrently with the start of the centers' operation.
- Establishing vocational safety offices in the governorates by providing necessary resources.
- Implementing the projects designed to provide women with training for various skills that meet the needs of the labor market.
- Providing job placement service at the labor force bureaus through effective information exchange between related ministries and agencies.

The sixth five-year development plan envisions the formation of a free trade zone (FTZ) with the EU by the end of the final year in 2012¹, and it aims to promote the improvement of the domestic industry's competitiveness, as well as export promotion and human resource development to support them as key policy agendas to be addressed. It also states that specific efforts to achieve these goals should be led by the private sector and that the government is responsible for creation and development of the environment to facilitate such efforts. It is also assumed that the planning and implementation of specific programs is left to related ministries and agencies, such as the Ministry of Trade and Industry (MOTI).

(2) Overall evaluation of 6th Five-year Plan

The past five-year plans are essentially characterized as government investment plans that embrace programs and projects in a variety of fields and are positioned as the supreme plan showing the entire policy direction. Based on these plans, the government has been allocating funds under the budget to individual programs implemented by respective

¹ A free trade agreement (FTA) with the EU was enacted in 2004.

ministries and other government organizations. As for ex-post evaluation of actual programs and their results, however, it does not seem to have been formally carried out. This is partly because of difficulty in analyzing and evaluating each plan, even if it sets specific, measurable targets (such as job creation and the unemployment rate), by measuring actual results in terms of program effectiveness. In particular, as the 6th five-year plan has become the last plan under the Mubarak regime, it is viewed as a holdover from the past. In fact, nothing is heard about the sixth plan within the provisional government.

Although the sixth five-year plan has still six months to go before completion, it seems to be very difficult, if not impossible, to achieve its targets within the planning period, including the reduction of the unemployment rate to 5.5% and the increase in per-capita income to LE13,000.

(3) Outlook for the new five-year plan

A next five-year plan, which is scheduled to start in 2013, is referred to as a new five-year plan – reflecting the intent to depart from the past – and is being formulated by the Ministry of Planning and International Cooperation. Although its details are not known at present, the plan sets the overall goal of “maintaining a higher standard of living” and is expected to propose programs to promote stability of employment in a variety of fields, including industrial policy and human resource development (according to a JICA expert).

The strategic focus on promotion of employment, accompanied by the strengthening of human resource development, is considered to be continuation of the previous policy, but various programs are proposed, including the private sector’s participation, in addition to the enhancement of formal education and traditional vocational training. In particular, the need for integrated and consistent efforts by the government is called for to correct a highly compartmentalized planning and implementation of human resource programs. The government’s understanding on the unemployment issue – including the background and major factors for preventing job creation or reduction of the jobless rate – accords with the results of the analysis made under the Study, and the MOP expressed the intent to reflect proposals and recommendations made under the Study in the plan implementation process.

(4) MOTI’s human resource development policy

The MOTI sets overall targets for the country’s economy and industry as well as industrial human resource development in “Egypt Industrial Development Strategy” that envisions a long-term span up to 2025. Table 3-1-2 lists key economic indices presented in the strategy. In other words, they represent a future image of Egyptian industry established by the MOTI. Notably, the MOTI expected that industrial production would grow from LE101 billion in 2006 to LE147 billion in 2010 and LE728 billion in 2025, and industry’s share of GDP would rise from 16.8% to 22.6% during the same period. As a result, labor demand by

the industry sector is expected to reach 1.5 million people during the five-year period up to 2011, which are equivalent to around 40% of the total number of jobs (3.8 million) to be created in the country under the sixth five-year plan (2007 – 2012).

At present, MOTI estimates that new job creation does not reach an annual average of 300,000 (although no official data are available), while industrial production has reached LE140 billion, thanks to the healthy economic growth in the late 2000s (around 1.2 million by 2011).

Table 3-1-2 Growth and Investment Targets in the Industrial Sector

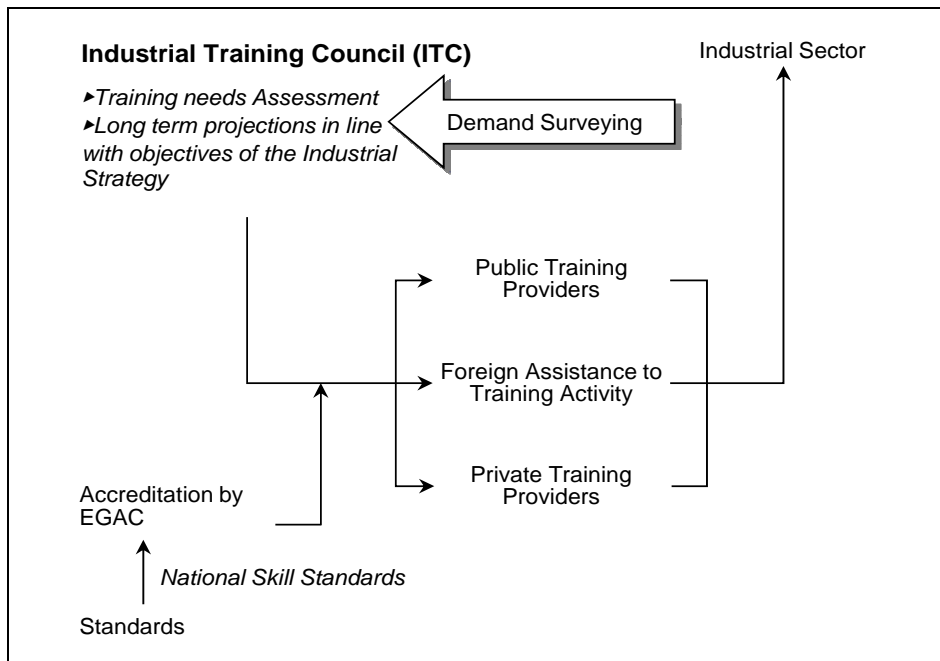
	2007	2008	2009	2010	2011	2015	2020	2025
Real Growth Rate in Industrial Production (%)	5	5.5	6	6	7	8	9	9
Nominal Industrial Production (LE Bn)	111	122	134	147	162	241	413	728
Share of Industry in GDP (%)	16.6	16.6	16.6	16.6	16.7	17.7	19.7	22.6
Manufactured Exports (LE Bn)	24	27	32	35	42	72	140	291
Nominal Investment in the Industrial Sector (LE Bn)	22	27	32	35	45	77	130	229
Foreign Direct Investment (LE Bn)	8	9	11	13	14.1	16	20	27
Domestic Private Sector Investment (LE Bn)	10	12	17	17	24.3	53	104	191
Direct Jobs Created (In Thousands)	185	223	268	294	377	642	1084	1911

Source: Egypt Industrial Development Strategy, MOTI

Based on these projections, the MOTI recognizes that substantial demand for industrial workers will need to be satisfied in terms of quality as well as quantity. In fact, it emphasizes the increase of “medium and high-skilled labor” in the pool of industrial workers as a mid-term target and intends to promote an industrial human resource development plan in collaboration with the private sector. In addition, it proposes the building of the “innovation-oriented society” as a long-term goal. Based on the recognition that the achievement of the long-term goal entails the innovation of the education system itself, it intends to provide support by using existing vocational training facilities and industrial technology centers and by enhancing the role of the Industrial Training Council (ITC), which was established in 2006.

The ITC was an organization established in July 2006, with mission to act as an independent entity to forecast medium- and long-term industrial needs of labor force, to develop specific human resource development plans, and to coordinate activities of service providers in the private and public sectors. At present, it is responsible for coordination and supervision of the MOTI’s human resource development programs, programs of TVET, SDP and FTTC, and National Skill Standard Program. ITC is expected to play a critical role in connection with the MOTI’s industrial human resource development programs.

While the MOTI formulates ambitious human resource development policies, it intends to scale down financial assistance (subsidy) in the human resource development area, which was actively deployed as part of programs implemented by the Industrial Modernization Center (IMC) which will be discussed in detail later (refer to 3-2-2(3)). Instead, it seems to focus on the development of the environment to facilitate implementation of programs that are accessible to private companies, such as the enhancement of service providers relating to human resource development. Also, it has been decided to introduce a national skills certification system to ensure effectiveness of industrial human resource development, which is in the implementation process (Fig.3-1-1).



Source: Egypt Industrial Development Strategy, MOTI

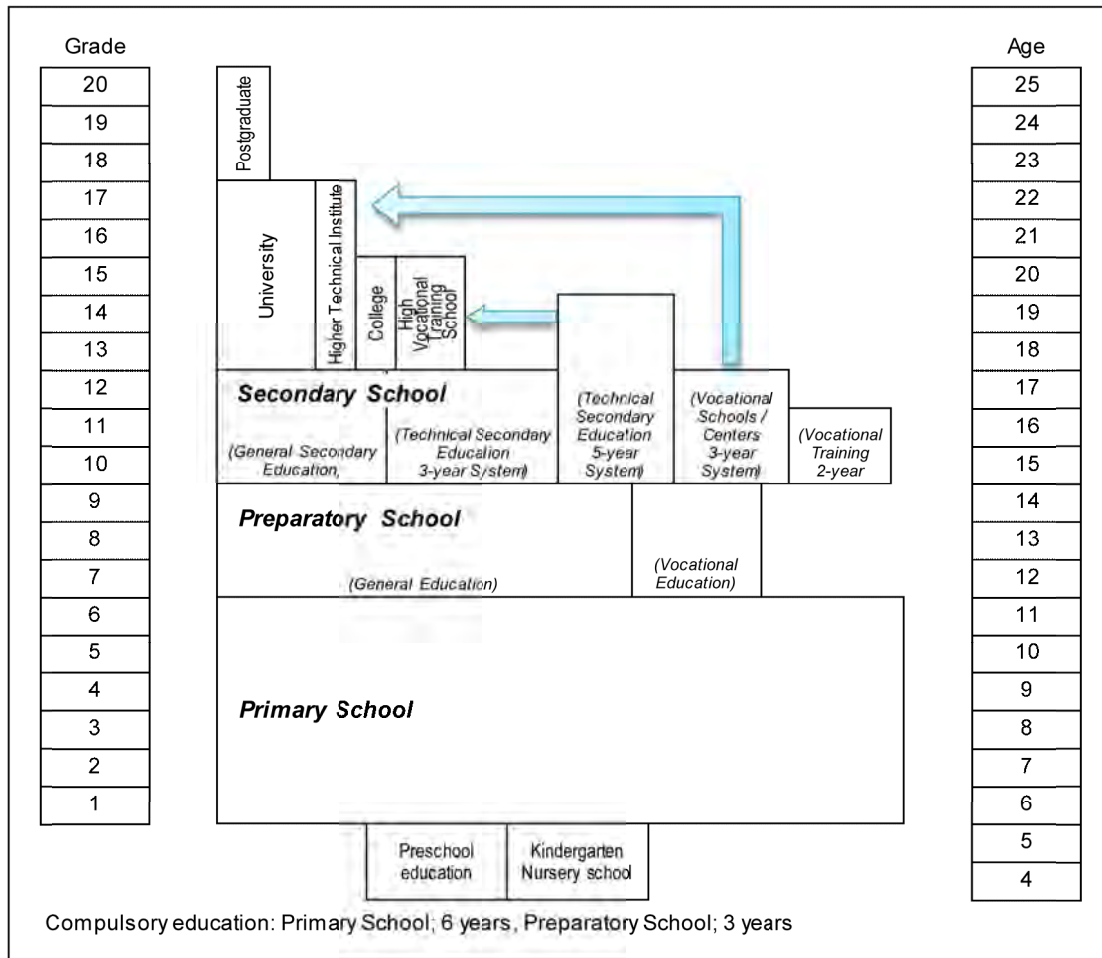
Fig.3-1-1 New Industrial Human Resource Training System of MOTI

3.1.2 Industrial Human Resource Development in the Formal Education System

(1) Education system in Egypt

As shown in the long-term socioeconomic development vision and the sixth five-year development plan, the Egyptian government has recently been giving priority in budget allocation to the education sector under the recognition that education-driven human resource development will lead to economic development and social stability. In fact, this policy shift was started in the early 1990s when “National Project for Education” was initiated by President Mubarak to promote enrollment in primary education. In particular, allocation to the education sector as percentage of the total government budget soared from 12% to 19% between 1992 and 1997, as opposed to the general declining trend in other budget items.

Although the percentage share remains at around 15% after 2000, financial assistance from donor organizations directing the education sector increases steadily², keeping a substantial inflow of fund to the sector. At the same time, however, some criticize that the present system providing education from primary to higher education levels with free of charge or no cost (in the case of public schools) has deteriorated the country’s general educational levels, raising a question about quality of public education in the context of effectiveness of resource allocation.



Source: MOE

Fig.3-1-2 Educational System in Egypt

In Egypt, the formal education system consists of three stages totaling 12 years, namely primary (6 years), preparatory (3 years), and secondary (3 years). Preparatory and secondary levels constitute middle education, and each stage is further divided into general and vocational education. As the starting age of primary education was advanced by one year in

² For instance, the World Bank has been implementing four education-related projects since 1993, with the total value being US\$500 million.

2005, primary education covers ages between 6 and 11 years old, preparatory between 12 and 14, and secondary between 15 and 17 (Fig.3-1-2). Primary education and preparatory education are compulsory and are referred to as the basic education stage. The enrollment in each education level in 2006 was approximately 9.2 million for primary education (totaling 6 years), 4 million for preparatory (3 years), and 2 million for secondary (3 years). As for higher education, there are 18 public universities, 17 private universities, with the total enrollment of around 2 million students.

Furthermore, the sixth five-year plan envisages a substantial increase in enrollment at each educational level and includes plans to build or expand facilities. In particular, preparation and secondary education including vocational training schools seems to be emphasized. The enrollment rate in the first year of primary education is estimated at around 98%, and the ratio of students who go to preparatory school is 82% and that for secondary education 70%. Actually, however, significant dropouts seem to occur in each stage and actual enrollment rates are presumably lower. In any case, these figures (even using conservative estimates considering dropouts) are reported to relatively high among countries in the Middle East, North Africa, and middle income countries in South America and Asia³.

(2) Vocational education and industrial human resource development

As “National Project for Education” has substantially achieved the objective of providing equal opportunity for primary education, the government moved to the next stage in the late 1990s by focusing on the improvement of quality of middle education, particularly enhancement of technical education. Preparatory and Secondary education in Egypt includes vocational and technical education, and students of vocational training institutes and technical schools (agriculture, commerce, and industry) are said to account for 5% for total enrollment in preparation education and 60% in secondary education. Enhancement of technical education in the middle education level, as envisioned by the government, seems to aim for the reinforcement of efforts to increase employment opportunities for young people. In this context, various educational curriculums emphasizing practical training (combining classroom lecture and shop floor training) have been implemented under assistance of various donor organizations, such as Secondary Education Enhancement Project (SEEP) by the World Bank and the EU, Mubarak-Kohl Initiative (MKI) by the German government, and TVET Project by EU. Despite such efforts, however, industry still criticizes that the present human resource development programs do not meet the needs of industry that employs graduates of vocational training institutes and technical schools. Such criticism is centered on quality of education. It is pointed out that persons who have received education and training in the current system are lacking not only knowledge and skills that are demanded by industry but also a desirable attitude toward work, such as the will to work or comply with

³ “Education Sector Review in Egypt, Progress and Priorities for the Future”, The World Bank 2006.

work rules, discipline. This implies that efforts should be made to redefine the positioning (role) of vocational training in the formal education system.

3.1.3 Current state of TVET-related support by major donor organizations

The current state of support projects implemented by major donor organizations in relation to Egypt's TVET program is summarized as follows.

(1) Japan International Cooperation Agency (JICA)

JICA is carrying out the following projects in the field of human resource development in Egypt.

1) Technical Cooperation for the Productivity and Quality Improvement Center (PQIC)

PQIC was established under the MOTI in April 2006 as a Technology Center specialized in productivity and quality maintenance and improvement. JICA has been providing continuous technical assistance since its establishment. First of all, it provided start-up support by training 4 staff members in Japan (held twice, one month each), followed by sending of experts (Senior Volunteers) at intervals to transfer technology through field consulting service. Then, between October 2008 and April 2011, JICA provided assistance to help establish PQIC's management system by sending resident experts (1-2) and short-term ones (3-4 annually), receiving trainees (4 per year), and supplying a microbus, projectors, and other equipment.

2) Technical Cooperation for the Egyptian Export Promotion Center (EEPC)

JICA started technical assistance for the Egyptian Export Promotion Center (EEPC), under the MOTI, in November 2004 when EEPC was reorganized, by sending an adviser on export promotion policy for two years. It then conducted two assessment surveys and implemented a technical assistance project for 3 years between November 2006 and November 2009, consisting of the sending of experts (3 resident and 2 short-term ones (per year)), training in Japan (2 trainees per year), and provision of training equipment and materials.

At present, EEPC has 32 staff members and conducts various activities to promote exports by Egyptian companies, in cooperation of 14 industry-specific export councils. It has a strong desire to introduce an information service system operated by JETRO – “Trade Tie-up Promotion Program (TTPP)” – and requests the Japanese government for development support.

3) Technical Cooperation for the Foreign Trade and Training Center (FTTC)

FTTC is a NPO under EEPC's supervision and provides training service relating to international trade practice. The Ministry of Trade and Industry requires companies and individuals applying for export license to participate in FTTC's training program, for the purpose of preventing a trouble relating to international trade caused by new comers in the international trade business, which could adversely affect the Egyptian industry. JICA first provided technical assistance for FTTC in 2002 and afterwards by sending experts in relevant fields. The project entered Phase 2 (June 2005 – June 2008), during which JICA sent 2 resident experts and 11 short-term ones, receive 6 trainees, and supplied audiovisual equipment, PCs for laboratory use, and software programs. Technical assistance continues, including the sending of JICA experts up to June 2011.

FTTC offers training courses in a variety of fields relating to international trade. For instance, "Going for Export" (5-day course) is a mandatory course for persons who operate trade business in Egypt and has been attended by around 2,000 persons since the start in 2006. It is expected to attract more participants in consideration of potential needs in rural regions.

4) Technical Cooperation for Egypt-Japan University of Science and Technology (E-JUST)

The Egyptian government has announced policy to promote postgraduate education and academic research activity as part of efforts to reform the higher education system. It has requested the Japanese government to provide support for foundation a university by utilizing Japan's expertise and experience in industrial human resource development as well as promotion of science and technology. Egypt-Japan University of Science and Technology (E-JUST) was established in Borg El Arab, located in the suburbs of Alexandria, and started to offer 3 courses (telecommunications, mechatronics/robotics, and energy res

source engineering) in 2010. It is planned to have 7 courses including computer science. The university features small class education in the latest scientific and engineering fields. It sets an ultimate goal of becoming a world-class university. JICA started a technical assistance project for E-JUST in October 2008, which is conducted in cooperation of leading universities in Japan (for course design and management) until October 2013.

(2) Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)

1) Mubarak-Kohl Initiative (MKI)

The project was launched in 1995 with an aim to promote a dual education system (combining lecture and practical training) in TVET programs – especially in TSS's courses – by introducing field training at companies. Its first phase was conducted between 1996 and 2007 by supplying training equipment and conducting training for school teachers in 4 provinces, targeting the age group of 15-16 years. Then, the project was scaled down to system development and technical advice. It was restarted in July 2007 as a new project by

extending the target age group to 14 – 29 years old and including promotion of women's employment. The MKI project was officially completed in 2010. As GIZ intends to continue it, however, the project will be restarted under a new name "Egyptian Promoting Program (EPP)" as soon as an agreement is reached with the Egyptian government.

The MKI is well known in the industrial circles and has been implemented by many companies in large cities, including Cairo and Alexandria, most of which are mid-sized or large enterprises that are capable of accommodating students. While some companies have a negative view on the MKI program on account of burdens to accept and train unskilled workers, many seem to feel the program's advantage that they are allowed to select and hire competent workers through the training process. In fact, there is a large difference in the rate of hiring students after the graduation from TSS or VTC between companies, i.e., some companies hire almost all trainee students who want to work with them, whereas others do not intend to hire trainees after graduation. Notably, practical training at host companies is basically conducted in the form of OJT, so that trainees can only learn skills relating to a host company's equipment and production line and thus they will unlikely be able to use them to their own advantage if the host company hires them. Despite such disadvantage, however, the dual education system under the MKI program is said to be highly valuable in that it allows young people to acquire practical skills by making up of deficiency in quality of education provided by vocational training institutes.

(3) World Bank

1) Skills Development Project (SDP)

SDP is a subsidy program to support in-house employee training by individual companies, which is operated under the World Bank's financial assistance. In terms of industry type, an emphasis is placed on selected subsectors, namely, metal, wood and furniture, textile, chemical, plastics, food, construction, and tourism. SDP's operation is funded by the World Bank (US\$5.5 million), the Egyptian government (US\$6 million), and recipient companies (US\$1 million), totaling US\$12.5 million. The \$5.5 million fund from the World Bank is provided in the form of a U.S. dollar-based loan that is to be repaid over 17 years (including a grace period of 5 years). Partially funded by the loan, the program is designed to provide subsidy to companies. Originally, it was implemented between 2004 and June 2008, but because of some delay in progress, the implementation period has been extended to June 2011. Companies having 10 – 500 full-time employees are eligible for subsidy to cover 90% of the costs relating to production management training for technicians and workers, while each company bears the remaining 10%. SDP shares with the Reform of TVET System project (discussed later) the same goal of developing human resources demanded by industries.

SDP's major activities include: (1) to hold seminars for managers to improve their recognition on the need for human resource development; (2) to send technical experts upon the company's request and provide OJT training on the shop floor (implemented at each recipient company or at Technology Centre, depending on the type of training required); and (3) to conduct study to assess the human resource development needs of the recipient company. To this date, approximately 300 companies have conducted training under SDP, covering as much as 10,000 workers. They represent the country's major industries, but major requests come from metal and metalworking, textile and garment, and food.

SDP receives a fairly good reputation among companies that have used it for their employee training, partly because of the high subsidy ratio (90%). Also, as SDP's scheme does not include consulting service, so that training is generally conducted according to each company's needs and wants, resulting in a high level of satisfaction, while effectiveness is not always assured. Training results thus seem to depend on a service provider who is selected for each company. The study team has heard no complaint partly due to a low financial burden.

(4) European Union (EU)

1) Reform of Technical and Vocational Education and Training (TVET) System Project

The project is being implemented between July 2005 and September 2012, jointly by the EU and the Egyptian government (represented by the MOTI). Its primary purpose is to conduct general view on TVET as a whole and implement improvement measures as necessary. For the manufacturing, construction and tourism industries, reinforcement plans have been developed and are being undertaken in addition to the improvement measures. The manufacturing industry covers 12 subsectors, for which the reform process is in the final stage. The project is operated under the total budget of 66 million, which are contributed equally by the EU and the Egyptian government. It is roughly divided into the following four areas:

- Analysis of gap between the actual industrial needs for human resources and the existing TVET curriculum
- Reviewing and upgrading/updating of training packages
- Revision of training syllabuses and textbooks
- Improvement of the management system of training institutes

As the project aims to establish the human resource development system that meets the actual industrial needs, which has been long desired in the country, it is considered to be the core of the TVET reform efforts in terms of project size and duration.

2) Industrial Modernization Program (IMP)

IMP was launched in 2002 for the purpose of providing support for companies and Technology Centers in relation to the strengthening of export competitiveness. It is modeled after a similar program in Tunisia under the same name, which was started in 1996 and achieved successful results. The organization in charge of program implementation in Egypt is Industrial Modernization Center (IMC), which was established under the MOTI in 2002. A company that applies for technical support under IMP is required to receive consultation including corporate diagnosis in order to design support activity in detail. IMP provides a variety of services including the sending of experts for export marketing, quality control and compliance with international standards, and human resource development at an outside training institute or by other means.

Generally speaking, IMP's service is concentrated on employee training and technical support, with specific content varying greatly among subsectors and individual companies. In addition to companies, IMC provides financial assistance (cost subsidy) for Technology Centers in relation to equipment purchase and technical cooperation with overseas technological organizations. In the area of corporate support programs, IMC bore 80% of the total cost up to June 2007, while recipient companies the remaining 20%. After July 2007, IMC's allotment ratio ranges between 60% and 80%, depending on an actual amount of cost. If it is determined from corporate diagnosis (conducted as part of the initial consulting service) that a company needs capital investment, IMP provides financial assistance to cover 10% of the total investment (or up to LE200,000 for local companies and LE100,000 otherwise). Its initial operating budget, totaling 426 million, is funded by the EU (250 million in grant), the Egyptian government (103 million), and the private sector in Egypt (73 million). The EU provides financial assistance only and IMC is entirely managed by local personnel.

Partly because of the high subsidy ratio of 80%, IMP is highly appraised by recipient companies. As discussed earlier, it makes efforts to maximize effectiveness by designing a support program according to each company's needs identified through consulting service prior to program implementation. However, an actual program effect varies according to the ability of the service provider and competence and attitude of each recipient company and its employees. There have been very successful cases and those with limited achievement. The service provider is selected for each recipient company through the bidding process, and the company may reject the lowest bid service provider and ask for rebidding. A service provider may be changed if mid-term evaluation ("impact assessment") is poor. A company visited by the study team has changed service providers three times before finding the one who can meet the needs. Depending upon the results of the impact assessment, program content may be modified or added. Thus, the system appears to reflect the intent to ensure that IMP becomes a flexible and effective program. On the other hand, there are a number

of cases when the program has failed to produce a sufficient effect because recipient companies were unable to understand the advice or proposal written in a document made by European service providers. These cases come from problems on both sides, i.e., the service provider lacks the ability to communicate with Egyptian companies and employees effectively, who in turn do not have knowledge, skills and/or enthusiasm to understand and carry out the service provider's advice or proposal properly.

A major complaint heard from recipient companies is a long waiting period for the start of the program, i.e., it takes at least a few months until a final decision is made. Some companies could not wait for IMC's decision, carried out a project at their own cost, and received partial subsidy later. However, the present waiting period appears to be necessary from the viewpoint of public support under which eligibility should be checked carefully. Another complaint is related to the lack of a loan program in relation to implementation of proposed projects, as pointed out by some companies.

3.2 Current State of Existing Programs Relating to Industrial Human Resource Development

3.2.1 Current State of TVET Organizations and Major Issues

In Egypt, vocational education and training is generally referred to as "technical and vocational education and training (TVET) program." TVET programs are roughly divided into technical and vocational education for persons who have completed primary or preparatory education and vocational training intended for workers. Technical secondary schools (TSSs) and vocational schools under jurisdiction of the MOE constitute the core element of the TVET system, whereas 17 ministries and agencies as well as their organizations are implementing their own TVET facilities or programs⁴. Their content (e.g., objective and certification method) varies among responsible organizations. While there is no organization to oversee and coordinate activities of TVET facilities/programs, the government is highly committed. In particular, it is vigorously involved in TVET programs designed for preparatory school graduates, for the purpose of promoting employment of young persons.

(1) MOE's TVET program

TSSs under the MOE's jurisdiction offer three- or five-year programs, which issue diplomas for graduates ("Technician" for the three-year program and "First Technician" for the five-year program). TSS graduates with upper grades may apply for higher education.

⁴ There are 931 vocational training schools under the name of TVET throughout the country and they have maximum enrollment capacity of 0.14 million annuarily.

In addition to TSSs, the MOE implements two TVET programs, namely preparatory vocational education (PVE) for 12 – 14 years old and secondary vocational education (SVE) for 15 – 17 years old. They also play the role of accommodating dropouts from compulsory education, especially PVE. While both systems constitute the formal education system under jurisdiction of the MOE, they differ from TSSs in that they do not issue diploma to graduates. The MOE's TVET programs are summarized in Table 3-2-1.

Table 3-2-1 TVET Programs by MOE

Type	Age	Finished Title	Characteristic
Technical Education			
3 Years Technical Secondary School (3-yr TSS)	15-17	Technical Diploma (Technician)	Three-year pre-employment secondary education in industrial, commercial and agriculture schools.
5 Years Technical Secondary School (5-yr TSS)	15-19	Technical Diploma (First Technician)	Five-year pre-employment education (three at secondary and two at post secondary levels) in industrial, commercial and agriculture schools.
Vocational Training			
Preparatory Vocational Education (PVE)	12-14	Preparatory Vocational Certificate	Begins after the sixth grade for three years mainly for students who fail general education. Specialties are limited to a few industrial and agriculture trades with emphasis on practical training
Secondary Vocational Education (SVE)	15-17	Secondary Vocational Certificate	An accessible stream for preparatory vocational graduate offering three-year education programs which are less demanding than TSS programs especially in mathematics, technical drawing and technology. Limited numbers of secondary vocational schools graduate have the opportunity to go on to higher education.

Source: "JBIC Study Report on TVET Projects in Egypt", Padeco Co., Ltd., June 2003

In addition, there are more than 900 vocational training facilities throughout the country, which are operated by other ministries and government organizations. Many of them provide short- and medium-term vocational training for government employees and/or conduct human resource development programs in respective fields (vocational training targeting tourism, construction industry, etc.). Compared to technical schools under the MOE, these facilities have a curriculum featuring a higher percentage of practical training. Each organization designs and decides its own curriculum and course content including field of specialization.

Technical education positioned at the higher education level is provided by higher technical institutes (under jurisdiction of the Ministry of Higher Education: MOHE) and universities.

(2) MOTI's TVET program

In recognition of the importance of vocational training for the manufacturing industry, the MOTI has Productivity and Vocational Training Department (PVTD) that operates its own training programs, which are conducted by Vocational Training Centers (VTCs) (three-year courses) and Technology Competency Centers (TCCs) (two-year courses). There are 52 centers in 41 locations throughout the country, which offer 12 courses industry/job type)⁵. VTCs generally admit persons who have completed preparatory education, and TCCs graduates of secondary schools. Students who have completed a VTC course receive diploma equivalent to that issued by TSSs. VTCs and TCCs also provide short-term courses for workers. Around 7,000 persons take up their courses each year, totaling around 21,000 (three-year courses).

A notable point (problem also) about VTCs is that they have not renewed most equipment since their opening, although they were founded on different times. Their equipment is mostly dilapidated due to aging, except for an automotive skill course that has been upgraded under financial assistance of the Korean government. On the other hand, TCCs focus on engineering and provide more advanced levels of training than VTCs do. As they have a standard set of training equipment that has mostly been furnished by the German government, they conduct practical training within their own facilities. Diploma issued to graduates of the TCC course is certified by the MOHE in cooperation of the German-Arabic Chamber of Commerce and Industry and is regarded higher than diploma issued by VTCs.

(3) Issues relating to the TVET program as a whole

Including those under the MOE and the MOTI, major issues commonly seen among vocational training organizations in Egypt are summarized as follows.

- 1) While many ministries and government organizations conduct TVET programs, there is a very weak relationship between them. As a result, few efforts are made to promote effective use of resources, such as the sharing of training equipment, despite the fact that vocational training organizations covering the same field are located in proximity.
- 2) Most vocational training organizations cannot provide training that meets the industrial needs. Major reasons for this include the aging or shortage of equipment, the lack of basic

⁵ Within the same site, more than centers covering different industries (e.g. textile and apparel, automotive repair, electrical/electronics, machining, printing, etc.) are accommodated.

training, insufficient teaching skills, and a curriculum that does not meet the labor market needs. Also, students do not understand knowledge taught in basic education.

- 3) Because of the shortage of training equipment, many training institutes entrust practical training to private companies, creating an undue burden.
- 4) Vocational training organizations do not have an outplacement service system and graduates have to find a job by themselves. While the introduction of the dual education system has increased collaboration with companies, only a limited number of students can find full-time employment with companies that have provided training for them.

Despite these problems, the country's TVET system clearly contributes to job creation, especially the improvement of the unemployment problem among young people. A common challenge for vocational training organizations is to supply human resources that meet the actual needs of industries. This should be accomplished by shifting the present supply-driven system to the demand-driven one. It is important to realize that the present system supplies labor force in a quantitative term, which does not necessarily help improve quality and competitiveness for industries and companies.

3.2.2 Current State of Public Technical Support Centers and Major Issues

While vocational training in the country is primarily designed to train factory line workers. This type of technical training is also supported by technology centers under the MOTI and private/public service providers. This section discusses the current state of public technical support organizations. Note that their primary responsibility is not human resource development, but they implement human resource development-related technical support projects in specific fields.

(1) Technology centers

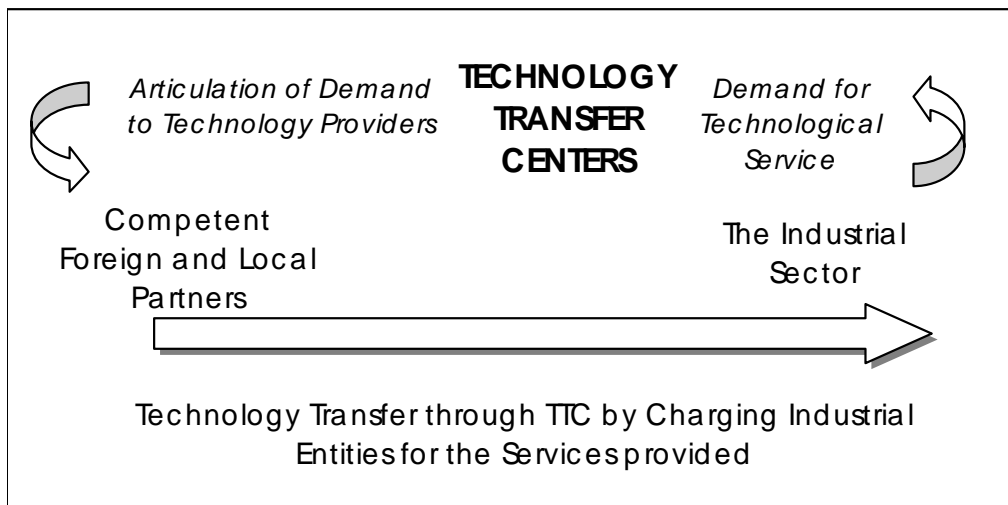
Under the MOTI, there are nine Technology Transfer Centers (TTCs) covering the following fields.

- Plastic Technology Center
- Food Technology Center
- Engineering Industries Technology Center
- Marble and Quarries Technology Center
- Textile and Clothing Business Center
- Fashion and Design Center
- Leather and Tanning Technology Center
- Furniture Technology Center

- Jewelry Technology Center

The TTCs were established by the Egyptian government and are operated under assistance of foreign organizations in respective fields of specialization. For instance, Plastic Technology Center in Alexandria was originally established in 1980 but failed to become functional due to the lack of equipment or skills until 2004. It began to receive technical assistance from Italian Plastic and Rubber Manufacturers Association. After three years of support, the center now provides full-fledged service.

Services expected for TTCs are: (1) technical consulting service for companies; (2) holding of technical seminars and training programs; (3) product inspection (certification); and (4) collection and provision of technical information. Thus, they are positioned as provider of technical support service that is carried out in collaboration with foreign organizations and can meet the industry needs. (See Fig.3-2-1.) In addition to the above TTCs, there are plans to establish new TTCs for chemical, metallurgical, building materials, mining, cinema, pharmaceuticals, cosmetics and information technology industries.



Source: Egypt Industrial Development Strategy, MOTI

Fig.3-2-1 The Technology Transfer System

(2) Productivity and Quality Improvement Center (PQIC)

PQIC was established in 2006 as an organization under the MOTI to provide technical support in various areas of technology (production management, business administration, etc.) that are essential in improving competitiveness of the Egyptian industry. It was started with four staff members and employed five in July 2007, totaling nine at present. However, further hiring is not progressed as planned and no managing director has been appointed. PQIC consists of four departments, namely administration, and consulting in the areas of quality control, production management, and corporate management. For the time being, it

intends to build up a service delivery system for quality control and production management departments. PQIC's organization is midstream of firm up now. At present, PQIC conducts seminars, training courses, workshops, factory diagnosis, and consulting services on a limited basis, and it plans to deploy full-scale activities as soon as it is fully equipped. Activity record up to the end of December 2010 is listed in Table 3-2-2.

Table 3-2-2 PQIC's Program Record (September 2006 – December 2010)

Activities	Results
a) Seminar	<u>6 times, 216 participants from 122 companies</u> [2006] "What is Customer Satisfaction?", "What is Quality Control?", "QC 7 tools", "Productivity Measurement", "What is KAIZEN?", "5S", "What is QCC?", [2007] "Concept of IE", "Concept of JIT & IE", Concept of TPM", "Concept of TQM"
b) Training on QC 7 tools	<u>5 time, 88 participants from 31 companies</u>
c) Workshop to conduct QC Circle	<u>4 times, 84 participants from 39 companies</u>
d) Diagnosis & Consultation	<u>Diagnosis: total 19 companies</u> (9 companies in 2006, 10 companies in 10 companies) * Subjects: "Defects", "5S", "Management", "Line Balance", "Productivity (production process)", Breakdown", "Discipline", etc <u>Consultation: total 6 companies</u> Subjects: "QC (Zero Defect) ", "TPM", "JIT", "QCC", "5S", "IE", "QC tools"

PQIC's activities basically consist of seminars to disseminate contents of services (mainly targeting managers and owners) and training courses to teach a specific subject in more detail. Then, it conducts factory diagnosis and makes an improvement proposal upon the request from a company that has participated in the course. Upon agreement with the company, PQIC provides consulting service. It has signed a consulting agreement with more than 9 companies.

(3) Industrial Modernization Center (IMC)

Industrial Modernization Center (IMC) was successfully born out of the Industrial Modernization Program (IMP) as a sustainable industrial development agency, supporting all Egyptian industrial enterprises to competitively be placed in global markets. IMC embraces a new approach that establishes a solid partnership between all stakeholders to position the industrial sector as the chief engine for national economic growth, job creation, and export expansion. IMC generally supports enterprises with ten workers or more, leaving microenterprises to the Social Fund for Development. Of around 24,800 companies that are

registered with the Federation of Egyptian Industries (FEI), 10,319 companies (41.6%) have ten or more full-time employees and are eligible for the IMP⁶.

IMC implements IMP by using the fund of 426 million allocated as the original budget. As the EU's support has ended, which ITC was established in July 2006 as an organization responsible for human resource development programs, it conducts its own activities within the Egypt Industrial Federation building.

3.2.3 A formal certification system for professional skills

(1) Certification upon completion of formal education at different levels

In Egypt, vocational education courses start at the secondary education levels (divided into preparatory and secondary schools) or at the age of 12. Of total, students in vocational education courses account for 5% at the preparatory level and 60% at the secondary level. Thus, the number of students, who intend to acquire skills for the benefit of job seeking, increases significantly at the start of secondary education. After completion of the vocational education courses at the preparatory and secondary levels, referred to as "Preparatory Vocational Education (PVE)" and "Secondary Vocational Education (SVE)," respectively, students can enter Technical Secondary School (TSS) to learn more advanced knowledge and skills. TSSs offer 3-year and 5-year courses. In comparison to the PVE and SVE schools that issue a certificate of completion to their graduates, each TSS issues Technical Diploma (Technician) for students who have completed the three-year course and Technical Diploma (First Technician). The holders of these diplomas are deemed to have a certain level of knowledge and skills in a specific field and are distinguished from those with the PVE or SVE certificate.

The above courses constitute the formal vocational training system operated by the MOE. In addition, there are a variety of TVET courses offered by other ministries including the MOTI, many of which provide training for persons who have completed primary education only. They are usually intended for persons who did not enter or have dropped out a formal preparatory school, enabling them to learn skills and find job at the age of around 15. (Their duration varies greatly among organizations and courses.) The TVET system operated by the MOTI offers two- and three-year courses. Students who have completed the three-year course can receive a diploma that is equivalent to Technical Diploma (Technician) given by TSS, although the latter is generally considered to be superior over the former because it is certified by the Ministry of Higher Education.

⁶ SFD targets company having less than ten full-time employees as eligible member. However, a company who are dissatisfied with the rule may be eligible in some cases.

Finally, more advanced educational institutions – colleges, universities and graduate schools – issue respective certificates to their graduates.

(2) A formal skills certification system

Industries often complain about TVET graduates that some fail to achieve skill levels required by industries or they vary greatly in competence or skill. In response, the TVET system reviews and revises their curriculum and educational method (e.g., introduction of the dual system). In addition, the national skill standards system is being developed under ITC's leadership as an effective means to measure skill levels of individual students in an objective manner. National Skill Standard Program (NSSP) is in the final stage of development in cooperation of the private sector. Specific job categories to be covered by NSSP have been selected and draft standards have been developed. Since December 2009, the training of trainers is carried out for selected TVET organizations. According to ITC, a total of 868 skills standards have been established for 148 job categories. It is planned to set skill levels by five stages, and the lowest three stages have so far been established and the final goal of five stages is expected to achieve in the near future.

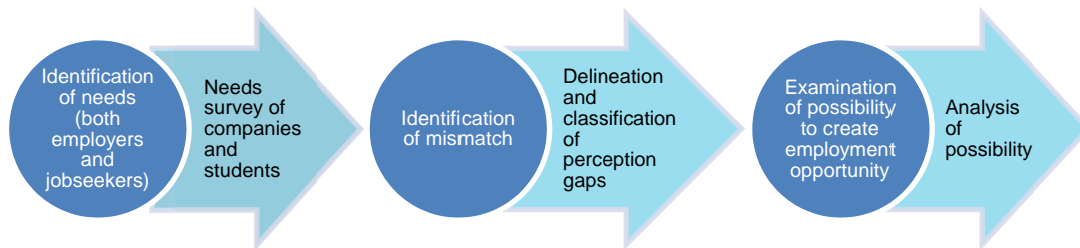
While skills standards have been established and the training of trainers has already started, actual certification has still to be launched for any skill. It is currently planned to designate 14 out of 46 PVTDS as certification test sites to issue Level-1 or 2 certification to persons who have completed training and have passed the test. Nevertheless, preparation of the test sites (including resources to administrate the test) is still under planning, and in light of the lack of experience by ITC and other organizations, it is imperative to secure assistance by foreign experts.

At present, assessment of professional skills in many job categories, including those required on the shop floor, is rarely carried out according to unified procedures or standards. Auto mechanics is one of them and the study team has heard various industries and organizations point out the need to establish a formal certification system for the profession. In Egypt, a large number of motor vehicles on the road are more than 10 years old. They are poorly maintained and the study team has seen many cars break down in both urban and rural areas. On the other hand, there is no formal training course for auto mechanics. People currently engaged in automobile maintenance and repair service have been trained by automakers (some do as part of dealership support) or are self-taught (e.g., obtaining related skills by working in other field or based on personal interest). Thus, there is no systematic effort to train mechanics despite of strong demand. From the viewpoint of job creation, a formal training and certification system needs to be established urgently.

3.3 Attitude Survey of University Students and Companies Relating to Job Seeking and Employment

3.3.1 Objective and Scope

The primary objective of the attitude survey is illustrated below in the context of the problem identification and solving process.



Source: JICA Study Team

Fig.3-3-1 Purpose of Attitude Survey in the Context of the Problem Solving Process

Under the Study, attitude survey in relation to job seeking and employment has been conducted for third-year and higher students of universities and companies. Survey population was rather limited in order to allow adequate quantitative analysis within a relatively limited period of time. Also, the survey was conducted in Cairo and Alexandria only where labor demand for people with high educational background is mainly seen. Note that it was conducted by a local company under the contract with the study team by using an interview format on the basis of a questionnaire prepared by the study team.

The analysis of the attitude survey and the subsequent process are outlined as follows. First of all, responses to the questionnaire survey are analyzed to understand as to what companies and new graduates (job seekers) think and feel about job seeking and recruitment (see the actual questionnaires used for the purpose, as presented in Annex). Then, comparative analysis is conducted to identify differences (mismatch) between expectations and realities in the context of opinions expressed by both sides, and to characterize them as far as possible. Finally, factors for causing such mismatch, together with possible measures to mitigate or eliminate them, are examined in an attempt to find possibility (frontier) to create employment opportunity.

3.3.2 Analysis of Survey Results (Attitude Survey of New University Graduates)

(1) General profiles of respondents

Survey respondents consisted of 117 male students (58.5%) and 83 female students (41.5%). As for age distribution, 21 years accounted for 22.2%, 20 years 21.2%, and 19

years 17.2%.

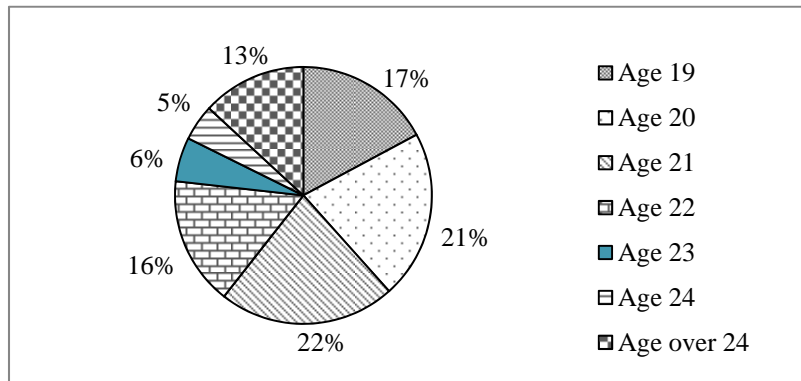


Fig.3-3-2 Age Distribution of Survey Respondents

Respondents of 24 years and older are included because Egyptian universities have engineering courses that require five-year study and medical courses (six-year study). (Also, medical students do not often practice as physician because of working conditions.)

(2) Desired career after graduation

As for the question on a desired post-graduation career, 151 out of 200 respondents (76%) wanted “get job,” followed by “next stage of education” (20%) and “start own business” (4%) (Fig.3-3-3). This result does not agree with the opinion often heard from companies that responded to the study team’s interview, i.e., a significant number of students go to university for the sole purpose of obtaining the social status of university graduate, rather than acquiring advanced knowledge and skills for their career development (Fig.3-3.5).

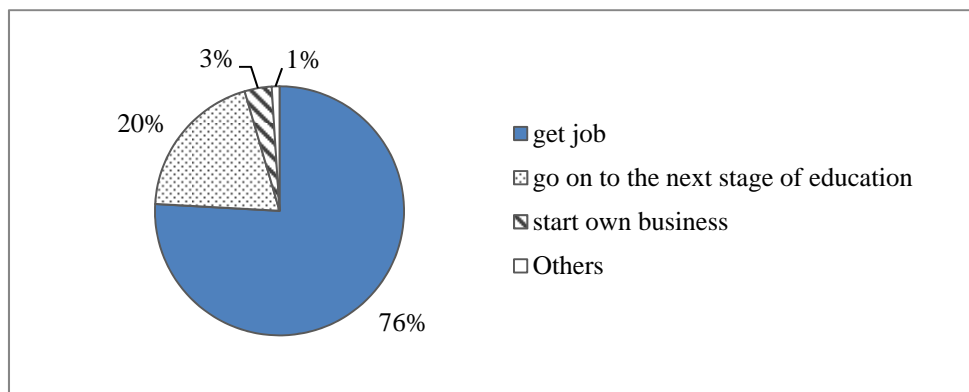


Fig.3-3-3 Desired Career after Graduation

(3) Job seeking activity and desired job type

The most popular job seeking method is the searching through the Internet (28%), followed by information from family (25%), and information from friend (21%). (see

Fig.3-3-4) The three items account for a combined share of over 70%. On the other hand, schools, recruitment firms and public service are not widely used in the country. The percentage distribution generally accords with companies' opinions heard during the study team's interview.

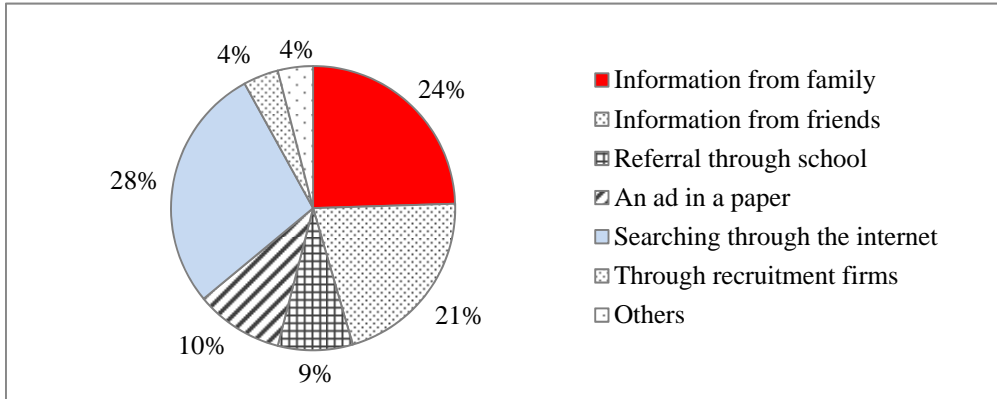


Fig.3-3-4 Job Seeking Method

As for frequency of job application, a dominant percentage of respondents (70%) made none, followed by one application (10%). (Fig.3-3-5) Also, 69% did not start job seeking (Fig.3.3-6). The responses indicate the lack of enthusiasm about job seeking while they are in school. Instead, many intend to do job search after graduation. While the idea of giving priority to study is generally respectable, it is also viewed as a nonchalant attitude that does not have much thought about a difficult job market condition in the country.

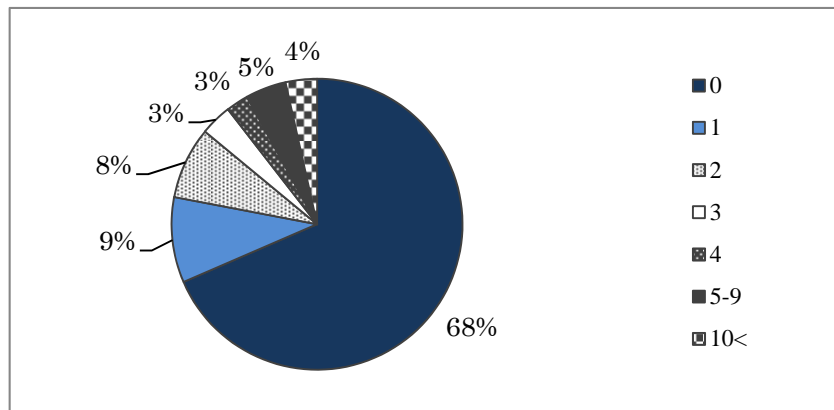


Fig.3-3-5 Frequency of Job Application

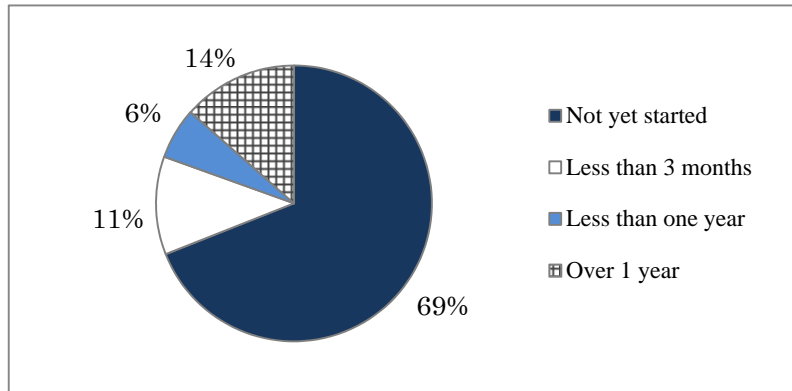


Fig.3-3-6 Time to Start Job Seeking Activity

Desired job types vary greatly according to respondents' areas of specialty (Fig.3-3.3). Detailed analysis of the most frequent cited answer "others" (62 respondents - 31%) indicates that all of the respondents wish to become specialists in specific fields, such as medicine, chemistry, law, and education. In fact, the job types specified under the category generally agree with academic specialties of respective students (Fig.3-3-7). Also, the response pattern does not show any sign of the trend that graduates of national universities are favored in finding a job with government. This partly reflects a rapid decrease in the number of government officers to be employed each year. At the same time, it may represent a change in students' attitude to prefer a government employee because of job security.

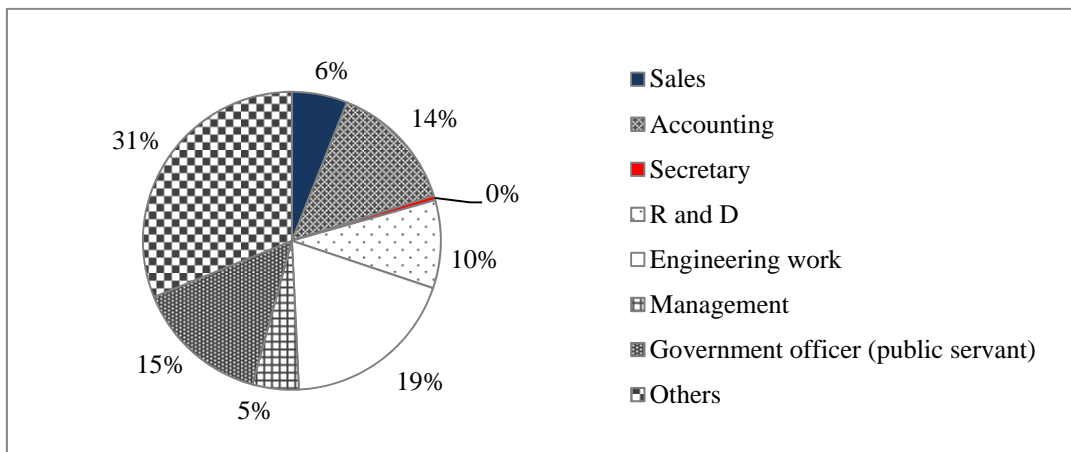


Fig.3-3-7 Desired Job Types

83% of respondents become regular employees. This indicates that most of students want to find a desirable job with the regular employee status⁷.

⁷ In Egypt, few employees work under the life-time contract. Regular employment means the labor contract that pays salary regularly (monthly), regardless of whether it is renewed annually or continues for an unspecified period of time.

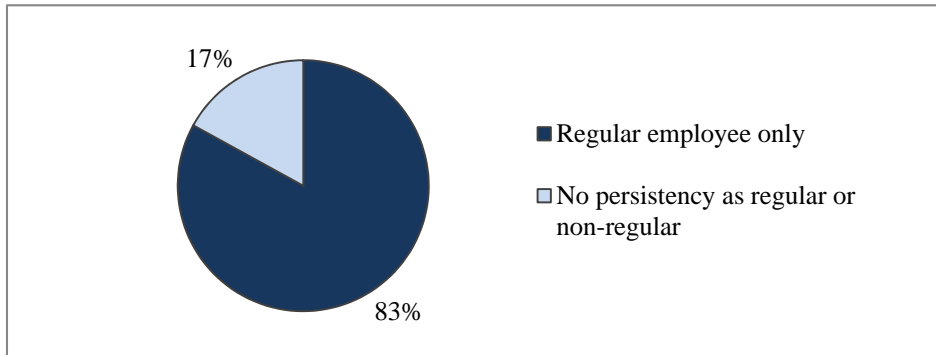


Fig.3-3-8 Desired Employment Status

The highest percentage of respondents (63.5%) cited “to apply own abilities and individuality” as the determining factor for employment decision, suggesting that many students are eager to apply knowledge and skills learned from higher education. In contrast, as companies prefer persons with work experience (as confirmed from the interview survey of selected companies) and consider new graduates to lack practical skill and experience, resulting in the situation that many students face difficulty in finding a desired type of job. Then, 26.5% of respondents cited high salary. As the survey results do not tell as to how high the salary should be, it is hard to tell whether or not their expectation for high salary is realistic. In any case, this can work as an obstacle to job landing in consideration of the fact that Egyptian companies generally prefer an annual contract for the purpose of restraining an annual salary rise or payment of a special allowance based on work experience.

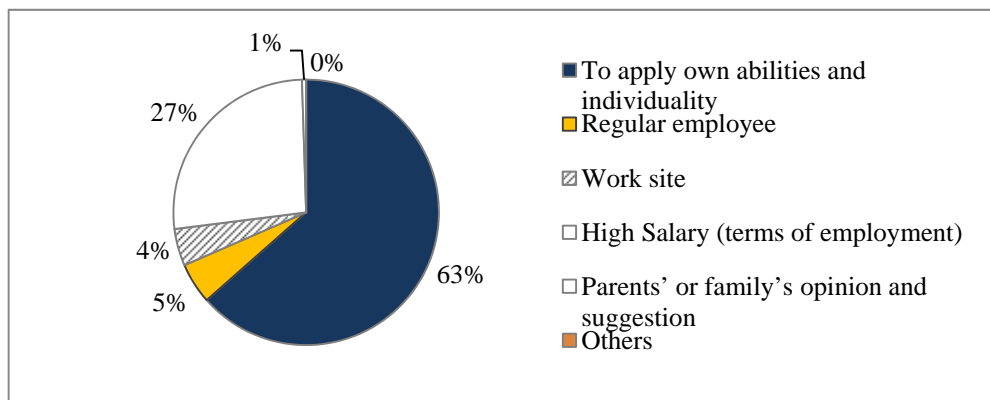


Fig.3-3-9 Priority Factor for Employment

(4) Selection criteria

The highest percentage of respondents cited “lack of recommendation” as a reason for rejection of a job application by companies, accounting for 50% of the total (Fig.3-3-10). This represents a hiring method unique to Egypt, under which a priority factor considered by

companies is a letter of recommendation, rather than the applicant’s ability or aptitude. In fact, a letter of recommendation is virtually a qualification for job application. Many companies point out that they need it because there are few means to evaluate the applicant’s competence in an objective manner. Then, the second largest response was “lack of qualification requirement (28% of the total).” This seems to reflect that the fact that there are often the cases when a large number of unqualified persons (without required skill or experience) apply for a job offer (probably because of high salary).

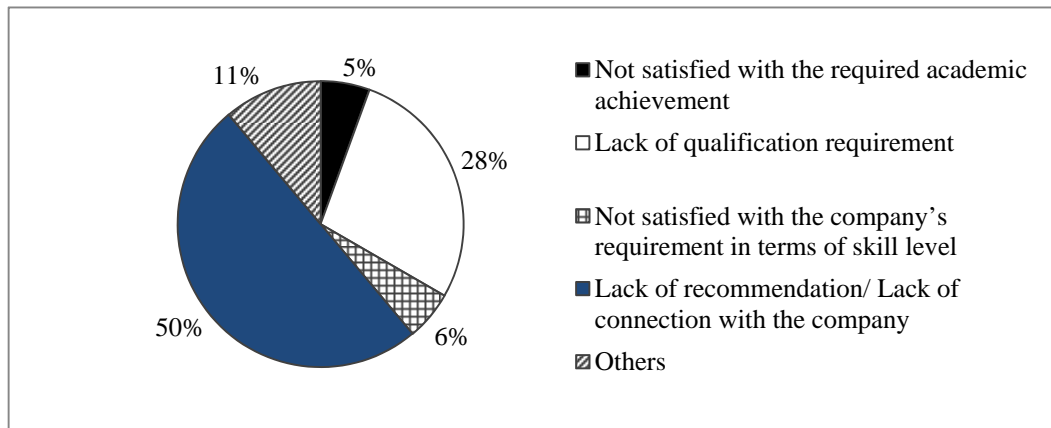


Fig.3-3-10 Major Reasons for Rejection of Job Application (Overall)

The reasons are distributed similarly for both science/engineering and liber arts students (Figures 3-3-11 and 12).

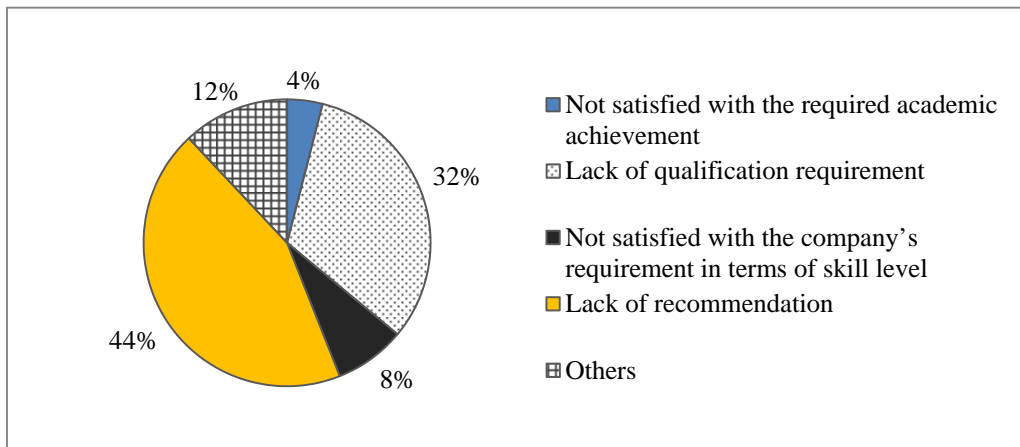


Fig.3-3-11 Major Reasons for Rejection of Job Application (Science/Engineering Majors)

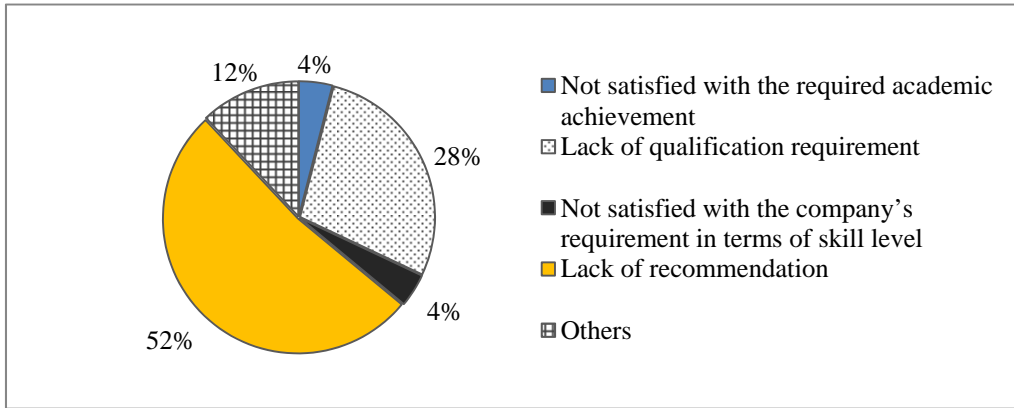


Fig.3-3-12 Major Reasons for Rejection of Job Application (Liber Arts Majors)

(5) Reason for resignation

Respondents who have resigned their job were asked to cite a reason(s). (Fig.3-3-13) While the sample size is fairly small, it is expected to provide some information relating to attitude or awareness of young people in Egypt about employment. The most frequently cited reason is “poor salary,” accounting for 38% of the total, followed by a human relationship problem in the workplace 29%. The two reasons hold a combined share of nearly 70%. In particular, “poor salary” accords with the fact that many students select a job on account of high salary.

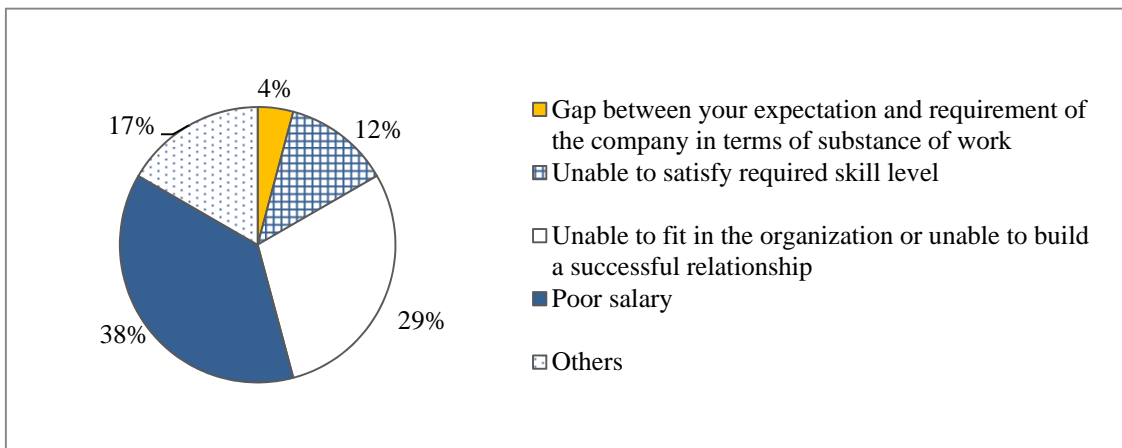


Fig.3-3-13 Reason for Resignation

(6) Expectation for employment support by public organizations

In Egypt, job placement support service by public organizations is mainly provided in the form of Job Fair, which is not held very frequently. This is probably a major reason why three fourths of respondents do not recognize the presence of support programs (Fig.3-3-14).

Also, some of respondents who feel “no chance to use them” may say so without specific knowledge.

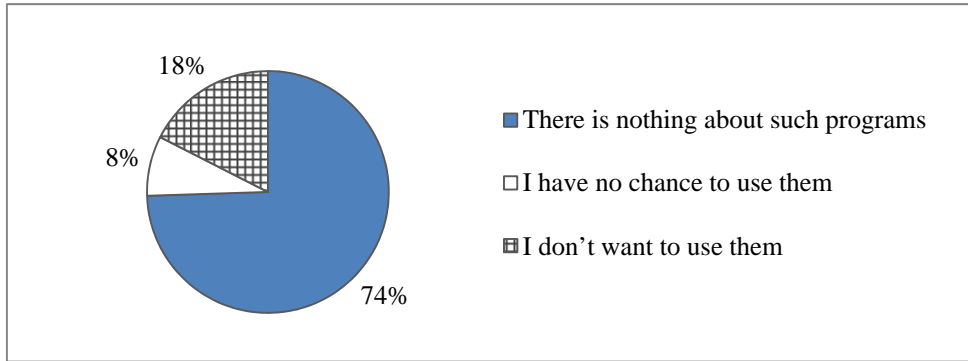


Fig.3-3-14 Expectation for Job Assistance by Public Organizations

The result indicates that students feel insufficient knowledge and skills learned at university as the largest obstacle for them to find an adequate job, followed by “mass education system” and “lack of the job assistance system.” (Fig.3-3-15) As the “mass education system” is unable to teach each student according to his or her level of understanding and progress, the two items showing the highest and second highest response rates (i.e., insufficient skills and mass education) point to a common problem relating to university education. On the other hand, the problem relating to the qualification system accounts for 16.5%. This means that some students feel that their competence is not accurately appraised, and that, if a proper qualification system is in place, their job applications will be treated in a fair manner to reflect their true ability.

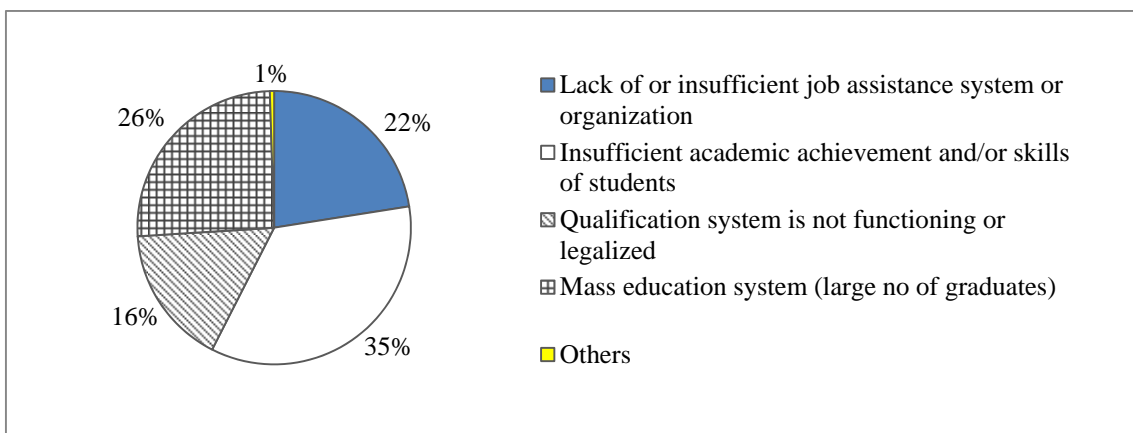


Fig.3-3-15 Major Factors for Employment Problems

3.3.3 Major Findings from the Survey Results and Analysis

Major findings from the questionnaire survey in relation to job seeking activities by new university graduates and the job market environment are summarized as follows.

(1) General attitude of university students relating to employment

The study team has often heard from companies and other industry sources that many students in Egypt go to university for the sole purpose of obtaining the social status of university graduate. However, the survey results have confirmed a more positive attitude. At the same time, they do not seem to take job seeking activity seriously. The survey responses depict that they are not enthusiastic about job hunting before graduation, despite the fact that young people with higher education face difficulty in finding a job, which becomes a major social concern. Also, few students participate in the internship program, which is mostly promoted by private universities.

(2) Problems relating to mass education

The rapid increase in enrollment at higher educational institutions, triggered by the elimination of tuitions, has resulted in “mass education” and deterioration of quality of education. In fact, survey responses suggest that some students recognize insufficient knowledge and skills upon graduation. At the same time, university graduates give priority to high salary, while wanting a job relating to their respective area of specialization, thereby reducing employment opportunity. The employment rate of new graduates deteriorates further as companies do not view them as a highly valuable workforce due to the above reasons (e.g., lack of practical skills).

(3) Lack of the qualification system

While mass education affects quality of university education adversely, there are a great number of students who study seriously and strive to acquire practical skills. Unfortunately, there is no formal system to appraise and certify their knowledge and skills.

In Egypt, while the majority of large corporations hire people through examination and interview, SMEs still attach great importance to the letter of recommendation or a personal connection. As a result, a sizable number of university graduates cannot meet qualification despite of competence or skill. Furthermore, most universities do not issue a transcript to certify each graduate’s academic achievement, making it difficult for potential employers to make selection according thereto. Thus, the administrative problem on the university side prevents talented people from being discovered by companies.

Under these circumstances, objective assessment of knowledge and skills is expected to provide good incentive for students to study hard and acquire practical skills in society. In

other words, the lack of the qualification system that recognize and certify learned abilities and skills is considered to a factor for causing companies to retain the old hiring practice relying on personal connection, while losing a chance of employing truly qualified persons.

(4) Lack of a reliable public job placement system

In Cairo, there are said to be over 100 recruitment firms of varying sizes, with which job seekers can be registered with free of charge. In practice, however, because companies hire persons with work experience through recruitment firms in most cases, few firms recommend new graduates to employers.

On the other hand, there is a Web site based employment support system that provides matching service for job seekers and companies by using a dedicated software program. It provides service for the entire Middle East region and is widely used as an effective information source by people with work experience, who look for managerial and professional jobs. As a result, it demands various qualifications that are difficult to be met by new graduates.

The Ministry of Manpower and Emigration has launched a system to accept job offers from the region and provide support for Egyptians who want to work overseas. But it does not seem to meet the needs of new graduates partly because it is not widely recognized and partly because it handles job offers for engineers and skilled workers.

Thus, if a public job matching system is established to introduce job seekers to companies after guidance service (including assessment of aptitude), it will likely contribute to expansion of employment opportunity. At present, various ministries are conducting TVET programs, which can be effectively linked with university education to provide support in relation to the training of business tools and skills, in order to help achieve the above goal. Unfortunately, little efforts are made in that direction. It should be noted, however, that the proposed job matching system cannot function well unless a proper qualification system to assess each person's ability is concurrently developed, for the latter maximizes the value of the former to employers by serving as a powerful tool to find a right person with a right skill from a long list of candidates.

3.4 Industrial Human Resource Development Needs in the Private Sector

3.4.1 Survey of Companies' Perspectives on Recruitment and Employment

This survey consists of interview survey of selected Japanese-affiliated companies by the study team and questionnaire survey of 100 companies with regard to their recruitment and employment policies. The survey area was limited to Cairo and Alexandria in consideration of high concentration of companies and the latter survey was commissioned to a local consulting firm. This section analyzes the results of the interview to Japanese companies and questionnaire surveys to local companies, including their human resource development needs.

(1) General profiles of respondents

Companies that responded to the questionnaire survey are classified according to industry type as follows: 71 in the manufacturing sector; 6 in the wholesale and retail sector; and 18 in the service sector. In terms of company size, they consist of 7 small enterprises (less than 50 employees), 39 medium-sized enterprises (from 50 to less than 100), and 54 large enterprises (over 100).

Note that the survey put weight on the manufacturing industry, in which most Japanese companies in Egypt are operating.

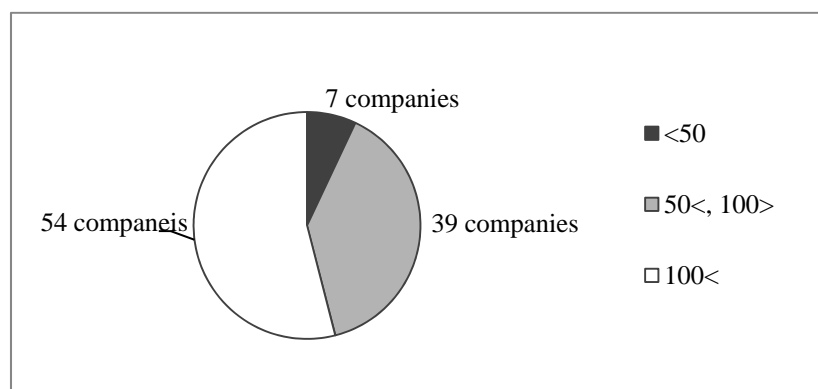


Fig.3-4-1 Breakdown of Companies by Employment Size

Category	Maximum (LE)	Minimum (LE)	Average (LE)
Small Enterprise (Less than 50)	75,000,000	5,000	3,877,000
Medium Scale Enterprise (Less than 50, More than 100)	20,000,000	25,000	4,735,000
Large Scale Enterprise (More than 100)	360,000,000	62,000	10,760,000

Fig.3-4-2 Breakdown of Companies by Capital

Category	Maximum (LE)	Minimum (LE)	Average (LE)
Small Enterprise (Less than 50)	95,000,000	30,000	5,465,000
Medium Scale Enterprise (Less than 50, More than 100)	400,000,000	650,000	46,822,000
Large Scale Enterprise (More than 100)	25,500,000,000	1,000,000	110,405,000

Fig.3-4-3 Breakdown of Companies by Annual Sales Amount

(2) Composition of employees of local companies by job category

First of all, composition of employees of local companies by job category (technical/non-technical) was analyzed. The highest percentage of companies hires engineers and technicians who account for more than 75% of the total workforce. When added by those having the technical workforce in the range of more than 50% and less than 25%, they account for a combined 76% share. This clearly reflects the fact that manufacturing companies were mainly selected for the survey.

The response that their technical workers accounted for more than 75% of the total workforce came from 64.9% of companies in the manufacturing industry. On the other hand, the highest percentage of non-manufacturing companies responded that their technical workforce accounted for more than 50% and less than 75% of the total, suggesting strong demand for technical professions in Egypt

Industrial category		under 25%	25% - 50%	50% - 75%	over 75%
Manufacturing companies		1 社	10 社	21 社	39 社
	Percentage share	1.4%	14.1%	29.6%	54.9%
Non-manufacturing companies	Wholesale and retail	2 社	1 社	2 社	1 社
	Construction	1 社	社	1 社	3 社
	Service	2 社	7 社	8 社	1 社
	Sub-total	5 社	8 社	11 社	5 社
	Percentage share	17.2%	27.6%	37.9%	17.2%
Total		6 社	18 社	32 社	44 社
	Percentage share	6.0%	18.0%	32.0%	44.0%

Fig.3-4-4 Share of Technical Workers in Total Workforce

As for breakdown by historical background, university graduates account for 21.0% of manufacturing companies, which is less than one half that of non-manufacturing ones (43.0%). On the other hand, manufacturing companies have a higher percentage of employees who have completed secondary education (49.6%) than non-manufacturing ones (34.4%). (see Fig.3-4-5) Because manufacturing companies hire a large number of employees working in production lines, the percentage share of university graduates decreases. However, manufacturing companies generally have a larger workforce than

non-manufacturing ones do, so that the absolute number of employees who have university education is larger for the former.

The results of interview survey of Japanese companies indicate that many companies hire much less university graduates than local ones, accounting for less than 10% of the total workforce. In response to the study team's interview, it was revealed that Japanese companies mainly wanted university graduates specialized in specific fields, such as quality control and accounting, while hiring a larger number of production workers from graduates of secondary schools or vocational training institutes. The major reason for this is that Japanese companies operating production facilities in Egypt procure parts mainly from other countries and are engaged in assembly and other simple operation.

Industrial category		Higher education	Secondary	Preparatory	Primary
Industrial category		21.0%	49.6%	9.0%	20.4%
Non-manufacturing	Wholesale and retail	53.9%	27.9%	0.1%	18.1%
	Construction	30.5%	39.9%	21.8%	7.9%
	Service	44.7%	35.5%	3.7%	16.1%
	Sub-total	43.0%	34.4%	8.5%	14.0%

Fig.3-4-5 Composition of Employees by Historical Background

(3) Average length of service and turnover rate

The average age of employees is generally in their early 30s, regardless of industry type and manufacturing/non-manufacturing sector (Fig.3-4-6).

The average length of service is 10.2 years for technical workers of manufacturing companies and 8 years for those of non-manufacturing companies, largely because the latter is rather biased by a very short length (5.2%) of the wholesaling and retailing sector. Fig.3.4.7 shows turnover rates of responding companies in the recent few years, among which those in the wholesaling and retailing sector are at lofty levels of 19.9-39.6%. On the other hand, the average length of service of employees working in other non-manufacturing sectors is more or less the same as that in the manufacturing sector, i.e., 9.4 years for technical workers and 10.9 years for non-technical workers, thus showing no significant difference between the two major sectors.

The highest percentage of companies cited "one's own convenience" as a reason for resignation (47.4%), followed by "cheap salary" (27.4%). (Fig.3.4-8.) On the other hand, the highest percentage of respondents (38%) cited low salary as a reason for having left their former employers, suggesting that there may be a perception gap between companies and

employees. At the same time, while “one’s own convenience” is often used as the surface reason for securing an amicable demission, “cheap salary” should be viewed as a clear message of dissatisfaction.

Industry		Technical worker		Non-technical worker	
		Average Age	Average Length of Services (year)	Average Age	Average Length of Services (year)
Manufacturing companies		34	10.2	33.5	9.3
Non-manufacturing companies	Wholesale and retail	29	5.2	31.5	6.2
	Construction	33	8.4	30.2	10.2
	Service	36	10.4	32.3	11.6
	Sub-total	32.9	8.0	31.3	9.3

Fig.3-4-6 Average Age and Length of Service (Technical/Non-technical Workers)

Year	Category	Manufacturing	Wholesale and retail	Construction	Service
2006	Number of workers	37,091	3,035	66	2,512
	Turnover Ratio	7.6%	39.6%	1.5%	6.6%
2007	Number of workers	39,606	3,538	85	2,523
	Turnover Ratio	6.5%	25.5%	3.5%	8.2%
2008	Number of workers	48,496	4,027	61	2,588
	Turnover Ratio	7.9%	37.3%	1.6%	6.6%
2009	Number of workers	49,994	4,050	67	2,767
	Turnover Ratio	8.2%	34.7%	14.9%	7.6%
2010	Number of workers	51,308	4,547	87	3,712
	Turnover Ratio	13.1%	19.9%	18.4%	5.9%

Fig.3-4-7 Turnover Rates by Industry Type (2006 – 2010)

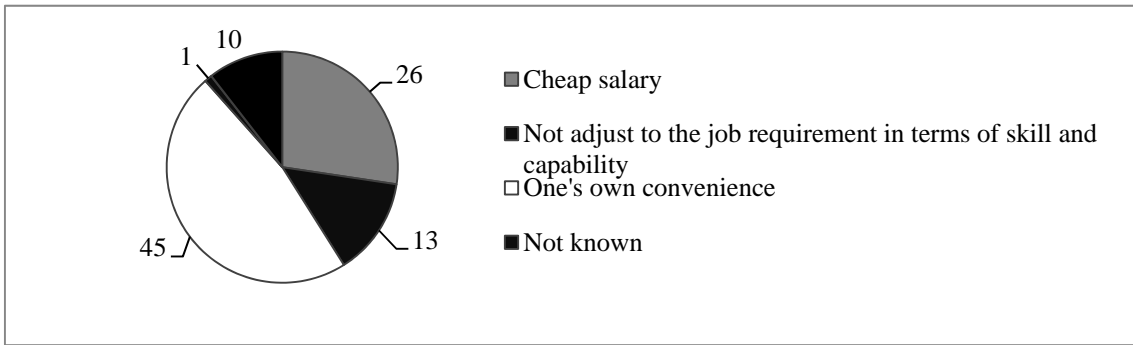


Fig.3-4-8 Reasons for Resignation

(4) Recruitment methods used by local companies

Essentially, local companies recruit workers by offering the regular employment status (Fig.3-4-9). It should be noted, however, that regular employment in Egypt does not mean lifetime employment (or long-term contract) as seen in Japan, so that it should be interpreted as full-time work.

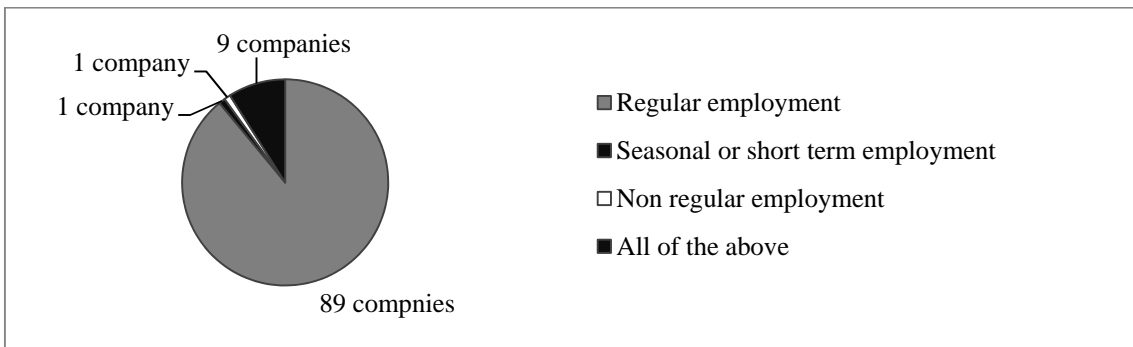


Fig.3-4-9 Type of Employment

As for the recruitment method, the highest percentage of companies uses newspaper ads (Fig.3-4-10). This agrees with the results of the interview survey of local companies. Then, “posting a notice at entrance” accounts for the second higher percentage. Personal connection comes third to reflect the hiring practice unique to the country, under which the letter of recommendation is emphasized or even required. The hiring practice is somewhat reflected in the selection method, i.e., the survey results show that responses are divided equally between interview only and interview and written examination (Fig.3-4-11(1)).

Then, analysis is made to examine a difference in the recruitment method between SMEs and large enterprises.

The survey results indicate that SMEs mainly make employment decisions on the basis of interview only, rather than combination with a written examination. In particular,

personal connection (introduction by family or friend) often becomes a key factor for hiring a person. On the other hand, many of large enterprises conduct a written examination, indicating selection according to objective criteria (Fig.3-4-11 (2)).

Notably, only one company cited the Internet as a recruitment channel. This makes a sharp contrast to university students who often seek job information on the Internet. Thus, the Internet has still to become a popular recruitment method for companies in the country.

Finally, local companies using the public job placement service represent only 20% of the total. The largest percentage of companies that do not use such service cited “do not know” as a reason (66.3%), indicating that the public employment support system is not widely accepted in the country.

The interview survey of Japanese companies (mainly manufacturers) reveals that many respondents use recruitment firms for employment of workers with university education, because the public notice such as newspapers tends to attract a large number of applicants to incur a very high cost for screening (e.g., by reviewing an application and other documents). Also use of recruitment firms can make up for the absence of an objective and reliable means of assessing abilities of job applicants, because they interview them beforehand. As for production workers who are generally hired to fill vacancy, many companies make hiring by using personal connection, which is considered to be an economical and reliable way to find persons having required skills. Thus, the absence of the objective qualification system is clearly hindering companies from conducting recruitment activity efficiently, regardless of educational levels required for applicants.

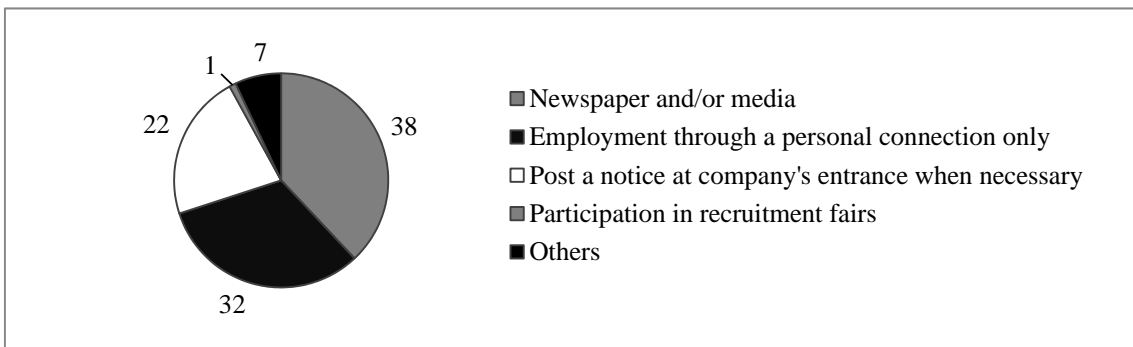


Fig.3-4-10 Recruitment Method

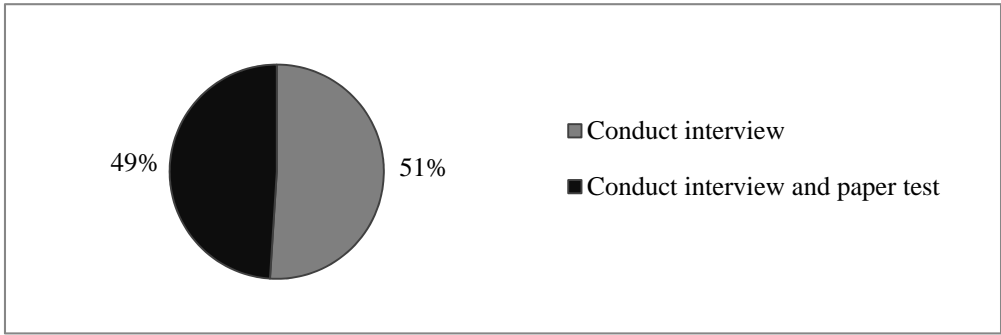


Fig.3-4-11 (1) Employment Method

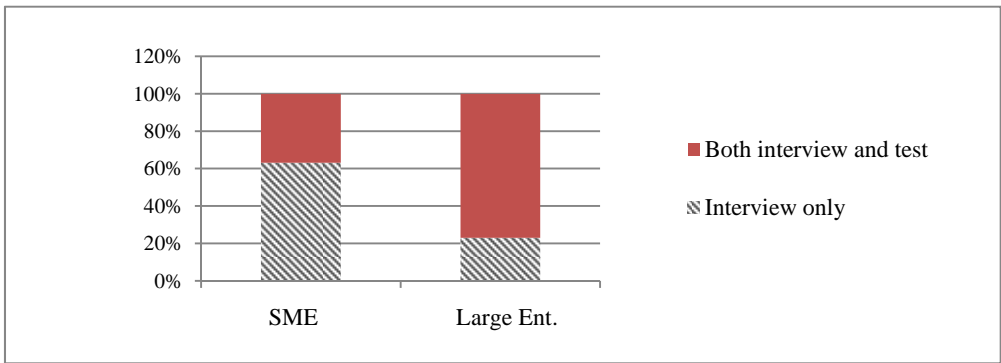


Fig.3-4-11 (2) Employment Method by Company Size

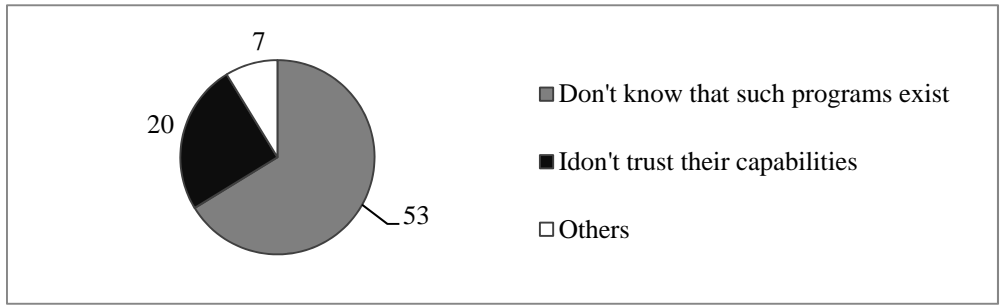


Fig.3-4-12 Reasons for Avoiding Use of the Public Employment Support System

(5) Gap between human resource needs by companies and actual abilities of job seekers

Companies were asked to specify areas of improvement demanded for workers with university education. The highest percentage of respondents (71.9%) cited “lack of practical capability,” followed by “lack of basic knowledge (20.2%)” and “lack of professional awareness (7.9%).” (Fig.3.4.13) In fact, the interview survey confirmed that almost all the Japanese companies were generally not satisfied with these three aspects. On the other hand, the lack of professional awareness was not a major issue for local companies. This is partially because Japanese companies look for high abilities than local companies do. At the same time, a cultural factor seems to play a certain role, as inferred from the fact that

local companies also consider the lack of professional awareness as the least important issue for workers who have graduated from vocational training institutes, i.e., only 6.5% of them cited it in the questionnaire survey.

On the other hand, the survey result that a large number of Japanese companies are concerned about lack of basic knowledge and skills seems to reflect their employee education policy, i.e., according to the study team’s interview, they usually provide internal training for workers who have graduated from vocational training schools (including secondary schools) in order to teach practical skills required on the shop floor, while assuming that employees with university education have already acquired such knowledge and skills. In contrast, local companies are strongly concerned about the lack of practice capability (Fig.3-4-14). And they attach great importance to OJT as the means of employee education (cited by 89% of respondents), instead of other means such as outside training (8%). This means that they may not be able to provide effective training for their employees (Fig.3-4-15), who thus do not obtain sufficient practical capability, as ironically recognized by their employers more strongly than Japanese companies.

Finally, difference in expectation for job seekers between SMEs and large enterprises is analyzed (Figures 3-4-16 and -17). Based on the survey results, SMEs consider lack of practical capability/skill as the largest problem for both workers who have graduated from university and those who have completed vocational training. On the other hand, large enterprises are most concerned about the lack of basic knowledge for the latter and the lack of practical capability for the former. Furthermore, they point out the lack of professional awareness among employees who have graduated from vocational training schools.

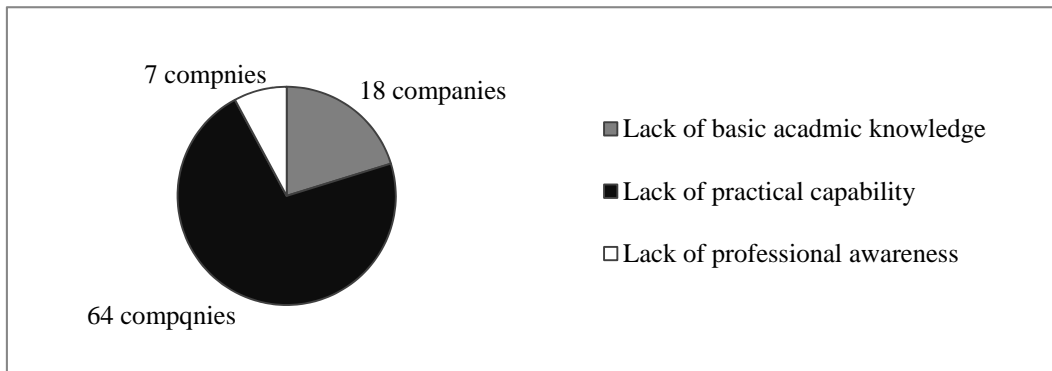


Fig.3-4-13 Areas of Improvement Demanded for Workers with University Education

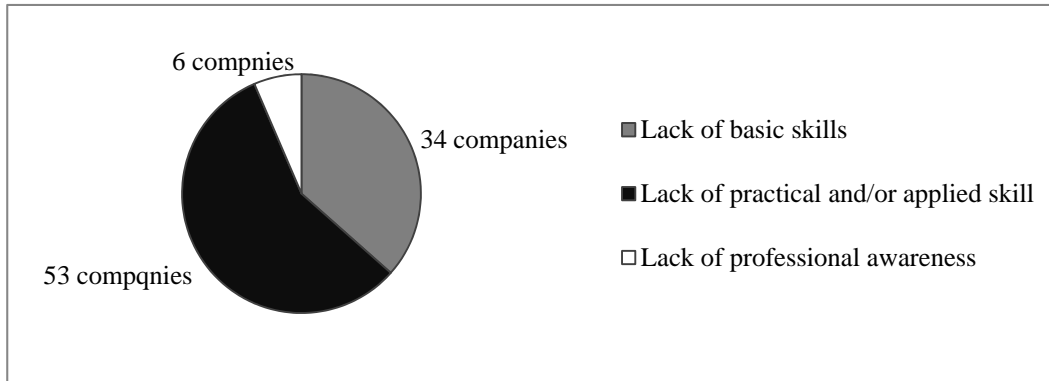


Fig.3-4-14 Areas of Improvement Demanded for Workers with Vocational Training

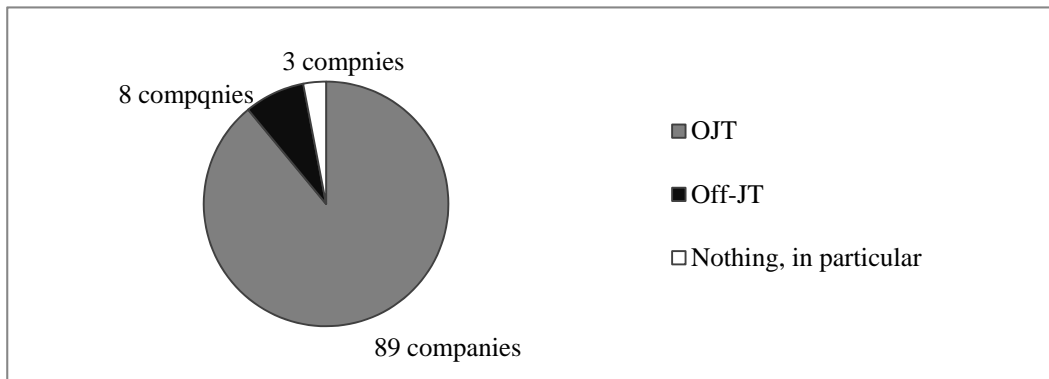


Fig.3-4-15 Employee Education Methods

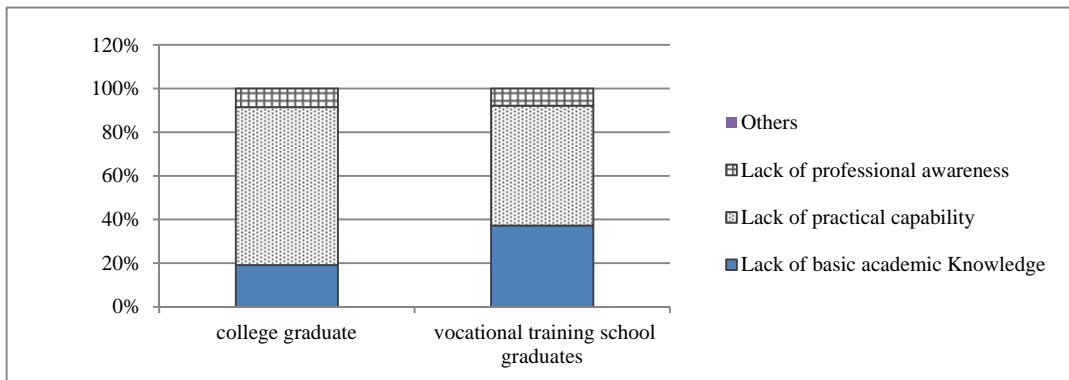


Fig.3-4-16 Areas of Improvement Demanded for Job Applicants (SMEs)

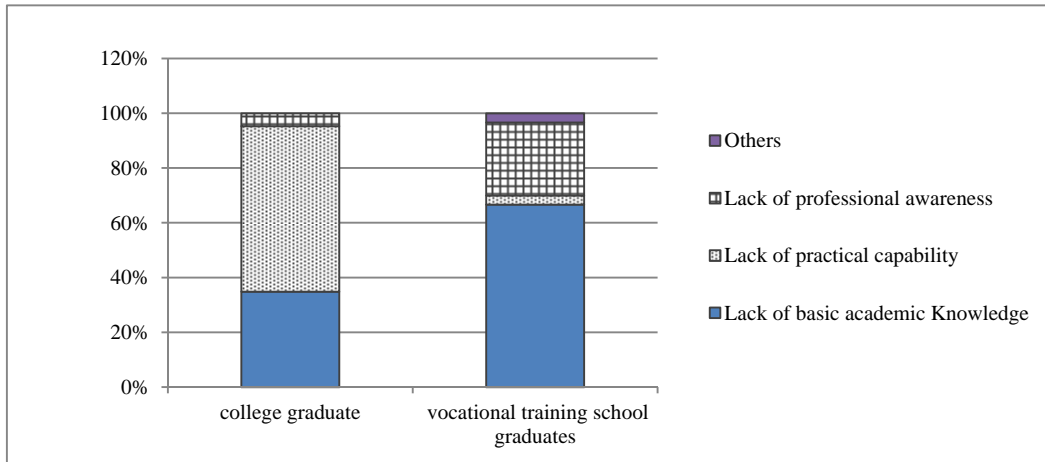


Fig.3-4-17 Areas of Improvement Demanded for Job Applicants (LEs)

(6) Conclusion

As the Egyptian government pursues policy to attract direct investment by foreign manufacturers by raising tariff rates on import products, labor demand from the manufacturing industry is expected to grow further. At the same time, Japanese companies operating in the country are mainly manufacturers and are expected to increase in number. It is therefore important to meet the human resource development needs of manufacturing industries.

As the manufacturing industry hires more graduates of secondary schools than university graduates, it is recommended to promote integrated modification of the secondary and higher education system, e.g., secondary schools emphasize basic education and training required for skilled workers, while universities provide more advanced education focusing on specialty. Many companies point out the lack of practical capability and skills. However, the perception gap between the employer and the educator seems to come from the lack of effective communication between the two parties. Under these circumstances, the government needs to take the leadership in meeting the industrial needs by implementing programs to address the above addressed issues, such as the establishment of a scheme to send production engineers and technicians to secondary schools for technical guidance and advice, and the enhancement of a training program for university students.

While the manufacturing industry is capable of a large labor force, the high unemployment rate in Egypt suggests that it cannot provide a complete solution. Also, the manufacturing industry hires less university graduates than non-manufacturing sectors, concurrent efforts need to be made to foster and develop new industries that can become a major employer of young people with higher education.

The Ministry of Communications and Information Technology has announced the policy to foster the ITC industry by emphasizing IT education for university students under the next five-year plan. It is thought to be very effective in relation to the development of new industries that employ university graduates, as suggested above. As the policy is expected to help increase labor demand for the IT industry, it is important to develop an education program to train IT professionals having comprehensive and advanced knowledge and skills so as to meet the industry's urgent needs. Finally, the government is in the process of introducing the national skill standard program for the purpose of addressing the issue relating to the lack of the means to assess competence of industrial human resources objectively. As information technology is not covered by the program, however, a national qualification system covering IT engineers needs to be developed concurrently with the IT education program.

3.4.2 Recent Trend in Direct Investment by Japanese Companies (Middle East Region and Egypt)

Japan's foreign direct investment grew steadily until 2008 and then started to decline afterwards due to the aftermath of the collapse of Lehman Brothers. It fell to 57.1% of the 2008 level in 2009 and 43.7% in 2010. Despite the large declines in the recent few years, investment in Asian countries experience a much smaller decrease (some see an increase).

Japanese investment in Asia dropped to 88.4% of the 2008 level but came back to 94.8% in 2010. Within the region, investment continues to expand in China, Hong Kong, Singapore, and Malaysia in and after 2009, and it turned upward in South Korea, Thailand, Indonesia, and Vietnam since 2010. Thus, Japanese companies maintain active direct investment in the region as compared to other regions. In 2010, many countries received Japanese investment exceeding \$1 billion. A major factor seems to lie in high market growth potential of the regional as a whole and continued efforts to build industrial infrastructure since the 1980s, while the region is less affected by the recent economic downturns than North America and Europe.

Table 3-4-1 Japan's Foreign Direct Investment by Region and Country (Net, Based on International Balance of Payments)

Unit: 1 million dollars, %

	2005	2006	2007	2008	2009	2009/2008	2010	2010/2008
Asia	16,188	17,167	19,388	23,348	20,636	88.4%	22,131	94.8%
China	6,575	6,169	6,218	6,496	6,899	106.2%	7,252	111.6%
Hong Kong	1,782	1,509	1,131	1,301	1,610	123.7%	2,085	160.2%
Taiwan	828	491	1,373	1,082	339	31.3%	Δ 113	-10.5%
Korea	1,736	1,517	1,302	2,369	1,077	45.5%	1,085	45.8%
Singapore	557	375	2,233	1,089	2,881	264.5%	3,845	353.1%
Thailand	2,125	1,984	2,608	2,016	1,632	80.9%	2,248	111.5%
Indonesia	1,185	744	1,030	731	483	66.1%	490	67.1%
Malaysia	524	2,941	325	591	616	104.2%	1,058	179.0%
Philippines	442	369	1,045	705	809	114.8%	514	72.9%
Vietnam	154	467	475	1,098	563	51.3%	748	68.2%
India	266	512	1,506	5,551	3,664	66.0%	2,864	51.6%
North America	13,168	10,188	17,385	46,046	10,889	23.6%	9,016	19.6%
U.S.A.	12,126	9,297	15,672	44,674	10,660	23.9%	9,193	20.6%
Canada	1,042	892	1,713	1,372	229	16.7%	Δ 177	-12.9%
Central and South America	6,402	2,547	9,482	29,623	17,393	58.7%	5,346	18.0%
Mexico	629	Δ 2,603	501	315	211	66.9%	688	218.0%
Brazil	953	1,423	1,244	5,371	3,753	69.9%	4,316	80.4%
Cayman Islands	3,915	2,814	5,838	22,550	12,903	57.2%	Δ 1,848	-8.2%
Panama	451	558	791	807	114	14.1%	999	123.8%
Bermuda Islands	151	Δ 305	Δ 428	185	24	12.9%	577	311.7%
British Virgin Islands	Δ 98	255	1,120	138	24	17.4%	161	116.5%
Peru	95	64	50	32	60	191.6%	55	174.6%
Argentina	29	11	82	101	Δ 3	-3.2%	Δ 56	-55.6%
Oceania	943	723	4,204	6,060	7,629	125.9%	6,407	105.7%
Australia	640	466	4,140	5,232	7,136	136.4%	6,371	121.8%
New Zealand	62	125	Δ 22	635	237	37.3%	Δ 61	-9.5%
Guam	Δ 24	98	41	5	Δ 2	-36.7%	1	10.0%
Marshall Islands	262	20	19	72	209	289.4%	65	89.7%
Europe	8,230	18,396	20,965	23,068	17,830	77.3%	15,043	65.2%
Germany	270	1,128	880	3,905	2,089	53.5%	Δ 321	-8.2%
U.K.	2,903	7,271	3,026	6,744	2,126	31.5%	4,624	68.6%
France	541	842	479	1,703	1,161	68.2%	551	32.4%
Holland	3,315	8,497	12,440	6,514	6,698	102.8%	3,288	50.5%
Italy	44	51	45	177	110	62.0%	372	210.6%
Belgium	Δ 195	133	796	2,196	423	19.3%	Δ 166	-7.5%
Luxembourg	25	Δ 478	2,291	527	3,279	621.7%	Δ 108	-20.5%
Switzerland	56	183	61	165	221	134.2%	143	86.9%
Sweden	82	416	254	570	160	28.0%	Δ 623	-109.2%
Spain	363	136	10	210	162	77.4%	38	18.2%
Norway	128	17	Δ 91	37	275	743.8%	77	207.4%
Denmark	82	6	Δ 2	23	54	235.0%	81	353.7%
Ireland	Δ 111	Δ 229	Δ 600	Δ 158	311	-196.9%	138	-87.2%
Austria	8	41	3	27	Δ 20	-72.9%	Δ 4	-13.2%
Cyprus	Δ 30	Δ 11	16	12	98	798.6%	215	1763.1%
Turkey	73	7	Δ 26	25	92	363.2%	321	1263.5%
Malta	Δ 61	Δ 1	Δ 2	.	17	.	.	.
Russia	95	160	99	306	391	128.0%	350	114.5%
Poland	275	234	206	53	Δ 6	-10.8%	74	139.4%
Hungary	191	Δ 102	27	106	87	82.1%	Δ 34	-31.9%
Czech	150	Δ 18	87	98	156	158.5%	122	124.4%
Middle East	542	242	958	1,138	575	50.6%	Δ 348	-30.6%
Saudi Arabia	494	254	746	892	378	42.4%	117	13.1%
United Arab Emirates	19	Δ 56	60	194	139	71.7%	Δ 498	-256.2%
Egypt	25	21	55	63	40	63.8%	47	74.3%
Africa	25	899	1,101	1,518	Δ 301	-19.9%	Δ 372	-24.5%
South Africa	Δ 17	466	82	648	143	22.0%	104	16.1%
Liberia	Δ 284	Δ 99	Δ 70	Δ 4	40	-927.3%	136	-3163.5%
Mauritius	309	533	1,026	772	Δ 359	-46.5%	Δ 646	-83.7%
Total	45,461	50,165	73,483	130,801	74,650	57.1%	57,223	43.7%

Source: Prepared by the study team on the basis of JETRO's data

Note 1: Converted to the dollar value from yen-based figures published quarterly by using the Bank of Japan's average interbank exchange rate in each quarter

Note 2: "Δ" denotes an excess outflow.

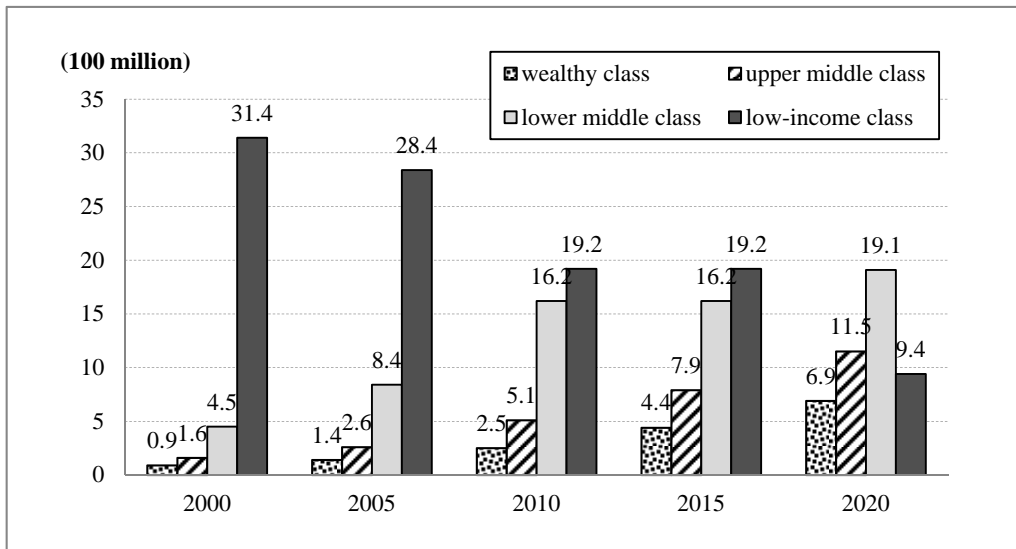
Note 3: "0" means less than a basic unit and "," no record.

Note 4: The rate of increase over the previous year (the same quarter)

Note 5: The EU consisted of 25 countries in 2005 and 2006, and 27 countries since the first quarter of 2007 (including Bulgaria and Romania).

Note 6: As the figures include investment projects for which data are not published, the regional totals do not necessarily agree with the world total.

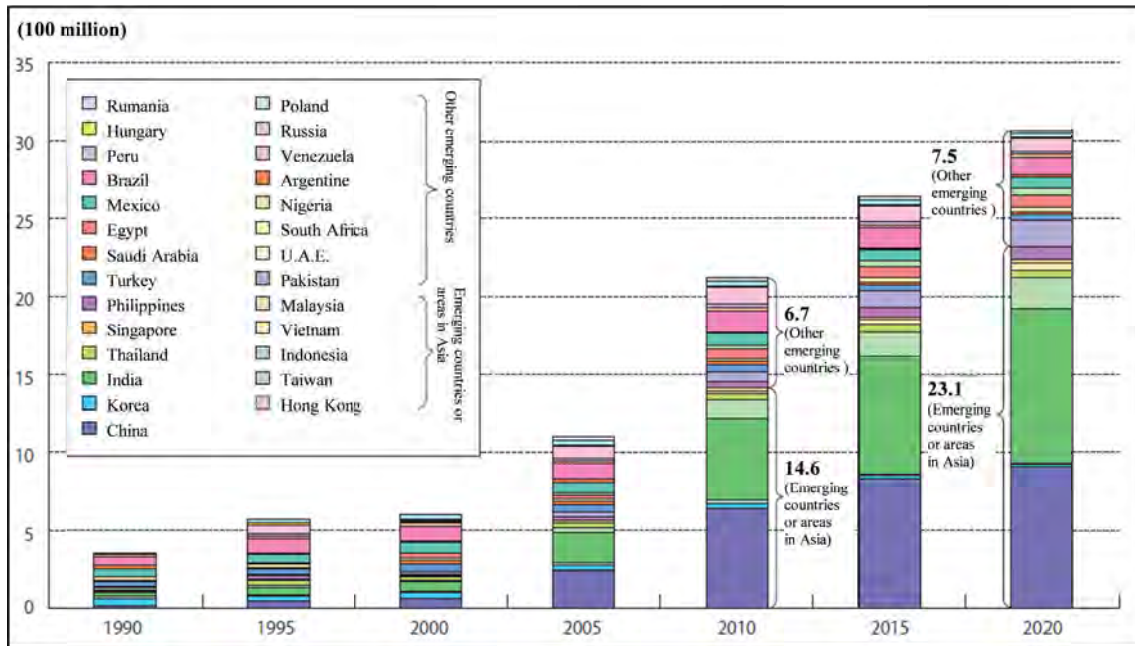
According to the White Paper of International Trade 2011 published by the Ministry of Economy and Industry of Japan, income growth in emerging countries due to strong economic growth is expected to become a driving force for the world economy, while industrialized countries (especially North America and Europe) remain in an economic slump. The white paper estimates that the wealthy class population in emerging countries (disposal household income of \$35,000 or over per year) will increase by 440 million, the upper middle class (over \$15,000 and less than \$35,000) by 640 million, and the lower middle class (over \$5,000 and less than \$15,000) by 290 million in 2015. In particular, the significant increase in the middle class population (both upper and lower) will create formidable opportunity for companies because of their purchasing power, and market development to meet demand for a variety of goods and services is becoming a major factor for investment decisions by Japanese companies.



Source : White Paper of International Trade 2011

Fig.3-4-18 Population Growth Forecast in Emerging Countries by Income Class

As for geographic distribution of the middle class population in emerging countries, Asian countries account for major portions and their share will rise to 75% in 2020. Together with an outlook for emerging countries in Asia to achieve the highest economic growth in the coming years, the population factor will encourage Japanese companies to divert increasing portions of their direct investment to the region’s emerging countries, including China, India and Southeast Asia. On the other hand, the Middle East has a much less middle income class population than Asia, although its population is relatively large. For Japanese companies North America and Europe are much closer, with a huge middle and higher income population and industrial concentration. The same is true for Latin America and Eastern Europe that are close to North America and Europe, which are more attractive to Japanese companies than the Middle East



Source: White Paper of International Trade 2011

Fig.3-4-19 Increasing of the Middle Class in the Rising Countries and Regions

In the following section, the current state of investment and operation by Japanese companies in the Middle East and North Africa is analyzed.

Before 2001, local subsidiaries of Japanese companies operating in the regions were mainly established in the UAE (28), Saudi Arabia (17), Turkey (14), Iran (9), and Israel (9), which altogether accounted for around 80% of the total. In the 1970s, trading companies and petroleum-related companies started to operate in the region’s oil producing countries, especially the UAE, Saudi Arabia, and Iran (some companies invested in Iran in the 1950s), and manufacturing and service companies followed suit in the UAE and Saudi Arabia. On the other hand, only one company (trading) established local operation in Kuwait (1977) and an oil-related company in Oman (1997). After then a consulting firm started operation in Oman (as of 2001). Note that many Japanese companies have only established branches or representative offices in these countries. All in all the situation seems to reflect political and other conditions of the oil producing countries and presence of incentive programs for foreign investment, resulting in varying degree of direct investment among them.

As for the current state of direct investment by manufacturing industries in the region, Turkey attracts investment by Japanese manufacturers, especially automobile, on the strength of its industrial policy to establish a production base for the European market. Japanese companies operating in the country include Isuzu (since 1980), Fuji Heavy Industries (1974), Honda (1992), and Toyota (1994).

In Egypt, Isuzu invested first in 1985, followed by 7 companies up until 2000. Manufacturers account for one half (4 companies). As of 2000, 21 branches and representative offices were operated in the country (date of establishment unknown for 6 companies), including NEC (1980) and MURATEC (1986).

Table 3-4-2 Local Subsidiaries Invested by Japanese Companies in Middle East and North Africa, by Country (Equity Share of 10% or higher)

Country	2000 (before 2001)		2010		growth (2001/2010)	
	No. of local subsidiaries	Percentage share	No. of local subsidiaries	Percentage share	No. of local subsidiaries	Percentage share
Iran	9	9.1%	10	4.7%	1	0.9%
Bahrain	5	5.1%	8	3.7%	3	2.6%
Saudi Arabia	17	17.2%	34	15.9%	17	14.8%
Kuwait	1	1.0%	3	1.4%	2	1.7%
Qatar		0.0%	2	0.9%	2	1.7%
Oman	2	2.0%	3	1.4%	1	0.9%
Israel	9	9.1%	10	4.7%	1	0.9%
Jordan	1	1.0%	2	0.9%	1	0.9%
Lebanon	2	2.0%	2	0.9%		0.0%
U.A.E.	28	28.3%	72	33.6%	44	38.3%
Turkey	14	14.1%	38	17.8%	24	20.9%
Morocco	-	0.0%	6	2.8%	6	5.2%
Algeria		0.0%	1	0.5%	1	0.9%
Tunisia	3	3.0%	5	2.3%	2	1.7%
Egypt	8	8.1%	18	8.4%	10	8.7%
合計	99	100.0%	214	100.0%	115	100.0%

Source: General Directory of Companies Investing Overseas [Country] 2011, Toyo Keizai Shinpo of Japan

* The above table has been construed on the basis of questionnaire surveys conducted for 6,532 companies in Japan, with regard to their foreign investment status as of October 2009.

* The above figures do not include foreign branches and representative offices.

As for the rate of increase between 2000 and 2010, the UAE boasts the largest number of newly established local subsidiaries (44), followed by Turkey (24), Saudi Arabia (17), and Egypt (10), which account for a combined share of around 80%.

In terms of the amount of investment made in each country between 2001 and 2010, top five countries are Saudi Arabia (\$15.2 billion per year), Turkey (\$9.5 billion), the UAE (\$6.6 billion), Israel (\$6.1 billion), and Egypt (\$5.3 billion). Top three companies also receive significant direct investment by Japanese companies.

Of 10 companies that invested in Egypt between 2001 and 2010, 7 companies are manufacturers. The study team interviewed these companies to ask a reason for investment. A major reason given was the intention to explore the local market. It is estimated that other

companies have a similar purpose. In comparison to Israel, these Japanese companies seem to prefer Egypt because of a large domestic market and political stability during the period.

In North Africa, six Japanese companies invested in Morocco during the same period, consisting of three manufacturers, two electronics sales companies, and a service company. Two manufacturers supply automotive parts. In Tunisia, an automotive parts manufacturer established its base in 2009. The two countries have growth potential to become a production base serving the European market.

Table 3-4-3 Local Subsidiaries Invested by Japanese Companies in Saudi Arabia, UAE, Turkey, and Egypt (Equity Share of 10% or higher)

Sector	Saudi Arabia	UAE	Turkey	Egypt
Agriculture, forestry, fisheries				
Mining		1		
Construction	7	2		
Manufacturing	14	5	17	11
Electricity and gas	1	5	1	
Rail and bus transport				
Freight transport		2		
Marine transport			1	
Air transport		1		
Warehousing and physical distribution	2	3		
Communications and broadcasting				
Audiovisual entertainment				
Advertisement		3		
Information and related system				
Wholesale, retail and food service	5	43	16	3
Finance and insurance	3	3		2
Real estate and hotel	1			
Other	1	4	3	2
Total	34	72	38	18

Source: General Directory of Companies Investing Overseas [Country] 2011, Toyo Keizai Shinpo of Japan

* The above table has been construed on the basis of questionnaire surveys conducted for 6,532 companies in Japan, with regard to their foreign investment status as of October 2009.

* The above figures do not include foreign branches and representative offices.

Table 3-4-4 List of Japanese Manufacturing Companies Operating in Egypt

NO.	Type of operation	Industry	Year of establishment / initial operation	Company name	Equity share of Japanese company	No. of employees
1	Local subsidiary*1	Manufacturing	[establishment operation] 1985	General Motors Egypt S.A.E.	General Motors Egypt S.A.E. 20%	1,300
2	Local subsidiary	Manufacturing	[initial operation] 1985	Suzuki Egypt S.A.E.	Suzuki Egypt S.A.E. 14.9%	200
3	Local subsidiary*1	Manufacturing	[establishment operation]1995	Egypt Otsuka Pharmaceutical Co., S.A.E	Egypt Otsuka Pharmaceutical Co., S.A.E 50%, Factory of Egypt Otsuka Pharmaceutical Co., S.A.E 12.5%	371
4	Local subsidiary*1	Equipment maintenance	[initial operation] 1996	MISR JAPAN ALLIED CO. for Rolling Stock Maintenance & Renewal Toshiba, Kinki Sharyo, Mitsubishi Corp.	Toshiba 25%, Kinki 25% , Mitsubishi Corp.25%	Equipment maintenance
5	Local subsidiary*1	Manufacturing	[initial operation] 1996	YKK EGYPT S. A. E YKK	Unknown	128
6	Local subsidiary*1	Finance	[initial operation] 1997	ORIX Leasing Egypt SAE	ORIX 34%	Unknown
7	Local subsidiary*1	Equipment wholesaling	[initial operation] 1998	Egypt Otsuka Pharmaceutical Co., S.A.E Fujitec	Fujitec 100% (including FujitechHK1.4%)	41
8	Local subsidiary*1	Equipment maintenance	[initial operation] 1998	Hitachi Operation & Maintenance-Egypt S.A.E.	Hitachi Operation & Maintenance-Egypt S.A.E. 51%	2
9	Local subsidiary*2	Manufacturing	[initial operation] 2002	Sharp elarabygroup, Nissho Iwai	Sharp, Nissho Iwai, Eelarabygroup (Unknown)	Unknown
10	Local subsidiary*1	Manufacturing	[establishment operation]2005	Nissan Motor Egypt S.A.E	Nissan Motor Egypt S.A.E 99.9%	529
11	Local subsidiary*2	Manufacturing	[initial operation] 2008	SE Wiring Systems Egypt S.A.E.	SEWS-E 100% (100% contributed by Sumitomo Electric and Sumitomo Wiring Systems)	1,800
12	Local subsidiary*1	Manufacturing	[initial operation] 2009	Kobe Bussan Green Egypt Co., Ltd.	Kobe Bussan 98%	Unknown
13	Local subsidiary*1	Equipment sales	[initial operation] 2009	MELCO-MEC Egypt for Elevators and Escalators	Unknown	Unknown
14	Local subsidiary*1	Finance	[initial operation] 2010	Nile Family Takaful Tokio Marine and Nichido Fire Insurance	Tokio Marine and Nichido Fire Insurance 40%	Unknown
15	Local subsidiary*2	Manufacturing	[establishment operation] 2011	Toshiba El Araby Visual Products Company	Toshiba 51%, El Araby Visual Products Company 49%	300
16	Local subsidiary*2	Manufacturing	[initial operation]2011	Toyota Egypt S.A.E. トヨタ	トヨタ・豊田通商・Toyota Egypt100%	15
17	Local subsidiary*2	Food wholesale	[initial operation] 2011	Ajinomoto, Egypt	Ajinomoto 100%	12
18	Local subsidiary*2	Manufacturing	[establishment operation] 2012	Unicharm	Unknown	Unknown

*1 General Directory of Companies Investing Overseas [Country] 2011, Toyo Keizai Shinpo of Japan

*2 Confirmed during the first field survey

* In addition, the study team confirmed presence of branches and representative offices of 48 companies.

After 2000, direct investment by Japanese companies as well as the Japanese government in the region has been mainly directed to four countries, namely the UAE, Saudi Arabia, Turkey, and Egypt, making a sharp contrast to other countries. Among them, investment in the UAE is concentrated on finance and commerce sectors, although the government encourages manufacturers to invest in industrial areas around the Dubai airport. Investment in Saudi Arabia is mainly associated with petrochemical processing and construction. Investment in the manufacturing sector is concentrated in Turkey and Egypt. Turkey is expecting participation in the EU and is already positioned as a major production base serving the European market, together with Eastern Europe. On the other hand, manufacturing-related investment projects in Egypt are primarily intended to target the domestic market. In this connection, Tunisia and Morocco seem to be ahead of Egypt by establishing the supply chain connected to the EU market.

Meanwhile, as the Middle East region including Egypt is expected to grow in terms of consumption due to population growth and economic expansion, direct investment in the four countries will likely maintain momentum for a while.

Finally, it is still difficult to identify industries with a high growth prospect in Egypt and Turkey on the basis of the past investment trend alone. Generally speaking, Turkey is expected to receive increased investment relating to the country's growing role in supplying a variety of industrial products to the European market (ranging from parts and materials to end use products). On the other hand, Egypt will likely see a significant increase in investment relating to the manufacturing of household products and consumer durables (including automobiles and electrical/electronic equipment) in order to meet a further rise in national income. It should be noted, however, that there are increasing cases of Turkish companies in labor intensive industries, such as textile, to invest in Egypt, so that Egypt has a good prospect for becoming a production base relating to production machinery, if the industrial infrastructure including the supplier base is sufficiently built up. Finally, some companies view Egypt as an export base for the Sub Saharan market as well as the Middle East. In this regard, there are large human resource needs in traditional industries (including food processing and textile), in addition to engineering industries.

3.4.3 Current State of Recruitment and Employee Training (including Japanese companies operating in Egypt)

The current state of recruitment and training by local and Japanese companies is analyzed on the basis of field surveys conducted by the study team. While only 4 Egyptian companies were surveyed, versus 8 Japanese companies, additional information on local companies was obtained from interview surveys of trade associations, including the chamber of commerce and industry. Note that recruitment and training activities by local companies are roughly divided into two groups, namely managers/specialists and factory (production) workers, and analysis is made for each group.

(1) Managers/specialists

Both local and Japanese companies make various efforts to hire competent managers and specialists with business skills, foreign language, and knowledge in a specific field.

Generally speaking there are several recruitment methods, including the use of an employment agency, the advertisement on newspapers, introduction by friends and acquaintances, and Web publication. Interestingly, Japanese companies rarely use the Internet for the recruiting purpose, because the publication on the Web site usually attracts a large number of applications, which result in a relatively high cost for the preliminary

selection process. For the same reason, the newspaper advertisement is made without specifying the company's name. On the other hand, the employment agency and introduction by friends are mostly used when a relatively small number of persons are to be hired.

The employment agency usually charges a commission-based fee for each person actually employed, equivalent to one month salary or ¥100,000 (Japanese yen). Many Japanese companies seem to use employment agencies because they can find a qualified person at a relatively low cost and within a short period of time. In Cairo alone, there are said to be over 100 employment agents, making a highly competitive market. There are several reasons for a large number of private companies: the job placement system provided by public organizations (acting as intermediary between employers and employees) does not work well for job seekers with high educational background; universities do not provide placement service for students; and companies tend to hire persons with previous job experience, rather than new graduates.

Recruitment using Web publication can be made by two channels, i.e., the company's own Web site or a specialized site. For the latter, two recruitment sites based in the UAE (bayt.com and waseet.net) are widely used in Egypt. Both sites are specialized in matching between companies and managers/specialists and earn revenues from advertisement fees, so that both employers and job seekers can be registered with free of charge. On September 26, 2011, job offers published on the two sites, by country, are summarized as follows (Table 3-3-1).

Table 3-4-5 Job Advertisements Published on the Recruitment Service Sites

Site name		bayt.com	waseet.net
Year of launching		2000	2003
Head office		UAE	UAE
Number of advertisements by country	Egypt	434	1262
	Jordan	313	-
	UAE	4603	1956
	Saudi Arabia	2240	1123
	Qatar	1918	109
	Bahrain	113	248
	Kuwait	545	857

*As of September 26, 2011

Note that the employment agency and the specialized site search for managers and specialists only, not factory workers. The hiring process using these channels involves the preliminary selection process based curriculum vitae provided by each applicant (which is

generally conducted by the employment agency), followed by a written examination and interview.

As reference, a page on the “baty.com” site is shown below.

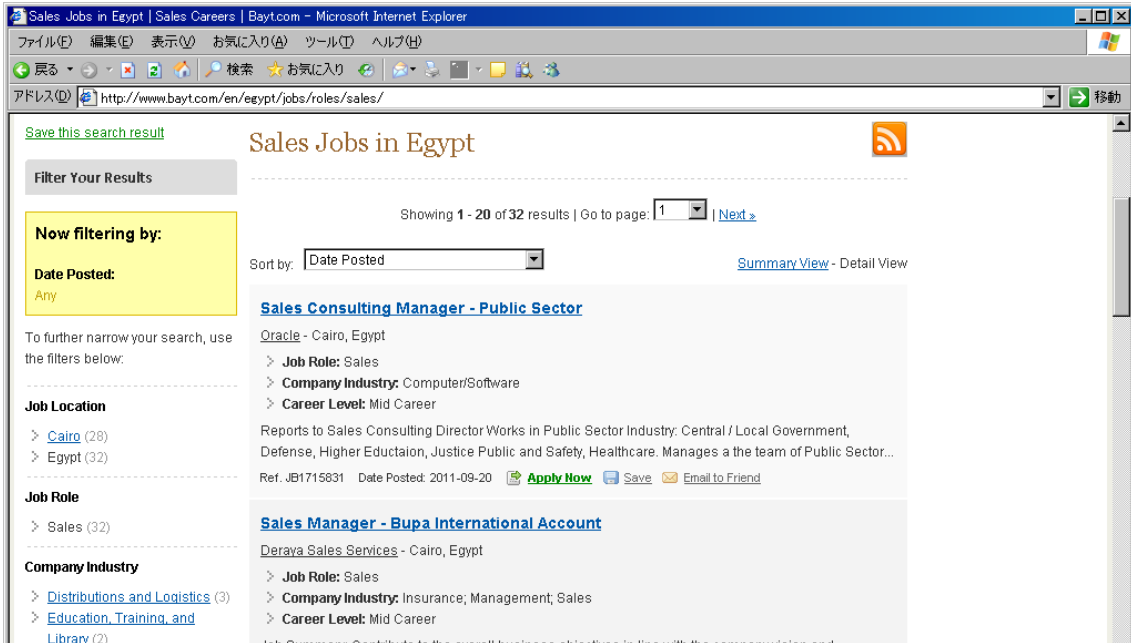


Fig.3-4-20 Screen Image of the “baty.com” site

And a page on the “waset.net” site is shown below.



Fig.3-4-21 Screen Image of the “waset.net” site

Notably, many Japanese companies require a written examination that includes mathematical calculations and IQ test, in addition to professional knowledge in business and other fields. This reflects the fact that HR personnel of Japanese companies believes that job applicants in Egypt often lack logical thinking or systematic thought and thus wants to check mathematical ability and report writing skills as job qualification.

Most of the Japanese companies that responded the study team's interview survey indicate the need for internal training after employment with regard to basic business knowledge and skills. In other words, they expected new employees to understand business activities carried out by respective companies, together with basic skills required to perform them, regardless of capacity or competence demonstrated in the hiring process. Specific skills cited by many companies include report making skills, scheduling, and problem identification and solution. Some emphasize good manners (polite greeting and phone answering) and punctuality. Clearly, Japanese companies require their employees to meet diverse requirements, which are not heard from Egyptian companies. Thus, local and Japanese companies have a different set of requirements, and the latter requires much higher standards than the former.

(2) Factory (production) workers

Unlike managers and specialists, many companies including local companies responded that they taught required knowledge and skills to workers after hiring. In particular, Japanese companies do not regard knowledge or certification obtained at a middle school or vocational training institute as important in the hiring process. This indicates that they do not expect school education or vocational training to have high quality and feel the need for special education and training after employment.

Hiring is usually made as a vacancy occurs. Since certification or skills is not considered important, many companies make hiring with an introduction from present workers. They believe that it is the most effective and economical way to find a worker within a short period of time. Again, this suggests the lack of the public system to match employers and job seekers, as seen in the case of managers and specialists. On the other hand, private companies (employment agency) are not engaged or are reluctant to be engaged in recruitment service for factory workers. Thus, the establishment of a public service system to like employers and employees appears to have some effects in terms of efficient hiring of workers as well as better job matching.

As seen in the case of managers and specialists, most Japanese companies responded that they had to teach basic knowledge and skills in the form of internal training for new employees. Since there is a clear perception gap between Japanese companies and job seekers, regardless of job type, which seems to be partly attributable to cultural difference, it

takes considerable time and effort to train Egyptian employees to a high level of knowledge and skills demanded by Japanese companies, which involves extensive education and training, including OJT. In reality, however, as the labor law in Egypt provides for only two types of employment agreements (one year or lifelong), Japanese companies usually make hiring under a one-year contract (otherwise it is very difficult to dismiss an employee under the lifelong contract) and renew it each year according to work performance. This means that there is not a strong incentive for employers to provide long-term training for employees. At the same time, employees tend to do job hopping to look for better conditions. These factors impede the learning of basic knowledge and skills that can only be acquired through extensive training.

3.4.4 Industrial Human Resource Needs by Key Sectors

(1) Industrial characteristics

The field surveys have revealed distinctive characteristics of human resource needs by industry, which are summarized as follows.

Engineering

Human resource development needs in the production technology field include mechanical design, CAD/CAM, welding, and casting, while those in the management field include quality control, production management, and marketing. This reflects the fact that there is an apparent shortage of technicians (including skilled workers) and middle managers, suggesting the need for technicians with managerial skills.

According to SDP personnel, there is a strong need for technicians by metal/metallurgical industries of the engineering industry sector.

* Note: The engineering industries include metalworking/machining, metallic furniture, household goods, electric/electronics, machine assembly, automobiles and transportation equipment, and household appliances.

Automobile Electric/Electronics

Companies engaged in automobile assembly and parts manufacturing are exposed to intensive competition in the global market and are engaged in various activities, including quality control, 5S, and kaizen, while training technicians and workers. Parts suppliers conduct activities in response to the customer's request (e.g., automobile assembler) by accepting the customer's field guidance (IMC's Feeding Industries Development Program). However, it will take long time to improve whole parts suppliers as there are more than 400 of them.

The next challenge is to ensure that such activities become firmly established, while promoting further quality improvement by raising quality awareness of supervisors and

workers (eventually to introduce a mechanism to incorporate quality into a product in the production line). In fact, Japanese automakers have pointed out the need for improvement on the supplier side, in terms of quality control and delivery schedule control (production planning and control).

Food processing

The Chamber of Food Industries, association of food-related companies, conducts workshops or training programs on food hygiene and hygienic control in cooperation of Food Technology Center. As for training at an individual company, there are strong needs for training of senior and middle managers, while hygienic education for field workers is increasingly demanded in recent years. Fields that are covered by ongoing training and are expected to enhance in the future are food production technologies such as food engineering, warehouse management, and cold-chain management, as well as management technologies including hygienic control, quality control, improvement of the production process, and inventory management (including storage technology).

Garment

As workers' skills form a key success factor for garment production, manufacturers are engaged in employee training that takes place mainly in-house. They believe that internal training for new employees is essential because most graduates of vocational training institutes have learned skills using a old knitting machine and cannot work in modern shops immediately. In addition, they have strong interest in upgrading of production technology, especially factory management technologies such as quality control and assurance, the improvement of the production process, 5S, and equipment maintenance (for instance, Mac Carpet, which is a client of PQIC). Equipment maintenance is expected to have large impacts on the spinning industry, which quality and productivity depends much on production equipment and its smooth operation.

(2) Industrial Human Resource Needs of Japanese Companies

The field survey has confirmed that the major needs of Japanese companies in relation to employment are found in two areas, namely the improvement of training and education for students in terms of readiness for work, and the improvement of the job placement service system. The first area consists of the following two elements.

Japanese companies want to see the improvement of public education in relation to basic business skills. Most companies have pointed out that Egyptian employees generally lack knowledge and skills required for any modern business, including report writing, scheduling and schedule management, and problem identification and solution. At present, they teach such knowledge and skills through internal education and training, but they expect the public

education system to meet the needs from the standpoint of cost reduction and productivity improvement. Some have noted that these problems are more attributable to basic education, including the present educational method used, than technical education. As the education method has evolved over a long history, it will take considerable time and effort to change it in a better direction. In any case, the criticism should be taken into account when the improvement of technical skills is talked about.

Secondly, Japanese companies expect middle schools and vocational training institutes – primary sources of production workers – to teach knowledge and skills that enable new employees to work effectively without costly and time consuming training. As many Japanese companies use production techniques that are customized to each company, whereas they see knowledge and skills learned at middle schools or vocational training schools not useful in the production line. They believe that they have to teach production skills to new employees from scratch, implying that technical training conducted at schools fails to help students to master fundamentals. In fact, an automaker hiring around 1,300 workers provide extensive training. It should be noted, however, that many of Japanese companies operating in Egypt do not have their production facilities and thus do not conduct employee training programs.

As for job placement service by public organizations (including schools), the following two needs are expressed.

First of all, there is a need for the public system to support access to job seekers. Educational institutions in Egypt devote themselves to education, not providing job placement service for graduates. This means that Japanese companies have to find and contact job seekers by themselves, but they have a limited means of access as no public service is available. As discussed earlier, there are many private companies (employment agencies) operating in the job market for managers and specialists, and many Japanese companies are using them. On the other hand, employment agencies do not provide (or are reluctant to provide) service in the market for production workers and Japanese companies primarily rely on personal connections (e.g., friends or relatives of current employees). The lack of the proper intermediary service prevents Japanese companies from finding workers efficiently but also hiring workers according to the needs of a particular workplace. The establishment of the public support system to link employers and job seekers is highly demanded.

Secondly, a formal system to evaluate competence of job applicants needs to be established. Although preliminary selection is made on the basis of CV and other information submitted by applicants for a manager/specialist position, such information is largely self-claimed and many Japanese companies feel the difficulty in evaluating their actual competence accurately. On the other hand, many Japanese companies do not attach important to academic record or certification of applicants for production workers and hire new employees

through personal connections. This partly reflects the fact that they have a limited means of access to job seekers and thus do not have opportunity to select an employee from several candidates. Then, even if accessibility to job seekers is improved, it will face the same limitation as the hiring of managers and specialists, i.e., the lack of the formal system to evaluate competence of applicants. To meet these needs, therefore, various efforts are required on the public sector side, such as the establishment of unified standards to assess academic record for fair and clear comparison, and the improvement of the competence certification system to allow objective evaluation of professional knowledge and skills.

(3) Overall trend

Naturally, companies' attitude toward employee training – including in-house and outside – varies greatly with their human resource development policy. For instance, according to a personnel in charge of IMC, Egyptian companies are not strongly aware of the need for in-house employee education and training. The representative of Industrial Chamber pointed out that, while large and medium-sized enterprises invested in human resource development, small enterprises had little interest. Major findings about the overall trend are summarized as follows.

- a) Many companies use public support programs such as IMC, ITC, and SDP, when they send employees to outside training and invite outside instructors for in-house training.
- b) OJT is a primary vehicle to improve knowledge and skills in the production management field. Some companies adopt an advanced approach, such as the construction of a skill map (matrix) to understand skills of individual workers and support capacity development. Some industries (e.g., plastics, food and metal) and companies vigorously use short-term courses (often using IMC; lecture-based leadership training) conducted by SDP and TVET organizations.
- c) As for capacity development in the management field (including production management and quality control), companies covered by the present study are generally engaged in human resource development in a variety of ways, including in-house training by in-house or outside instructors, and the sending of employees to training programs conducted by outside organizations. Service providers in the management field are including public organizations (e.g., Leadership & Management Development Center and PQIC), university organizations (The American University in Cairo, etc.), and private companies. On the other hand, vocational training institutes under the MOE and MOTI, which provide TVET programs, do not offer training at individual companies.
- d) Human resource development programs in the management field are mainly intended for supervisors and managers, while they include courses relating to computer, foreign

language, and communication skills that also accommodate administrative staff. Companies that are highly committed to human resource development conduct training specific to job class (e.g., senior managers, middle managers, supervisors, and operators). Several companies conduct systematic training for new employees. Training courses for managers include “strategic management,” “TQM,” “financial management,” “HRD,” and “managerial skills (leadership, teamwork, problem solving, setting objective, etc.).”

- e) Many companies use IMC for human resource development, ISO certification (9000S and 14000S), and improvement of management system (financial system, cost management system, and ERP). In many cases, outside consultants provide support service, such as advice on preparation for ISO certification and system development.
- f) While a variety of human development activities and programs mentioned above are conducted, many companies hope to improve productivity and quality further by receiving professional advice using a more practical method (improvement of training content, field guidance by experts, etc.). Factory visits conducted under the present study revealed that many companies had a variety of problems relating to productivity and quality, e.g., “the production process includes wasteful operations as 5S or kaizen activities on the shop floor are not carried out adequately”; “quality data are not well marshaled or used”; “quality data collected do not result in effective quality improvement activities, making the rejection rate remain at high level”; and “equipment maintenance is not properly carried out to cause frequent failure and a low capital utilization rate.” Also, companies that already work with productivity and quality improvement intend to raise awareness of technicians and workers so as to maintain or step up the ongoing productivity/quality improvement activities.
- g) Job classes cited to require the reinforcement of training are senior and middle managers, which reflect the lack of human resources capable of teaching production techniques as well as production management techniques to workers.

Chapter 4
Potential Use of Information Technology for Employment Promotion
and Major Issues

Chapter 4 Potential Use of Information Technology for Employment Promotion and Major Issues

4.1 Current State of ITC Infrastructure Development in the Middle East Region

This chapter analyzes the region's ITC infrastructure by focusing on telecommunications infrastructure – broadband service and cellular phone in particular – and the current state of e-learning using the infrastructure, together with major issues and challenges.

4.1.1 Telecommunications market

The telecommunications market in the region and its growth trend are examined and analyzed for three key segments, namely fixed line phone, the Internet, and cellular phone.

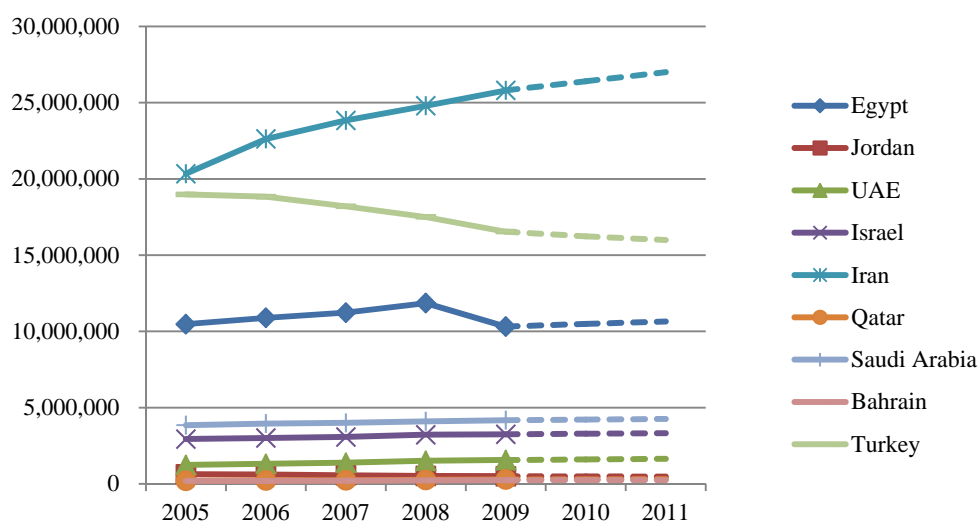
(1) Fixed line phone market

The number of fixed line phone subscribers has been decreasing in Jordan and Turkey year after year, while that in Egypt grew until 2008 and declined in 2009. For the rest of the region, subscribers have been steadily growing, although slowly (see Table 4-1-1 and Fig.4-1-1).

Table 4-1-1 Recent Changes in the Number of Fixed line Phone Subscribers in Selected Middle East Countries

Country	Number of fixed line phone subscribers					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	10,474,273	10,890,050	11,228,849	11,852,539	10,312,559	0.28%
Jordan	628,000	614,000	559,000	518,990	501,238	-4.88%
UAE	1,236,860	1,309,683	1,385,523	1,508,289	1,561,196	5.39%
Israel	2,936,295	3,004,653	3,074,602	3,224,000	3,250,000	2.30%
Iran	20,339,000	22,626,944	23,835,000	24,800,000	25,804,100	5.41%
Qatar	205,386	228,327	237,368	263,363	285,270	7.84%
Saudi Arabia	3,844,000	3,951,000	3,996,000	4,100,000	4,171,000	1.87%
Bahrain	193,520	194,196	203,541	220,386	238,400	4.97%
Turkey	18,978,224	18,831,616	18,201,006	17,502,204	16,534,356	-3.06%

Source: "World Information and Communication Overview" by Ministry of Internal Affairs and Communications of Japan (<http://g-ict.soumu.go.jp/>)



Note: The figures in and after 2010 are estimated.

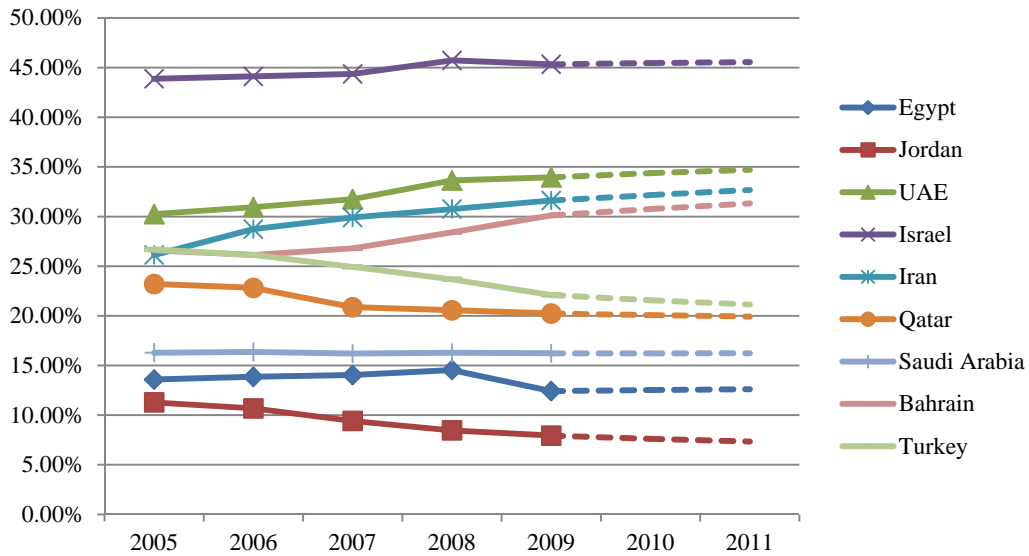
Fig.4-1-1 Recent Changes in the Number of Fixed line Phone Subscribers in Selected Middle East Countries

As for the ownership rate of fixed line phones, only the UAE, Iran and Bahrain show steady growth, while other countries level off or decline, suggesting that their populations grow faster than the rate of increase in fixed line subscribers. The ownership rate in Egypt is lower than other countries (see Table 4-1-2 and Fig.4-1-2).

Table 4-1-2 Recent Trend in Fixed line Phone Ownership in Selected Middle East Countries

Country	Fixed line phone ownership rate					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	13.58%	13.85%	14.03%	14.54%	12.42%	-1.37%
Jordan	11.28%	10.68%	9.41%	8.46%	7.94%	-7.50%
UAE	30.25%	30.94%	31.75%	33.63%	33.95%	2.60%
Israel	43.88%	44.11%	44.36%	45.72%	45.33%	0.72%
Iran	26.13%	28.74%	29.91%	30.75%	31.62%	4.29%
Qatar	23.20%	22.82%	20.87%	20.56%	20.24%	-2.80%
Saudi Arabia	16.28%	16.36%	16.19%	16.27%	16.22%	-0.06%
Bahrain	26.60%	26.12%	26.80%	28.42%	30.12%	2.99%
Turkey	26.67%	26.12%	24.93%	23.68%	22.10%	-4.14%

Source: "World Information and Communication Overview," MIC (<http://g-ict.soumu.go.jp/>)

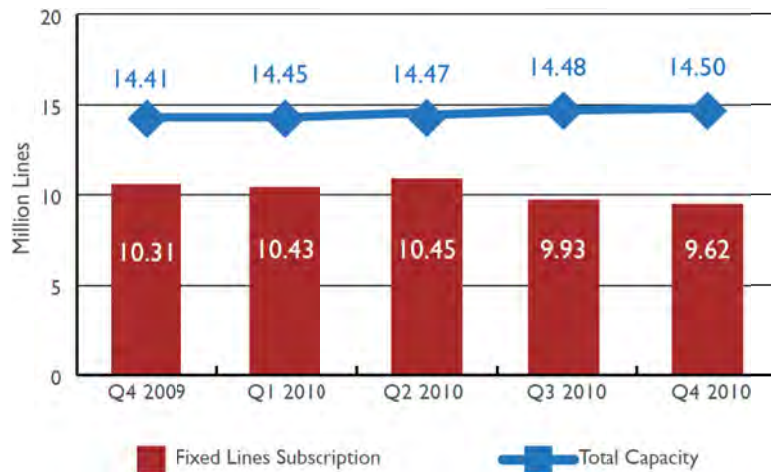


Note: The figures in and after 2010 are estimated.

Fig.4-1-2 Graph Showing Change in Fixed line Phone Ownership in Selected Middle East Countries

The fixed line phone market in the region seems to level off or decline gradually in terms of the number of subscribers and ownership, as seen in many other countries. In particular, Egypt shows a low ownership rate as compared to other Middle East countries. One factor is that Fixed line telephone service in Egypt is monopolized by Telecom Egypt (as of 2008), which continues to dominate the market after liberalization in 2006, making it difficult to encourage competitors to emerge.

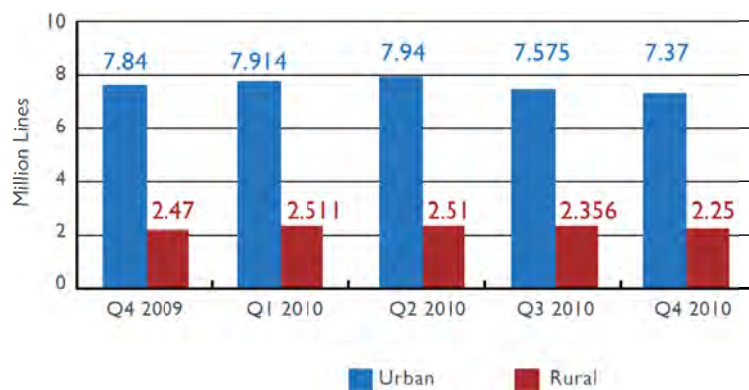
According to the latest statistical data provided by the MCIT and Telecom Egypt, the country’s fixed line subscriber population decreased by around 7% between the fourth quarter of 2009 and the fourth quarter of 2010. It fell below 10 million after the third quarter of 2010 and appears to continue the declining trend (see Fig.5-1-1).



Source : Ministry of Communications and Information Technology, Telecom Egypt

Fig.4-1-3 Fixed Line Subscriber Population Trend in Egypt

The above trend is commonly seen in urban and rural areas, indicating that the number of fixed line subscribers has been decreasing throughout the country.



Source : Ministry of Communications and Information Technology, Telecom Egypt

Fig.4-1-4 Fixed Line Subscriber Population Trends in Urban and Rural Areas

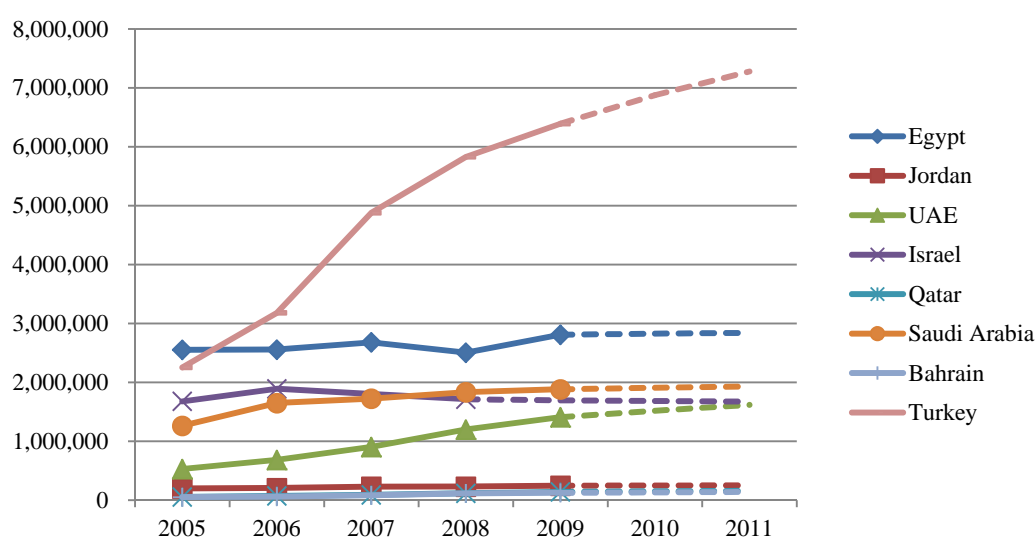
(2) Internet connectivity market

The number of Internet subscribers connected to the Internet via a dial-up line, a fixed broadband line (such as DSL, CATV, and FTTH) or a leased line has been growing steadily in all the countries. In particular, the UAE, Qatar, Bahrain, and Turkey undergo fast growth. In Egypt, Internet subscriber population is much smaller than other Middle East countries, although it grows strongly (see Table 4-1-3 and Fig.4-1-5).

Table 4-1-3 Recent Changes in the Number of Internet Subscribers Using Fixed Lines in Selected Middle East Countries

Country	Number of Internet subscribers					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	2,551,583	2,555,573	2,679,127	2,504,753	2,808,825	2.25%
Jordan	196,800	205,704	228,333	229,074	244,513	4.80%
UAE	528,677	683,392	904,010	1,200,426	1,408,413	23.87%
Israel	1,677,285	1,890,000	-	1,714,000	-	0.25%
Iran	-	-	-	-	-	-
Qatar	53,146	70,121	87,645	115,888	139,093	23.26%
Saudi Arabia	1,262,909	1,647,913	1,722,316	1,832,289	1,881,838	9.09%
Bahrain	50,299	60,094	79,988	114,502	-	22.12%
Turkey	2,253,102	3,180,104	4,878,674	5,829,201	6,391,732	26.25%

Source: "World Information and Communication Overview," MIC, <http://g-ict.soumu.go.jp/>



Note: The figures in and after 2010 are estimated.

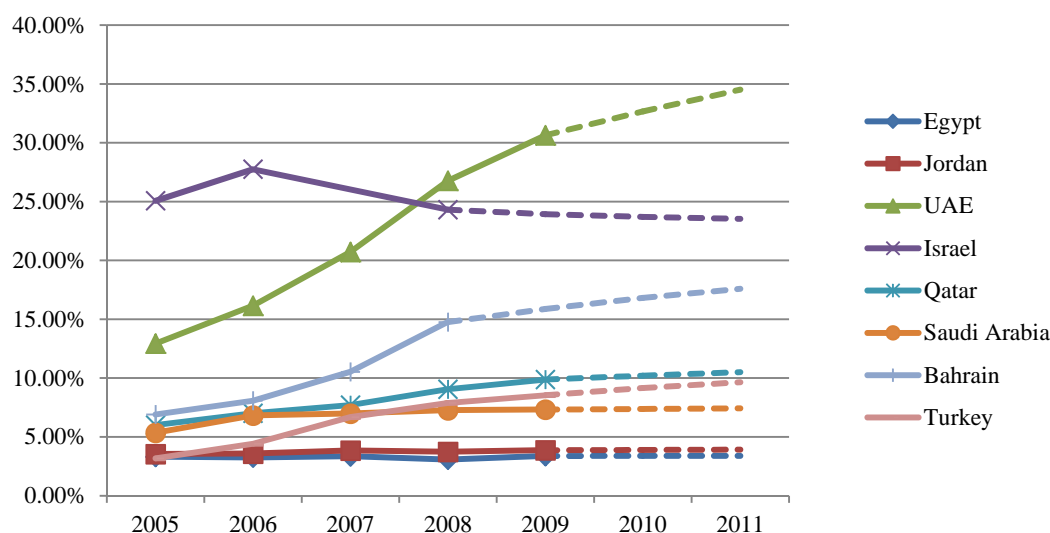
Fig.4-1-5 Graph Showing Changes in Fixed Line-based Internet Subscriber Population in Selected Middle East Countries

Similarly, the Internet connectivity rate using fixed lines has been firmly growing in the region. Again the UAE, Bahrain and Turkey experience rapid growth. In particular, the UAE has the connectivity rate of over 30%, indicating the Internet has penetrated into large portions of population. On the other hand, the connectivity rate in Egypt is relatively low, at around 3% as of 2009, in comparison to the rest of the region (see Table 4-1-4 and Fig.4-1-6).

Table 4-1-4 Recent Changes in the Internet Connectivity Rate in Selected Middle East Countries

Country	Internet connectivity rate					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	3.31%	3.25%	3.35%	3.07%	3.38%	0.63%
Jordan	3.54%	3.58%	3.84%	3.73%	3.87%	1.98%
UAE	12.93%	16.15%	20.72%	26.77%	30.63%	20.69%
Israel	25.07%	27.75%	-	24.31%	-	-0.93%
Iran	-	-	-	-	-	-
Qatar	6.00%	7.01%	7.70%	9.05%	9.87%	11.32%
Saudi Arabia	5.35%	6.82%	6.98%	7.27%	7.32%	7.10%
Bahrain	6.91%	8.08%	10.53%	14.76%	-	20.18%
Turkey	3.17%	4.41%	6.68%	7.89%	8.54%	24.82%

Source: "World Information and Communication Overview," MIC, <http://g-ict.soumu.go.jp/>



Note: The figures in and after 2010 are estimated.

Fig.4-1-6 Graph Showing Changes in the Internet Connectivity Rate in Selected Middle East Countries

Then, subscriber population and the connectivity rate are analyzed by focusing on fixed broadband lines (including DSL, CATV Internet, FTTH and etc.). Note that the fixed broadband line is defined as a high speed line that provides the transmission rate of 256kbps or faster in either traffic.

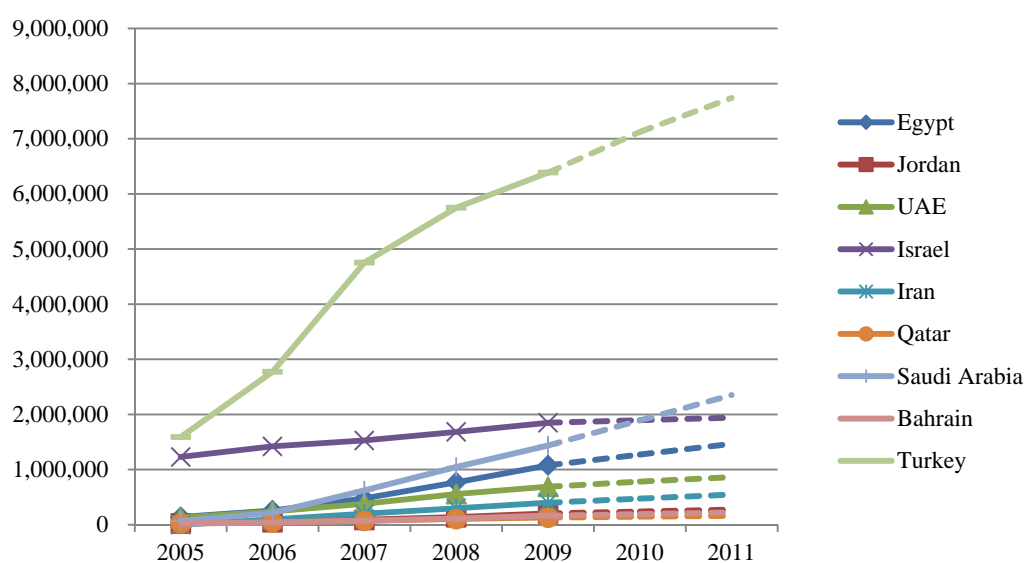
The number of broadband line subscribers grows very rapidly in all the countries, exceeding the growth rate of the fixed Internet user population to underline the outstanding growth of broadband line service.

In particular, Saudi Arabia shows a predominantly high growth rate of over 100%. In Egypt, the number of broadband line subscribers grows at an annual average rate of over 50% in recent years, far outpacing that of dial-up line service users (see Table 4-1-5 and Fig.4-1-7).

Table 4-1-5 Recent Changes in the Number of Broadband Line Subscribers in Selected Middle East Countries

Country	Number of broadband subscribers					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	140,999	258,526	477,432	769,744	1,077,489	57.46%
Jordan	23,551	48,622	88,818	137,148	203,472	61.81%
UAE	129,320	240,620	379,800	557,577	690,424	45.52%
Israel	1,229,626	1,421,000	1,528,500	1,684,000	1,850,000	9.13%
Iran	-	100,000	200,000	300,000	400,000	50.52%
Qatar	25,128	46,773	70,340	103,367	129,907	44.26%
Saudi Arabia	67,798	218,176	623,116	1,048,098	1,437,718	108.90%
Bahrain	21,432	38,628	73,563	109,994	165,000	57.30%
Turkey	1,589,768	2,773,685	4,753,757	5,749,891	6,386,294	37.88%

Source: "World Information and Communication Overview," MIC, <http://g-ict.soumu.go.jp/>



Note: The figures in and after 2010 are estimated.

Fig.4-1-7 Graph Showing Changes in Broadband Line Subscriber Population in Selected Middle East Countries

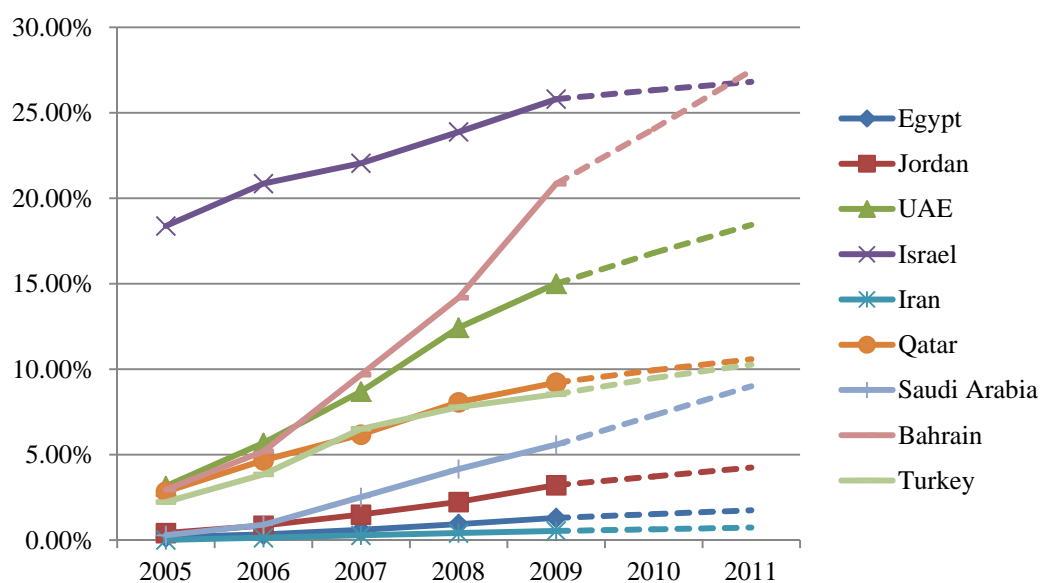
The broadband connectivity rate is also very high in all the countries, indicating the rapid progress of infrastructure development to enable distribution of content in large volume (see Table 4-1-6 and Fig.4-1-8). In comparison, the connectivity rate in Japan is 24.94% (as

of 2009), and Israel, Bahrain and the UAE are considered to be at the same level. On the other hand, the connectivity rate in Egypt is still low in comparison to other countries (as of 2009), although growing rapidly in recent years.

Table 4-1-6 Recent Changes in the Broadband Connectivity Rate in Selected Middle East Countries

Country	Broadband connectivity rate					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	0.18%	0.33%	0.60%	0.94%	1.30%	55.49%
Jordan	0.42%	0.85%	1.50%	2.24%	3.22%	57.53%
UAE	3.16%	5.69%	8.70%	12.43%	15.01%	41.71%
Israel	18.38%	20.86%	22.05%	23.88%	25.80%	7.52%
Iran	0.01%	0.14%	0.28%	0.41%	0.54%	49.11%
Qatar	2.84%	4.67%	6.18%	8.07%	9.22%	29.89%
Saudi Arabia	0.29%	0.90%	2.52%	4.16%	5.59%	104.09%
Bahrain	2.95%	5.20%	9.68%	14.18%	20.85%	54.27%
Turkey	2.23%	3.85%	6.51%	7.78%	8.54%	36.42%

Source: "World Information and Communication Overview," MIC



Note: The figures in and after 2010 are estimated.

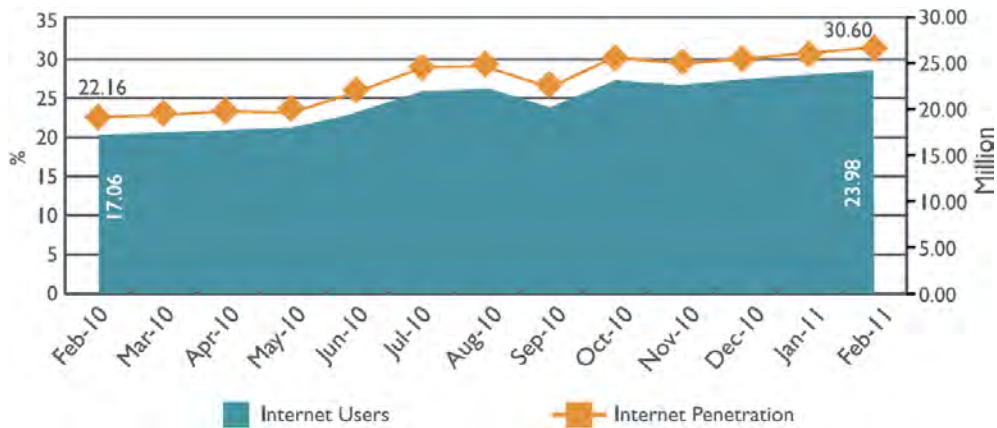
Fig.4-1-8 Graph Showing Changes in the Broadband Connectivity Rate in Selected Middle East Countries

According to the latest statistical data published by the MCIT and NTRA, the total number of Internet users amounted to approximately 23,980,000 as of February 2011, with

the connectivity rate of 30.60%. Compared to a year earlier, the subscriber population expanded by 41% (6,920,000) and the connectivity rate by 8.44% (see Fig.4-1-9).

On the other hand, the fixed Internet line data (not including mobile lines) indicate that the number of subscribers in 2009 was 2,810,000 (Table 4-1-3). While it is difficult to compare these figures directly, they suggest rapid propagation of Internet connectivity service in the recent few years.

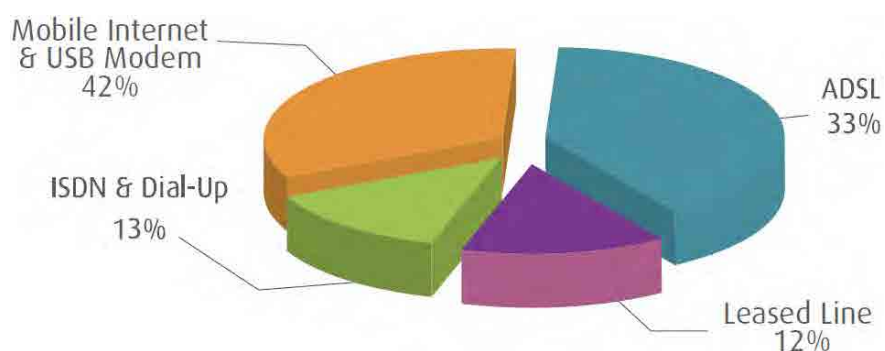
Meanwhile, interview surveys of various organizations in Egypt indicate that the Internet-related infrastructure in the country is being constructed rapidly, so that the subscriber population and the connectivity rate are expected to rise further in the foreseeable future.



Source: Ministry of Communications and Information Technology, National Telecom Regulatory Authority

Fig.4-1-9 Recent Trends in Internet User Population and Connectivity Rate in Egypt

According to Internet connectivity data by type of line in 2011, fixed broadband lines (ADSL and leased line) account for around 45% of the total and broadband lines including mobile 87%, indicating dominance of broadband lines (see Fig.4-1-10). However, FTTH has still to be pervasive and installation of fiber optic lines and related facilities is needed.



Source: Ministry of Communications and Information Technology, National Telecom Regulatory Authority

Fig.4-1-10 Breakdown of Internet Connectivity by Type of Line (As of 2011)

Comparison of the 2010 and 2011 data confirms backs up rapid growth of broadband lines, from 82.95% to 87.08%, while mobile line's share increased from 31.96% to 34.97% (see Table 4-1-7).

Table 4-1-7 Recent Changes in Internet Line Subscriber Population by Type of Line

Indicator	Unit	February 2010	January 2011	February 2011	Monthly Growth Rates (%)	Annual Growth Rates (%)
ADSL Subscription	Million Subscription	1.07	1.43	1.45	1.12	35.06
Mobile Internet Users	Million Subscription	5.83	8.09	8.38	3.65	43.76
USB Modem Subscription	Million Subscription	0.52	1.58	1.66	5.01	220.92
Proportion of Mobile Internet Users of Total Internet Users	%	31.96	34.40	34.97	0.57	3.02
Proportion of Broadband Internet Users of Total Internet Users	%	82.95	86.83	87.08	0.25	4.13

Source : Ministry of Communications and Information Technology, National Telecom Regulatory Authority

TE Data dominates the broadband line service in Egypt, accounting for over 50% of the total , followed by LINK dot NET (subsidiary of Orascom) with an 8.6% share (2008) (Fig.4-1-11). Note that TE Data became a wholly owned subsidiary of Telecom Egypt in 2010.

The rapid increases in the subscriber population and the connectivity rate can be partially attributable to the presence of competition, as opposed to the fixed line service. It should be noted that TE Data started FTTH service in 2009, but FTTH does not have a significant share in the Internet connectivity market (Fig.4-1-10), suggesting that fiber optic lines are not installed widely. In the future, therefore, further expansion of broadband line service will be driven by fiber optic lines.

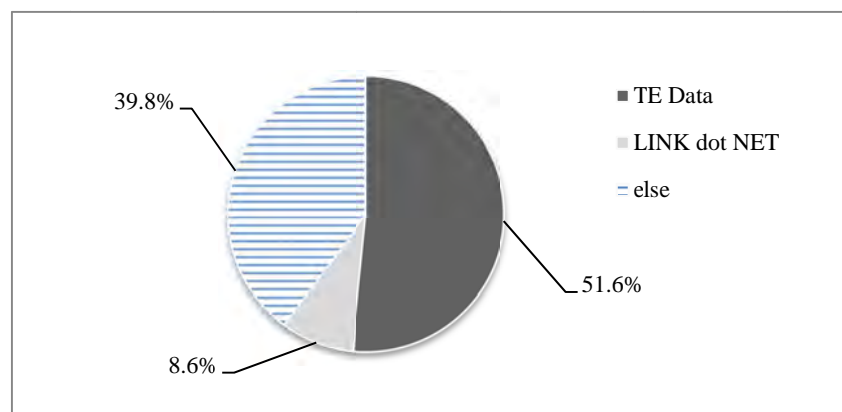


Fig.4-1-11 Broadband Line Service Market Share in Egypt (2008)

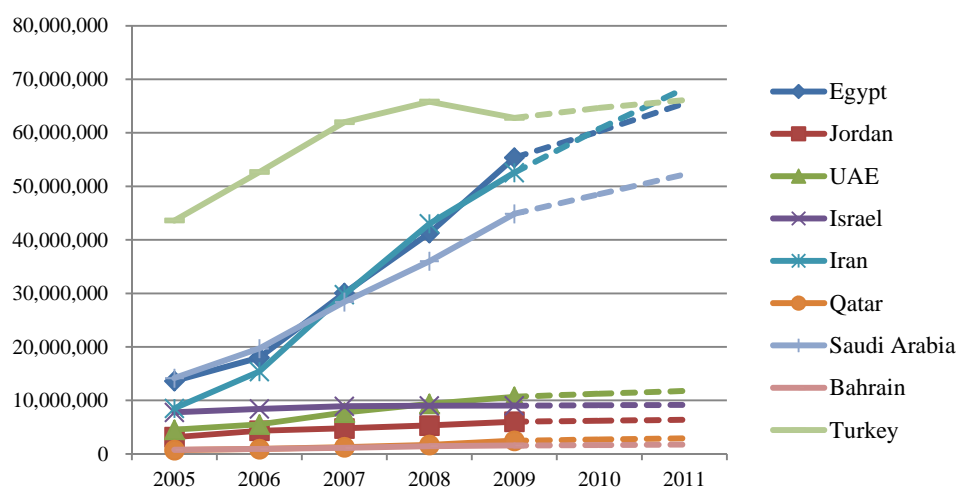
(3) Cellular phone market

The number of cell phone subscribers has been growing rapidly in all the countries, reaching very high ownership rates. Egypt shows the highest growth rate (35.88%) per year in the region (see Table 4-1-8 and Fig.4-1-12).

Table 4-1-8 Recent Changes in the Number of Cellular Phone Subscribers in Selected Middle East Countries

Country	Number of cell phone subscribers					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	13,629,602	18,001,106	30,065,242	41,272,472	55,352,232	35.88%
Jordan	3,137,700	4,343,100	4,771,641	5,313,564	6,014,366	15.18%
UAE	4,534,143	5,519,293	7,731,508	9,357,735	10,671,878	20.45%
Israel	7,757,000	8,403,765	8,902,000	8,982,000	9,022,000	3.29%
Iran	8,510,513	15,385,289	29,770,000	43,000,000	52,555,000	51.32%
Qatar	716,763	919,773	1,264,369	1,682,980	2,472,130	30.92%
Saudi Arabia	14,164,184	19,700,000	28,400,000	36,000,000	44,864,356	28.57%
Bahrain	767,103	907,433	1,115,979	1,440,782	1,578,000	17.01%
Turkey	43,608,964	52,662,700	61,975,808	65,824,112	62,779,552	8.60%

Source: "World Information and Communication Overview," MIC, <http://g-ict.soumu.go.jp/>



Note: The figures in and after 2010 are estimated.

Fig.4-1-12 Graph Showing Changes in Cell Phone Subscriber Population in Selected Middle East Countries

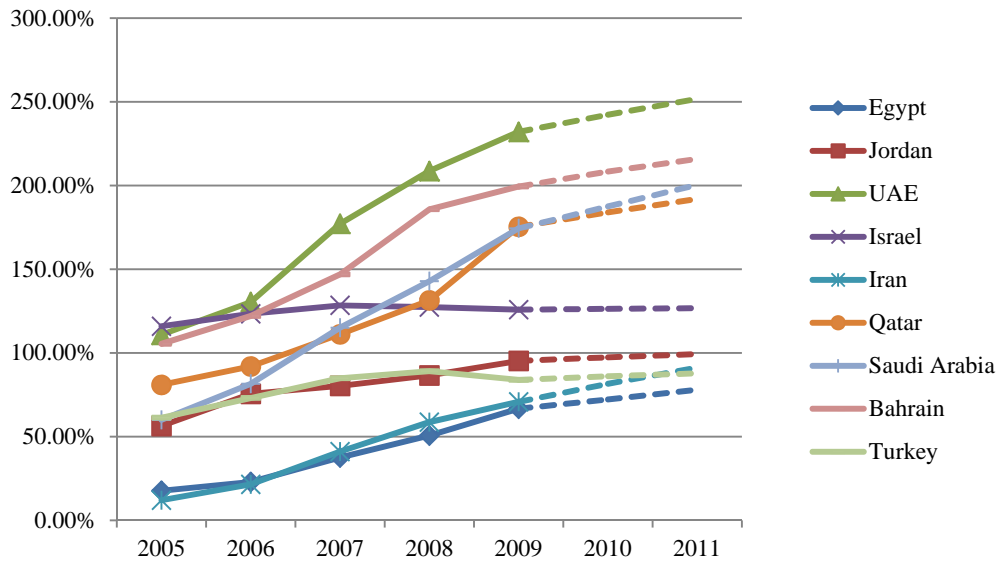
As seen in the other telecommunications services, the cell phone ownership has been growing rapidly in all the countries. Egypt shows the highest rate of growth (33.69% annually), although the actual ownership rate of 66.69% (2009) is much lower than other countries (see Table 4-1-9 and Fig.4-1-13).

The UAE shows the highest ownership rate of 232.07% (2009) and many countries exceed 100%, indicating high popularity of cellular phone in the region. In comparison to Japan where the ownership rate is 90.37% (2009), the Middle East region boasts high market acceptance, probably because of wide use of prepaid cellular phones. .

Table 4-1-9 Recent Changes in the Cell Phone Ownership Rate in Selected Middle East Countries

Country	Cell phone ownership rate					Compound annual growth rate (CAGR)
	2005	2006	2007	2008	2009	
Egypt	17.67%	22.90%	37.55%	50.62%	66.69%	33.69%
Jordan	56.37%	75.57%	80.32%	86.60%	95.22%	12.07%
UAE	110.89%	130.40%	177.17%	208.65%	232.07%	17.37%
Israel	115.92%	123.38%	128.43%	127.38%	125.84%	1.78%
Iran	12.03%	21.49%	41.10%	58.65%	70.83%	49.70%
Qatar	80.95%	91.92%	111.15%	131.39%	175.40%	18.21%
Saudi Arabia	59.99%	81.56%	115.07%	142.85%	174.43%	26.16%
Bahrain	105.43%	122.05%	146.92%	185.77%	199.38%	14.89%
Turkey	61.28%	73.05%	84.89%	89.05%	83.91%	7.44%

Source: "World Information and Communication Overview," MIC, <http://g-ict.soumu.go.jp/>



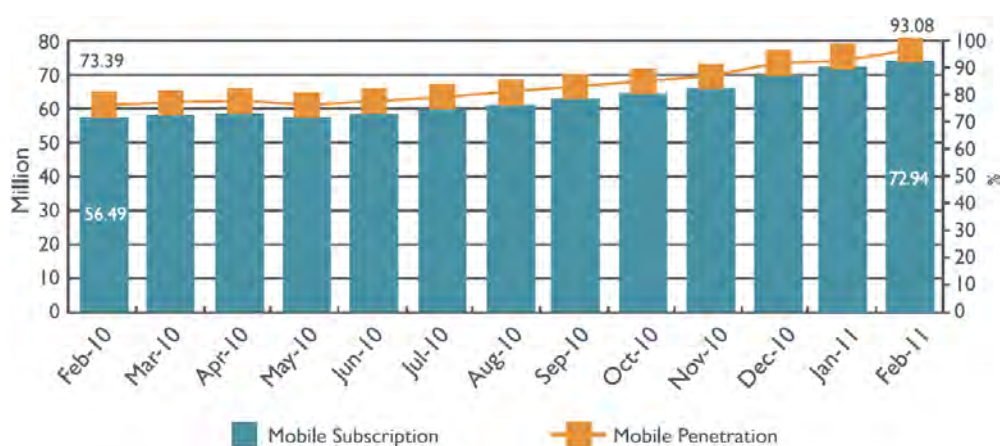
Note: The figures in and after 2010 are estimated.

Fig.4-1-13 Graph Showing Changes in the Cell Phone Ownership Rate in Selected Middle East Countries

According to the latest statistical data published by the MCIT and NTRA, the total number of cell phone users reached around 72,940,000 in February 2011, with the ownership rate of 93.08%. Compared to the same month a year ago, subscription has increased by 16,450,000 persons (up 29%) and the ownership rate by 19.69 percentage points (see Fig.4-1-14).

In comparison to the 2009 data – 55,350,000 subscribers (Table 4-1-8) and the ownership rate of 66.69% (Table 4-1-9), the above data indicate that cell phones became pervasive at an explosive rate in 2010.

Furthermore, the latest number of subscribers (as of June 2011) reached 76,430,000 and strong growth still continues. (It was made known at the time of announcement on the increase in cell phone number digits from 10 digits to 11 digits, effective on October 6, 2011.)



Source : Ministry of Communications and Information Technology, National Telecom Regulatory Authority

Fig.4-1-14 Changes in the Cell Phone Subscriber Population and Ownership Rate in Egypt

As for mobile Internet users, cell phones subscribers using Internet service increased from 10.32% of the total in 2010 to 11.50% in 2011. Thus, as seen in Japan and elsewhere, cell phones go beyond a conventional communication tool to become a gateway to the Internet (see Table 4-1-10).

Cell phone companies in Egypt are now offering a variety of smartphone models, including iPhone and Black Berry. With an anticipated increase in use of the smartphone, mobile Internet user population is expected to increase at an accelerated rate.

Table 4-1-10 Recent Changes in Mobile Internet User Population in Egypt

Indicator	Unit	February 2010	January 2011	February 2011	Monthly Growth Rates (%)	Annual Growth Rates (%)
Mobile Internet Users	Million Subscription	5.83	8.09	8.38	3.65	43.76
Proportion of Mobile Internet Users of Total Mobile Subscription	%	10.32	11.32	11.50	0.17	1.17

In the cell phone service market in Egypt is divided by three companies, Mob Nil (Egyptian Company for Mobile Services, a subsidiary of Orascom) that holds the highest share of 44% (as of 2008), Vodafone Egypt 40%, and Nile Telecom 16% (see Fig.4-1-15).

Note that Telecom Egypt has acquired 44.95% of Vodafone Egypt and shows its presence in the mobile market.

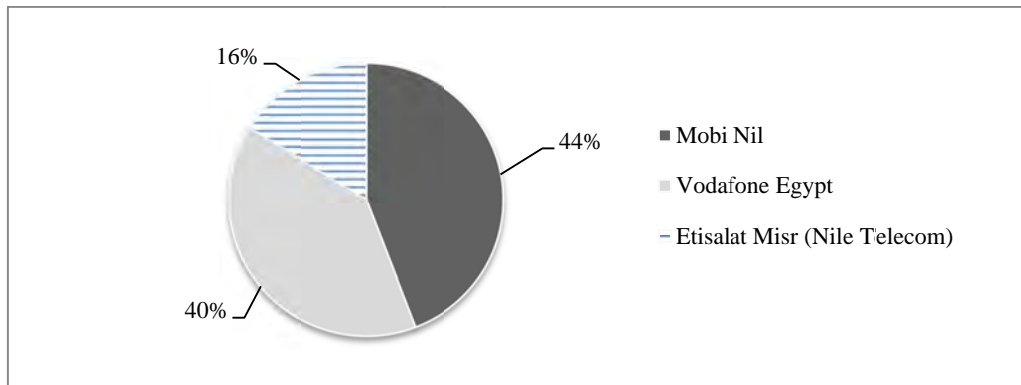


Fig.4-1-15 Cell Phone Service Market Share in Egypt (2008)

4.1.2 Current State of E-learning in Egypt

The study team conducted the current state survey of ongoing e-learning services. The results indicate that some e-learning services provide the same level of service in terms of technology as provided in many industrialized countries (including E-Learning Competence Center). It can be concluded that it is feasible to deploy e-learning service nationwide in Egypt by establishing an effective delivery system to compensate for the country's disadvantage in terms of infrastructure. E-learning is known to be suitable for the study focusing on knowledge, but the opposite is true for the study to learn practical skills through experience. In fact, the services examined by the study team focus on subjects suitable for e-learning, such as IT, management, accounting, and foreign language, indicating that service providers understand a proper educational method that can make effective use of the e-learning environment.

Also, e-learning service must be supported by proper software, in addition to hardware, such as a built-in process to evaluate, improve and update teaching materials and the establishment of a support system to provide equal opportunity for broad population groups by taking into account the state of infrastructure in the country. In this regard, many innovative efforts and results have been confirmed. Thus, it can be concluded that Egypt has the same level of technology and know-how relating to e-learning as industrialized countries does, so that it meets basic requirements for nationwide deployment of the e-learning system.

The following three cases are considered as representative examples of e-learning currently conducted in the country.

- (1) E-Learning Competence Center (eLCC) – offering the same level of e-learning service as provided in industrialized countries

eLCC was established by the Ministry of Communications and Information Technology (MCIT) in 2004, in cooperation of Cisco Systems. It offers educational courses primarily founded on e-learning service, which accounts for around 70% of course content, and face-to-face instruction the remaining 30% and is designed to complement e-learning education. The system is considered to be highly effective in terms of the level of understanding, together with well-designed devices to stimulate and motivate the student.

eLCC's educational centers are installed at around 700 locations throughout the country (200 at universities, 200 at vocational training schools, and 300 at other educational institutes), making the educational service (including face-to-face instruction) accessible from all over the country. For students who do not have a PC at home, the service system allows them to use a PC installed at a nearby educational center. Thus, eLCC operates the system that makes most use of e-learning's advantages, including the ability to provide equal learning opportunity for a large number of students, regardless of geographical location or financial status.

eLCC's courses cover a broad range of IT-related subjects, such as "IT Essential," "iExe Business Essentials," "Starting a Business," "Growing a Business," "IT in Organizations," "Business Computer Basics," "CCNA Certification," "CCNA Security," "Microsoft Unlimited Potential Program," "E-learning Diploma," and "Web Communications for Business (newly established)," and basic courses seem to account for a relatively large part. While many courses are developed and provided by Cisco Systems, eLCC has been creating their own courses in cooperation of other partners including Microsoft. At the same time, it makes successful efforts to ensure continuous improvement of educational quality by modifying partner-developed courses to reflect local conditions peculiar to Egypt, followed by a subsequent evaluation and refinement cycle to ensure constant upgrading and updating. In addition, eLCC's program is designed to assist students in obtaining IT-related certification, such as Cisco System's Certification Program and a course covering Computer Driving License, which becomes an important qualification for college graduates.

In addition to Cisco's educational platform, Sales Force's LMS (Learning Management System) is used to allow centralized management of program-related activities, ranging from preparation of teaching materials, to distribution of content, and the monitoring of individual

students in relation to their study and progress, with an aim to provide education for the maximum number of students by using limited resources. To date, a total of 56,610 persons have taken eLCC's courses. In conclusion, eLCC is successfully providing high-quality education in an efficient manner by using latest technology.

Notably, e-learning content is developed and provided by making innovative efforts in terms of software technology. While it is made compact in terms of data volume to allow for the country's insufficient telecommunications infrastructure, i.e., to ensure smooth operation through dial-up connection (telephone line), it is elaborately designed using animation and other features to allow users to understand operation intuitively.

Thus, the e-learning system incorporates high level of technology emulating that used in industrialized countries and is designed to make most use of e-learning and its advantage.



Fig.4-1-16 Image of eLCC's E-learning Course (Business Computer Basics)

(2) Egyptian E-learning University (EELU)

EELU was established in 2004 as the first university (the legal status – NPO) in the country to offer formal e-learning education. Its courses are basically conducted through the e-learning system only (except graduate-level study and examinations), making a sharp contrast to eLCC's program that includes face-to-face instruction. EELU has three educational centers in Cairo, Tanta, and Assiut. While the number of centers as well as the

number participants differs from eLCC, EELU has also policy to minimize the burden on students who live remotely from major urban areas.

EELU offers three countries, namely “Computers & IT (four-year),” “Commerce & Business Administration (four-year),” “Master of Internal Business Administration (two-year, not undergraduate), featuring knowledge-based study.

The courses are characterized by a method for distribution of educational content. Students download and view content (video recorded lecture) to their own PCs. The system allows downloading via the fixed line, advantageous in consideration of the current state of the country’s infrastructure. Furthermore, as there is no need for data compression using the latest technology, EELU’s distribution system is built at a lower cost than eLCC’s system (although care should be taken to prevent downloaded data from being copied or transferred to a third party). Thus, EELU has successfully implemented the e-learning system that can provide the same level of educational opportunity for a large number of persons, regardless of geographical condition or financial status, although it uses a different technology from eLCC’s.

(3) American Chamber of Commerce in Egypt

American Chamber of Commerce in Egypt provides educational content in the e-learning form, which consists of two courses (“Business & Desktop” and “IT”). Both courses cover subjects that are suitable for acquisition of knowledge through e-learning.

“Business & Desktop” course offers four modules: “Soft Skills (27 curriculums in total)” that deal with basic business knowledge and skills, such as communication, presentation, time management, and self-management; “Managerial Skill (16 curriculums) that cover a variety of management techniques; “Others (10 curriculums); and “Desktop Computing (21 curriculums) that primarily covers the use of Microsoft’s Office products. On the other hand, “IT” course is composed of “Technical Skills (41 curriculums) that teaches about software products provided by Cisco, ORACLE, and SunMicrosystems, “MicroSoft Skills (21 curriculums) focusing on the use of Microsoft’s enterprise system products, and “WebDevelopment Skills (20 curriculums)” that provides a wide range of technical education materials on the development of a corporate Web site. Overall, the e-learning system offers broad content for a variety of jobs from office workers to technical specialists, at relatively low prices ranging from LE140 (US\$26) to LE250 (\$47).

Uniquely, American Chamber of Commerce issues a certificate to a person who has completed each course, which is then automatically registered with ACC's Web site in a form viewable from outside. This is designed to support course participants in relation to job seeking activity and is not offered by other educational institutions.

ACC's e-learning content is provided in two forms (video and text/voice), depending on individual courses. Video content can be chosen from two types, high speed and low speed lines, allowing a participant to select downloaded data volume according to the learning environment. In fact, the study team was able to view video content for the high speed line relatively smoothly under the low speed environment. This is because content is created with a relatively small data volume – an appropriate decision to take into account the country's infrastructure condition. Similarly, text plus voice content can be viewed with few interruptions.

4.1.3 Current State of E-learning in Middle East

In the region, the Middle East E-learning Association (MEEA) has been established for the purpose of promoting development and dissemination of e-learning, under the leadership of the UAE's Hamadan Bin Mohammed e-University (HBMeU). At present, MEEA consists of the following educational institutions and companies and promote the sharing of knowledge and experience on e-learning services conducted by the member organizations, together with e-learning promotion activities targeting the Middle East countries.

- Hamadan Bin Mohammed e-University (UAE)
- Arab Open University (Bahrain)
- Arab Open University (Jordan)
- Buraydah Community College (Saudi Arabia)
- Jazan University (Saudi Arabia)
- Open University (Malaysia)
- Al Quds Open University (Palestine)
- Arab Open University (Kuwait)
- Emirates (UAE)
- Xpert Learning (UAE)
- CAN DU: e-Business Apps (USA)

Thus, MEEA has a diverse membership consisting of educational institutions and companies from various countries, suggesting wide use of e-learning in other Middle East countries.

Also, MEEA is networked with e-learning organizations in various regions and countries, including leading organizations such as COL(Commonwealth of Learning), ICDE (International Council for Open and Distance Education), and IELA(International e-learning association) and is conducting activities including information sharing (e-learning technology and know-how) and dissemination and promotion of e-learning.

As a primary example of e-learning in the region other than Egypt, HBMeU's system is outlined below. EBMeU attempts to maximize effectiveness by combining three methods, as done by EELU, namely e-learning, online collaboration learning, and face to face learning.

As in the Egyptian case, HBMeU's e-learning component is designed to allow students to study at any time and place. Educational content can be either downloaded via the Internet or obtained in a CD format. Notably, use of the CD is helpful for facilitating participation because study access is not affected by the Internet environment.

Online collaboration learning is a component that enables online communication between an instructor and a student and between students for the purpose of asking a question by mail, via the Web site, or on a real time basis (such as chat).

Face to face learning means an ordinary lecture at a university or group work participated by students. It provides learning experience that is difficult to obtain through online study.

Finally, there is little difference from the Egyptian system in design concept, probably because e-learning's basic concept is fairly standardized throughout the world. The system's unique feature is found in the use of the CD as media, which allows the student to study, regardless of the Internet environment, in rural areas which often lack an appropriate communication infrastructure. Thus, it is useful for operation of the e-learning system in the region.

4.1.4 Issues Relating to E-learning Service

The field survey has revealed several cases that provide high quality education for a large number of people by using the e-learning system, which appears to be equally effective or even better than traditional education. To build a better e-learning system on the foundation of the successful cases, however, there are several issues to be addressed, in addition to the development of better content.

(1) Enhancement of the e-learning system that takes into account the country's infrastructure condition

Internet user population in Egypt has reached approximately 23,980,000 with the connectivity rate of 30.60% (as of February 2011), of which broadband line subscribers account for 87.08%. This reflects rapid development of the Internet connectivity environment, particularly broadband lines. On the other hand, narrow band service users (such as ISDN and dial-up connection) still represents around 13% of Internet users. Thus, the e-learning system need to allow access by people using a low speed line (led by dial-up connection from a fixed line phone) if it is to provide learning opportunity for many people.

At present, various solutions are already adopted by e-learning service providers: eLCC's system to minimize data volume by using the latest technology; EELU's system to download data directly to the student's PC; and distribution of CDs by HBMeU . While eLCC's system is more user friendly, further evaluation should be made by taking into account cost effectiveness for specific target groups.

(2) Establishment of an e-learning supportive education system

To expand e-learning opportunity to persons who do not have a PC at home (or without Internet connectivity), it is imperative to build up an e-learning environment at PC-equipped educational centers, which have to be established throughout the country because they also need to serve as a final examination site (it is difficult to authenticate personal identity in the e-learning environment).

Furthermore, if face-to-face instruction is added to complement the e-learning program, educational centers need to be established throughout the country and to have trainers who have received proper training. In this regard, eLCC is operating an efficient ToT system by organizing educational centers at hierarchical levels.

While the number of educational centers to be established, together with equipment requirements (PCs and trainers), will depend on the target group and overall system design, it is important to build up an e-learning supportive system capable of providing high quality education for large population.

(3) Job placement support

As stated in the Study's objective, industrial human resource development should include a final goal of finding jobs for trained workers, as well as high quality training itself. However, educational institutions surveyed by the study team are devoted to education and training, while paying little attention to providing support for their graduates in relation to job seeking activity, with exception of some organizations (holding Job Fair, etc.).

The e-learning system, by nature, can store information relating to personal ability and skills as a well-structured database and can be enhanced to publish it on the Internet as part of job placement service to help matching between companies and job seekers. As seen in the case of the American Chamber of Commerce, efforts should therefore be made to develop the e-learning system into an integrated device to provide education and employment support.

A possible action to be taken toward the goal is the establishment of a formal mechanism to provide accurate information on personal competence, on the basis of the e-learning results, for private companies. For instance, a competence certification system may be enhanced to include a certain level of assurance on professional knowledge and skills, or a system to quantify academic records under a unified standard may be established.

Chapter 5
Development Scenarios for Industrial Human Resource Development
in the Middle East Region

Chapter 5 Development Scenarios for Industrial Human Resource Development in the Middle East Region

5.1 Key Considerations to the Formulation of the Development Scenario

5.1.1 Review and Analysis of Major Issues

The present Study has conducted comprehensive analysis of the employment-related environment in the Middle East countries, including the working environment, employment conditions, and relevant industrial and labor policies, by starting from the analysis of the labor sectors in the region. Within this context, detailed study was carried out for Egypt to obtain profound understanding of awareness and attitude of job seekers (college students) about employment, as well as the actual human resource needs of industries. At the same time, interview surveys were conducted on Egyptian companies, including Japanese-affiliated ones, to find their views on employment-related issues. The results of the field surveys are presented in Chapters 2 to 4 of this report. Major issues relating to employment-related issues in Egypt and the Middle East region as a whole are highlighted as follows.

- (1) The labor sectors in the region are classified into three types according to their social and economic conditions

The Middle East countries including Egypt have varying socioeconomic conditions, according to which their labor sectors can be roughly classified into the following three groups.

- 1) Countries with high GDP per capita and a low unemployment rate

Mainly, the Gulf States (such as the UAE, Qatar and Oman) are classified into this category. Because they have small indigenous population, their employment rates are high so that attract immigrant workers. Israel is also considered to be under this category.

- 2) Countries with relatively high GDP per capital equivalent or close to that of middle income countries and a relatively high unemployment rate (above 10%)

Their GDP per capita ranges between \$3,000 and \$5,000, while their unemployment rate is higher than the world average, ranging between 10% and 15%. In fact, many of the Middle East countries including Egypt are classified into this group. In addition, Tunisia and Morocco in North Africa show the similar indicators.

- 3) Countries with low GDP per capita and a very high unemployment rate of over 30%

In particular, Yemen and Palestine are countries in conflict and their economies are dysfunctional, resulting in an above 30% unemployment rate.

(2) Labor movement within the region and giving priority to one's compatriots

The labor market in the region is generally characterized by a large number of immigrant workers, both temporary and permanent. High mobility of workforce within the Islamic region or the Arabic-speaking world is manifested as the influx of overseas workers from Malaysia, Indonesia and the Philippines to the Gulf States or the outflow of the workforce from countries with small labor demand (such as Palestine and Iraq) or large population (including Egypt) to other Arabic-speaking countries. This is increasingly threatening or depriving employment opportunity for people in host countries, especially young people. In consequence, some countries (such as Saudi Arabia and Jordan) have turned to labor policy that gives priority to indigenous population for the purpose of eliminating a threat of lost job opportunity (e.g., "Saudization" in Saudi Arabia).

(3) High unemployment in the young age group

While unemployment rates in the region vary widely from as low as 2% in the Gulf States over 30% in Yemen and Palestine. At the same time, unemployment in the 15 – 25 age group is particularly high and becomes a serious problem, as high as 25% even in the countries with a 10% unemployment rate (although it has risen to around 13% in 2011 partly due to the political turmoils). The jobless young age group contains people who have completed secondary education with vocational skills and higher education, such as college graduates. As the Middle East countries sustain relatively high rates of population increase, next to African countries, youth population is on the steady increase, whereas they do not have industries to absorb them effectively and help reduce unemployment.

(4) Four factors aggravating the high unemployment problem

There are four key factors that create and aggravate high unemployment in the region: (i) supply and demand imbalance in the labor market (massive supply vs. limited demand); (ii) low "employability" of young people; (iii) absence of an effective job information and matching system; and (iv) social and cultural factors relating to job seeking and employment.

As for imbalanced supply and demand in the labor market, while labor supply grows rapidly due to a high rate of population growth, employers prefer a short-term employment contract rather than a lifetime one (thus allowing them to adjust the workforce according to the business cycle), thus preventing stable labor relations. Furthermore, in some countries including Egypt, government organizations have traditionally absorbed a large workforce but are recently prevented from doing so due to a severe budget restraint.

Poor "employability" of young people in the region has been long pointed out by industries, and some improvements have been made as a result of various initiatives taken under support of international donor organizations. Yet, most educational institutions are

still unable to keep up with the dynamic changes in the actual industrial needs, including rapid technological advancement, constituting a large perception gap between them.

The existing public job information and matching service only provides a limited amount of recruitment information and does not function as an effective matching system to take into account the job seeker's qualification or employability. A matching system that meets such needs is provided on a fee basis and focuses on managers and professional workers group because of high remuneration. Thus, there is no public placement support system to serve a broad range of job seekers. Furthermore, most job seekers do not expect such support as educational institutions are not enthusiastic about it, and instead, they tend to rely on personal connections, e.g., families and friends. (The tendency also reflects the region's tradition to attach importance to family connection or reference in the recruitment process.)

Finally, social and cultural factors, including an unduly high expectation for employment, including the working conditions, a traditionally close family relationship, and discrimination based on sex or religion, often impede smooth job seeking and employment in the region including Egypt, especially those who have completed higher education.

- (5) Absence of industrial human resource development programs that are effectively linked to job creation

The present Study emphasizes importance of a direct linkage between human resource development programs with job creation. However, it has not been found in Egypt. At present, practical training at company is conducted at vocational training institutes in the secondary education stage by introducing the "dual education" concept, i.e., third-year students are required to spend major portions of their weekly study at host companies. However, the curriculum is by no means customized to the actual needs of each host company. Also, few companies guarantee to hire trainee students after graduation. The government also implements a program to provide cost subsidy for in-house training by individual companies, but it targets employees, not trainees. Similar policies seem to be pursued by other Middle East countries, with exception to programs that guarantee future employment at the time of admission to a vocational school, such as an auto mechanic training program in Saudi Arabia, which is carried out under Japan's technical assistance. Probably, many governments in the region opt to treat education and employment separately as policy agenda and do not see the need for an effective linkage between them as a key strategy for industrial development.

- (6) Absence of a formal system to assess and certify professional skills in an objective manner

As discussed earlier, the Middle East is characterized by high labor mobility within the Islamic or Arabic-speaking region. Yet there is no formal system to certify competence and

skills of workers according to an objective, unified standard. While some professions (typically doctors and nurses) require foreign workers to show a certificate, there is no formal system to evaluate English language proficiency. Egypt has recently started the introduction of an industrial skills certification system (technicians) for graduates of vocational training schools by administering a formal examination. Similar moves are seen in Jordan and Saudi Arabia, although their systems cover a limited number of fields. It is thus expected that skills certification will be adopted as an integral part of industrial human resource development and will be standardized as the metrics of competence and skills for the entire region. This way, the issue relating to the matching between the industrial needs and actual skills will be solved to allow smooth flow of labor force.

(7) A limited of investment projects by Japanese companies in the region

Direct investment by Japanese companies in the region (including North Africa) is fairly limited so far, in comparison to Asia and other regions. Also, investment projects are concentrated on specific geographical areas and sectors. The UAE, Saudi Arabia, Turkey and Egypt account for a combined total of 75% of investment made by Japanese companies in the region. The sectors receiving major portions of Japanese investment are commerce, finance, and insurance, while the manufacturing sector represents around 30%. Furthermore, Japanese companies mainly make relatively small investment, such as the operation of a liaison office and contract manufacturing. For instance, nearly 70 Japanese companies (including news media) have their office in Egypt, of which the manufacturing sector accounts for only eleven companies. They employ about 4,500 persons in total and the largest employer is a wire harness manufacturer (around 1,800 employees). There is no automaker that is engaged in full-scale assembly operation, not to mention the establishment of the supply chain including Japanese parts manufacturers as seen in other countries. In any case, Egypt hosts a relatively large number of Japanese companies in comparison to most of the region where their presence is barely felt, especially by the labor sector. Under these circumstances, it is rather inconceivable to implement a human resource development program to train workers demanded by Japanese companies.

On basis of the characteristics of the region's labor sector and major issues facing them, strategic direction and key considerations in relation to the formulation of the development scenarios are established as follows.

5.1.2 Strategic Direction Relating to Development Scenario Formulation

The primary objective of the Study is to collect and analyze information required to design a new scheme focusing on industrial human resource development for the region's industries as a key instrument to promote job creation and investment (including industrial policies in the Middle East countries, issues facing them, employment conditions, awareness of

people in relation to employment, and the intent of Japanese companies to invest in the region), select priority sectors in consideration of efforts made by other donors, and develop an effective approach to development assistance by the Japanese government and industry. Specific benefits expected from the Study are as follows.

- 1) Understanding of the current state of labor sector and its related environment in the two countries, including industrial policy, industrial human resource development, and the job market environment
- 2) Identification of sectors and fields that would contribute to promotion of investment by Japanese companies
- 3) Study on feasibility of a region-wide vocational training and industrial human resource development scheme by using e-learning and other information and communication technology
- 4) Study on feasibility of introduction of the public and private partnership (PPP) business model, and related proposals

The current state of the labor sector in the countries surveyed is discussed in Chapters 1 to 4 of this report. Then, the Study should focus on the other three items, i.e., identification of sectors and fields that would contribute to promotion of investment by Japanese companies, study on a new industrial human resource development scheme, and consideration to application of the scheme to the PPP business model. Note that the strategic direction of development scenario formulation is mainly examined from the viewpoint of its feasibility in Egypt (as the first step), while applicability to the rest of the region is taken into account.

5.1.2.1 Consideration to priority areas

- (1) Priority areas relating to investment by Japanese manufacturers

As discussed earlier, direct investment by Japanese companies in the region has been fairly limited in comparison to the U.S. and Europe which have much stronger political and economic ties. Meanwhile, Asian companies from South Korea, China, India and Pakistan are increasing investment in the region.

The Study has been originally initiated to seek ways to develop industrial human resources in the region as indirect support for promotion of investment by Japanese companies. It was based on the notion that human resource development leads to the improvement of the investment condition and promotion of foreign direct investment, which in turn creates employment opportunities, thus helping reduce the unemployment problem. Also, it was assumed that investment promotion would focus on Japanese manufacturing industries that are highly competitive and employ a large workforce. In reality, however, size of investment by Japanese companies (not to mention manufacturers) is very small. It can be concluded that it will not likely grow significantly, at least in the next few years, unless

the region achieves political stability. This means, it is very difficult to identify industrial sectors that would contribute to promotion of investment by Japanese companies, even if the time span is extended to five years.

However, there are two potential drivers for Japanese investment so long as political stability is achieved. First of all, as Egypt and other countries that are growing to middle-income countries have stronger purchase power, the needs for local production to substitute imports (Japanese products) are on the rise. In fact, investment projects initiated by Japanese manufacturers to target a host country and its neighboring market seem to include such intent. The second driver is the establishment of a production base serving the EU market and a fast growing African market. The results of the Study suggest that Egypt, Tunisia and Morocco have good potential to become such production hub. (Also, Turkey has steered in that direction.) While these arguments do not provide for the basis of finding potential sectors for Japanese investment, trade statistics and other investment-related data point to the possible emergence of investment opportunities in a variety of fields, including automobile, electrical and electronics equipment, and machinery where Japanese manufacturers have strength, and consumer goods which demand will grow strongly with the increase in buying power.

(2) Priority areas supporting Japanese companies and their operation in the region

At the same time, development of the supplier base (supporting industries) that serves Japanese manufacturers is considered to be an urgent task if investment promotion is to be made. In particular, local suppliers need to improve their technological capability if they want to serve the automobile industry that uses a wide range of parts and components. In particular, Japanese automakers find a major quality issue relating to sheet metal products as well as their production techniques and skills. The same problem is pointed out for casing parts for electrical products that are widely produced in Egypt. A variety of quality problems occur daily, including dimensional inaccuracy, burrs, and the failure to meet a delivery schedule due to poor productivity and yield. They are attributed to a poor level of press technology in the country, e.g., workers do not understand the basics. More importantly, die making technology has still to establish itself in Egyptian industries. It is built upon broad technical know-how and experience and the ability to design and manufacture dies locally is indicative of the country's high industrial level. Egyptian industries, however, are lagged behind the actual needs of Japanese companies and do not make efforts to improve the situation in a timely manner. As dies and molds are indispensable in mass production of metal or plastics products, ranging from molding to casting and forging, the upgrading of die making technology (especially in relation to sheet metal work) should be given of priority, for it will help facilitate Japanese manufacturers to build and operate plants in the country.

(3) Priority areas in relation to industrial human resource development

1) Promotion of TVET focusing on improving of employability

In Egypt, “Training for Employment” has become a major slogan for improvement of the labor sector. It has been heard at all the government offices that the study team visited. “Training for Employment” can be interpreted as the series of efforts to improve quality of TVET by focusing on employability. In fact, international donor organizations give priority to improve employability in relation to their aid programs addressing the labor sector related issues in Egypt. From the standpoint of promoting investment by Japanese companies, it is very important to follow the same approach. As the training of young people to truly “employable” workers (workers desired by companies) is urgently required in Egypt and other Middle East countries, a strategic direction for the development scenarios formulated under the Study will set employability as a major goal.

2) Establishment of a formal skills certification system that leads to employment promotion

The second key success factor for industrial human resource development is the introduction of metrics to evaluate personal competence and skills in an objective manner, which forms the basis of developing and operating an effective education and training system. While the skills certification system is generally operated by government authorities that evaluate and certify knowledge and skills required for a specific activity, the system can be simplified to permit a government office to issue a certificate by administering an examination only, so far as each person’s knowledge and skills are developed and evaluated according to objective standards. The Egyptian government realizes the importance of the certification system and has started its development a few years ago as a new dimension of vocational training. As it is well known that the establishment of a formal skills certification system serves as an effective tool for employment promotion, the development scenario will include a proposal relating to a skills certification system or a similar system (assessment of competence).

3) Human resource development in the IT field

In the Middle East region, information and communication technology (ICT) is widely used in a wide range of fields and at a rapid rate, although the stage of development varies among countries. In most countries other than the Gulf States, use of PC and the Internet is rapidly expanding in the recent few years, while availability of high speed communication service with large bandwidth is still limited. Egypt has been vigorously building IT infrastructure, including the “Computer for Every Household” program that was started in 2002. Egypt, while feeling proud of its political and economic leadership, has a strong desire to play the central role in fostering and maintaining the regional culture. The present administration shows a strong intention to promote further development of the ICT sector. All in all, strategic focus begins to shift from infrastructure development to use of ICT for social and economic development, creating the human resource needs in the related fields.

While higher education facilities are being established, it is now important to build a mechanism to promote and drive full-fledged training activities to ensure healthy development of the ICT sector.

4) Job placement service for students

Finally, the lack of active placement support by educational institutions is considered to be a factor for producing high unemployment among new graduates and young workers, albeit to a lesser extent and magnitude than the employability issue and the absence of a skills certification system. As job placement service is operated within an overall social framework that reflects the country's history and culture, it cannot be changed overnight. Instead, efforts should start with analysis of the present system in order to find its shortcomings and possible areas of improvement. The development scenario proposes an action that constitutes the first step of change.

5.1.2.2 Strategic direction in relation to the development scenario formulation process

On the basis of the above discussions, the strategic direction for formulation of the development scenario under the Study can be expressed in the following key words: “Fostering of local feeding industries;” “improvement of employability of young people;” “the establishment of the skill certification system leading to employment promotion;” “IT human resource development;” and “improvement of the job matching system.” Then, they are combined with the expected benefits – “industrial human resource development,” “applicability to the Middle East region,” and “the PPP business model building” – to generate the development scenario proposals. The following table shows a conceptual view of the development scenario formulation process.

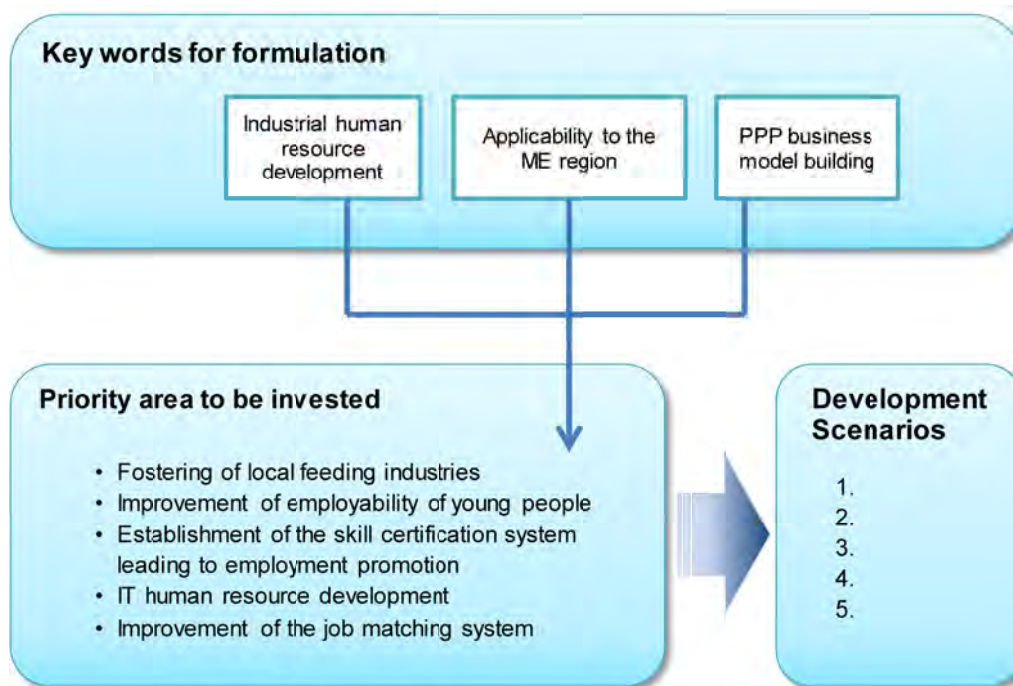


Fig.5.1.1 Development Scenario Formulation Process

5.2 Development Scenario Proposals

Based on the strategic direction determined in 5.1, the following projects are proposed as development scenario modules.

- Development scenario 1: Project to support the training of IT engineers and the fostering of the IT industry
- Development scenario 2: Project to upgrade the public job placement system
- Development scenario 3: Project to promote dissemination of the skills certification system
- Development scenario 4: Project to establish an Egypt-Japan Advanced Auto Mechanics Training Program
- Development scenario 5: Project to provide employment support for graduates of the EduEgypt program

Development Scenario 1:**“Project to support IT human resource development and the fostering of the IT industry”**

1. Objective	<p><u>Primary objective of the project:</u></p> <p>To introduce a IT professional certification system that is modeled after the IT engineer examination system in Japan for the purpose of improving IT skills of university students in Egypt, with an ultimate goal of helping achieve the MCIT’s priority policy objective, namely to promote IT-related human resource development and the fostering of the IT industry; and to build Educational Broadband Network connecting universities and IT companies for the purpose of vitalizing the IT industry and creating employment opportunities.</p> <p><u>Rationale (need) for project formation:</u></p> <p>(1) IT human resource development</p> <p>At present, there is only one IT certification available in Egypt, called “International Computer Driving License.” ICDL was originated in Europe, where it is also referred to as “European Computer Driving License (ECDL).” The program is operated by a NPO called “European Computer Driving License Foundation (ECDL-F), having its head office in Dublin, Ireland. It is conducted in 148 countries using 41 languages and is recognized as internationally accepted standard certification for computer users. In Egypt, the program is operated by ICDL Egypt.</p> <p>It should be noted, however, that technological levels required by ICDL are those expected for general computer users, not IT engineers. ICDL teaches the following seven subjects.</p> <ul style="list-style-type: none"> - Concept of ICT (information communication technology) - Basic computer operation and file management - Word processing - Spreadsheet - Database - Presentation - Web browsing and communication <p>ICDL certification can be obtained by a person with basic IT knowledge after training for an average of 55 hours. It is designed to train computer users who can operate a computer for business use. As for IT engineers, official certification in Egypt can only be obtained through vendor-certified programs offered by various IT companies including Microsoft and Cisco. A vendor certification is issued according to worldwide technological standards established by respective vendors and is structured to consist of a several hierarchical levels. A person holding the vendor certification is recognized by any company in any country as</p>
--------------	---

	<p>achieving a certain technological level. However, vendor certification is specialized in the respective vendor's products and software platform, not necessarily certifying a level of IT technology in general.</p> <p>On the other hand, the IT engineer examination system in Japan is operated by Information Technology Promotion Agency under the Ministry of Economy and is positioned as national qualification. Furthermore, it covers a wide range of IT users and specialists, ranging from IT engineers capable of building and operating an information system to end users. It is designed to evaluate broad IT knowledge covering basic principles and skills relating to IT, rather than specific products or software programs. The IT engineer examination is divided into the following four levels.</p> <ul style="list-style-type: none"> - Level 1 IT fundamentals required for business persons Qualification: A person who has basic knowledge on information technology, which is generally required for business persons to perform their professional work, and who intends to conduct work relating to IT or use IT for his professional work. - Level 2 Basic knowledge and skills Qualification: A person who possesses basic knowledge and skills required for advanced IT personnel, together with practical skills relating to IT operation - Level 3 Applied knowledge and skills Qualification: A person who possesses applied knowledge and skills required for advanced IT personnel and follows career path toward advanced IT personnel. - Level 4 Advanced knowledge and skills Qualification: A person who has expertise in a specific field as advanced IT personnel and is capable of serving as a IT manager or specialist by using broad knowledge and skills. <p>As discussed earlier, IT-related certification in Egypt is limited to ICDL for end users and vendor certification for IT engineers and specialists. According to government sources, there is no national certification system, and although some talks are underway, any plan has not been materialized. The project is designed to introduce the above IT engineering testing system and use it as a means to upgrade IT education at universities and training institutes and to disseminate IT education throughout the country by using an e-learning system, thereby to produce competent IT resources.</p> <p>(2) Fostering of the IT industry</p>
--	---

	<p>As of 2010, there are 3,934 IT related companies in Egypt, which employ approximately 204,960 persons and record quarterly sales of 12,160 million EGP (157.4 billion yen) in total. Still fairly small in size, the industry has great growth potential. In Japan, there are 23,355 companies engaged in information related service as of 2011, with 953,400 employees and annual sales of 19,779.8 billion yen. The latter is about five times the former in the number of employees and 30 times in sales.</p> <p>The Internet connectivity rate in Egypt is approximately 30% as of 2011 and broadband lines account for 87% of the total. While broadband lines are widely used, FTTH represents a small share to indicate the need for installation and use of fiber optic broadband lines (see Chapter 4).</p> <p>The proposed project is designed to promote installation and use of fiber optic broadband service as part of efforts to build the IT infrastructure and to stimulate growth of the IT industry. As it takes considerable time for nationwide infrastructure development, the project will target universities in order to produce a synergetic effect with IT education that forms another half of the project.</p>
<p>2. Implementation agency and support organization</p>	<p><u>Implementation agency</u></p> <ul style="list-style-type: none"> - The Educational Broadband Network consortium participated by the Egyptian government, Egyptian telecommunications carriers and Japanese companies - The Educational Platform consortium (organized by content providers in and outside the country) - IT Engineer Examination Center (an Egyptian government organization) - Universities in Egypt
<p>3. Beneficiaries</p>	
<p><u>IT human resource development</u></p> <p>(1) Mainly students of universities in Egypt (2) After the target population has received training under the program, the coverage will be extended to students of secondary schools and workers.</p> <p><u>Fostering of the IT industry</u></p> <p>(1) Universities in Egypt (2) IT industries in and outside the country</p>	
<p>4. Project description</p>	
<p><u>IT human resource development</u></p> <p>(1) A formal IT engineer examination system will be established by the Egyptian government to certify IT professionals, including an examination center responsible for test administration. The Egyptian and Japanese governments will enter an agreement to mutually recognize their IT engineer examination systems and results. Note that detailed procedures for implementation of the examination system will be finalized on the basis of</p>	

similar projects carried out in Southeast Asia under Japan's assistance.

(2) IT education and training will be conducted at universities and training institutes to teach knowledge and skills required for the IT engineer examination. As various IT education initiatives are already undertaken in the country, such as Smart School and School ICT Club, which target university graduates, the project will focus on university students in order to teach them sufficient IT knowledge and skills before graduation. Students will receive IT training with free of charge by incorporating it into the curriculum. On the other hand, graduates and workers will learn at training institutes or via e-learning service on a fee basis. In particular, e-learning can be a powerful tool to extend IT education to the whole country, regardless of age or sex, when it is provided as part of the entire education platform.

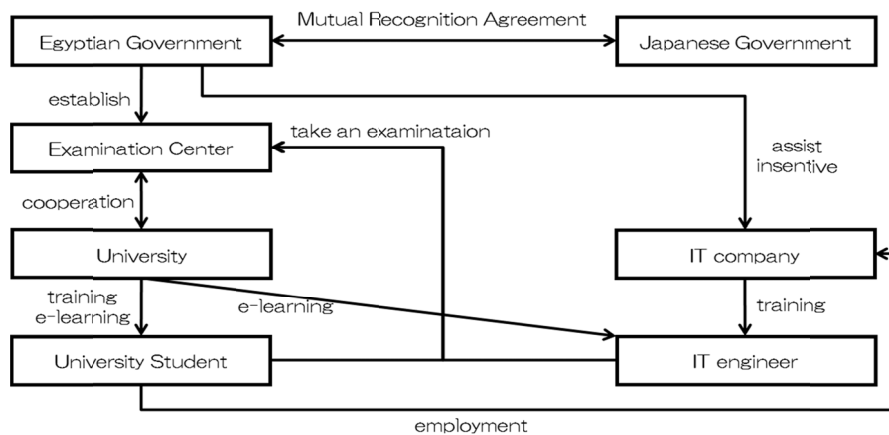


Fig.5.2.1 Structure and Management of the IT Engineer Training and Examination System in Egypt

Job placement support

(1) The Egyptian government will implement policy to provide incentive for companies that hire IT professionals certified under the new examination system. To operate the IT engineer examination system on a continuous basis, efforts should be made to secure a sufficient number of examinees and increase the number of certified IT professionals. For the latter purpose, tax incentive will be introduced for companies that hire IT professionals (according to an actual number) while a law or regulation will be enacted to require IT companies to hire a certain number of certified professionals. In Japan, an application for central and local government bidding for information system development projects requires each applicant to specify the number of employees who have passed the IT engineer examination or to hire a certified engineer(s). Finally, if MCIT and its related organizations require applicants for certain job types to have passed the IT engineer examination, it will serve as an impetus for employment of IT professionals by other government offices.

(2) A database on university students and certified IT professionals will be developed as part of the education platform and will be made accessible, on a fee basis, to the consortium members and other companies. Job seekers will also be able to use the database for the purpose of checking job information and requirements posted by member companies, while they will be allowed to make contact with companies through the assessment process. Member companies will be able to obtain information on persons registered with the database (level of certification, and IT and general job skills) and to send recruitment

information to selected registrants.

Fostering of the IT industry

- (1) Under the leadership of the Egyptian government (MCIT), the Educational Broadband Network will be established by the consortium organized by local telecommunications carriers and Japanese companies. The network will link universities and IT companies. Telecom Egypt will install fiber optic broadband lines to universities (or wireless devices if installation is not feasible). It is assumed that the network infrastructure will be operated in the form of PPP, under participation of the Egyptian and Japanese governments and companies in both countries. During the field surveys, the study team visited and interviewed Telecom Egypt, Mobinil and Vodafone, all of which felt the need for development of the fiber optic broadband environment. In response, they are examining possibility of expanding fiber optic broadband service under the leadership of the consortium. Thus, their policy generally accords with the infrastructure development scheme proposed under the project.
- (2) A Wi-Fi (wireless LAN) network will be installed at universities to build the infrastructure to provide access for PCs, cell phones and other devices. If feasible, WiMAX (high speed wireless LAN service) will be introduced.
- (3) Under the leadership of the Egyptian government (MCIT), the Educational Platform consortium will be organized by content provider to help provide a variety of services, such as educational service for university students and in preparation for the IT engineer examination, e-learning, and job placement service. Efforts will be made to provide user-friendliness for students and invite content providers in a wide range of fields. After the consortium has been formed, the Educational Platform will be developed on the basis of technical specifications proposed by member content providers, who will develop their own system and launch content service on the Educational Platform.

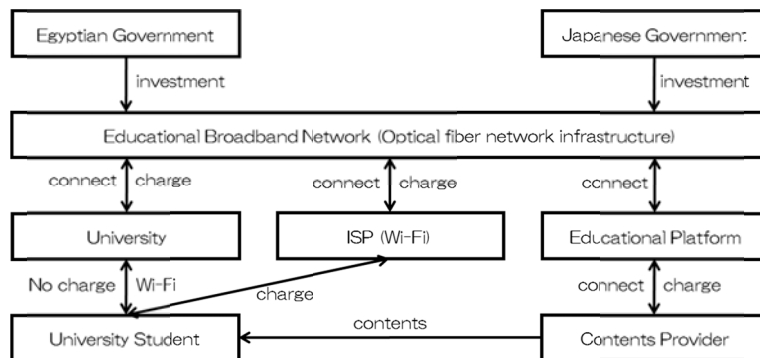


Fig.5-2-2 Educational Broadband Network

5. Implementation procedures

Implementation of the IT professional training and examination system

- (1) Research and study will be carried out to identify and verify basic requirements for implementation of mutual recognition on the IT engineer examination by the Egyptian and Japanese governments, as well as major issues relating thereto.

- (2) The preparation committee for the establishment of the IT Engineer Examination Center will be organized in Egypt to examine an organization required to operate the center and design actual operation procedures.
- (3) The IT Engineer Examination Center will be established by the Egyptian government as the organization authorized to certify IT professionals as national qualification. It is assumed that legal procedures required in the country will be undertaken by the Egyptian government.
- (4) The Egyptian and Japanese governments will sign a mutual recognition agreement on the IT engineer examination.
- (5) The Egyptian government will formulate an educational program that teaches knowledge and skills required for the IT engineer examination. As the Information Promotion Agency (IPA) of Japan has developed IT professional skill standards, which can be used as the basis of developing the educational program, JICA will coordinate joint efforts with IPA to assist the Egyptian government.
- (6) The educational program will be deployed to universities, and then to training institutes and e-learning service.
- (7) To provide support for certified IT engineers in relation to job seeking activity, the Egyptian government will provide incentive for companies that hire them.
- (8) After the start of the examination system, efforts should be made to ensure the examination's quality by updating and upgrading its content (including the educational program) in order to keep up with rapid advancement of IT. At the same time, measures should be taken to maintain reputation of the examination by ensuring test administration in a fair manner, securing a sufficient number of examinees, and providing job placement support for certified IT professionals.

Fostering of the IT industry

- (1) The Educational Broadband Network consortium will be organized by local telecommunications carriers and Japanese companies.
- (2) The consortium members will discuss and agree on the division of responsibilities and decide on the consortium's management method. It is tentatively assumed that Telecom Egypt will be responsible for installation of backbone fiber optic lines in the country, while other carriers and Japanese companies will install end user lines.
- (3) Fiber optic broadband lines will be installed at universities, as well as wireless devices if installation is not feasible. Then, universities will be interlinked to build the Educational Broadband Network.
- (4) A Wi-Fi/WiMAX network will be installed at universities to build the infrastructure to provide access for PCs, cell phones and other devices within the campus and in surrounding areas.
- (5) The Educational Platform consortium will be organized by content provider for the purpose of inviting

content providers in a wide range of fields.

- (6) Then the Educational Platform will be developed on the basis of technical specifications proposed by member content providers.
- (7) Content providers will develop their own systems services and launch content service on the Educational Platform.

6. Estimation of Revenues and Expenses

Revenues and expenses for the project are estimated as follows. Note that the figures are based on those for similar projects.

- (1) IT human resource development
(IT Engineer Examination Center)

[Expenses]

Research, study and coordination required for the startup of mutual recognition	1,000
Operation of the examination center (annual)	10,000 p.a.

*The operation cost needs to be accurately estimated after the analysis of local conditions.

[Revenues]

Examination fee (50US\$ per person x 210,000 examinees)	10,500 p.a.
---	-------------

*Around 50% of university students in a year (400,000) will take the examination annually.

*Around 10,000 employees will take the examination annually.

*The examination fee is estimated on the basis of the Japanese one (5,100 yen).

- (2) Fostering of the IT industry
(Educational Broadband Network/Educational Platform)

*Estimation of revenues and expenses relating to all the consortium members

[Expenses]

Backbone construction for the Education Broadband Network	10,000 p.a.
Establishment of Education Platform ⁰	1,000
Line installation (1,000,000US\$ per one line, totaling 40 lines)	40,000

*18 national universities, 17 private universities, and 5 educational institutions

*Detailed study on each school will be required, because the installation cost depends on distance from router and other facility, as well as a communication route to be taken.

Wi-Fi/WiMAX user charge (500,000US\$ x 40)*	20,000
---	--------

System Operation and Maintenance Fees (Annual)	10,000 p.a.
--	-------------

[Revenues]

Channel resale Fees (100,000US\$, No. of channels: 40)	4,000 p.a.
--	------------

* To recover a construction cost within 10 years

Educational Platform Service Fees (100,000US\$ p.a., Service providers: 2)	200 p.a.
--	----------

Wi-Fi/WiMAX Service Fees (10US\$/month)*	10,000 p.a.
--	-------------

50% of university students in the country (2 million) will be connected.
Based on the user fee for public wireless LAN service (MobiniWi-Fi: 150EGP per month)

7. Implementation Schedule

IT human resource development

- (1) FY2012 Research and study in preparation for mutual recognition
- (2) FY2013 Establishment of the Preparation Committee for the IT Engineer Examination Center
- (3) FY2014 Establishment of the IT Engineer Examination Center
- (4) Mutual recognition of the IT engineer examination by the Egyptian and Japanese governments
- (5) FY2014 Preparation of the educational program for the IT engineer examination to be conducted at universities
- (6) FY2014 Deployment of the education program to training institutes and e-learning service
- (7) FY2014 Establishment of incentive policy for companies to employ certified IT engineers
- (8) FY2015 start of the IT engineer examination (at least for beginner's level)

*When the IT engineer examination was introduced to Southeast Asia, it took around 2 years to conclude the mutual recognition agreement with 4 out of 6 countries (excepting Malaysia and Mongol) that did not certify IT professionals as national qualification. Thus, efforts will be made to complete preparation in 2 years by using the above experience.

Fostering of the IT industry

- (1) FY2012 Establishment of the Educational Broadband Network consortium by local telecom carriers and Japanese companies
- (2) FY2013 Agreement on division of responsibilities among the consortium members and the consortium operation method
- (3) FY2013 – 2014 Installation of fiber optic broadband lines at universities
- (4) FY2013 – 2014 Installation of Wi-Fi/WiMax network equipment at universities and service launching
- (5) FY 2013 Establishment of the Educational Platform consortium by content providers
- (6) FY2013 – 2014 Establishment of the Educational Platform
- (7) FY2015 Launching of content service on the Educational Platform

At least, e-learning service for the IT engineer examination will be started.

8. Expected benefits

- (1) Many university students throughout the country will take the IT engineer examination and 50% will pass and obtain national certification.
* The passing rate for "IT Passport" – equivalent to the beginner's level of the IT engineer examination in Japan – is 52.8% in 2011.
- (2) University graduates will obtain higher IT knowledge and skills.
- (3) The examination will be expanded from university students to students of secondary school and workers, thereby to benefit larger population with IT knowledge and skills.
- (4) Vitalization of the IT industry (increase in the industry's GDP share, the number of companies and employees)

9. Key Points

(1) IT human resource development

To ensure continuous growth of examinees and wider acceptance and recognition of the examination as national qualification, the Egyptian government needs to reinforce the educational program for universities by making the examination and preparation a requirement for science and engineering students, especially those majoring in ICT.

The IT engineer examination should be structured to certify a variety of technology levels, thereby to serve a wide range of user population from beginners to professionals and allow them to measure improvement of IT knowledge and skills by themselves.

As for employment support, the Egyptian government needs to make comprehensive efforts to encourage companies to hire certified IT professionals, including: a law or regulation will be enacted to require IT companies to hire a certain number of IT professionals; tax incentive will be introduced for companies that hire IT professionals (according to an actual number); the bidding procedure for government system development projects should require each applicant to specify the number of employees who have passed the IT engineer examination or to hire a certified engineer(s); and MCIT and its related organizations require applicants for certain job types to have passed the IT engineer examination.

(2) Fostering of the IT industry

Priority will be given to the establishment of Educational Broadband Network, including use of wireless equipment for sites where installation of fiber optic broadband lines will take considerable time, which will then be replaced with fiber optic lines if feasible.

For students who do not have a PC or cell phone, a scheme should be developed to allow them to buy it at a lower price by means of rental service or government subsidy.

It is assumed that content posted on the Educational Platform will be made available to content providers in and outside the country. As a result, content will cover a variety of services including cloud service, e-commerce, and software development and thus will serve an impetus for growth of the IT industry and job creation.

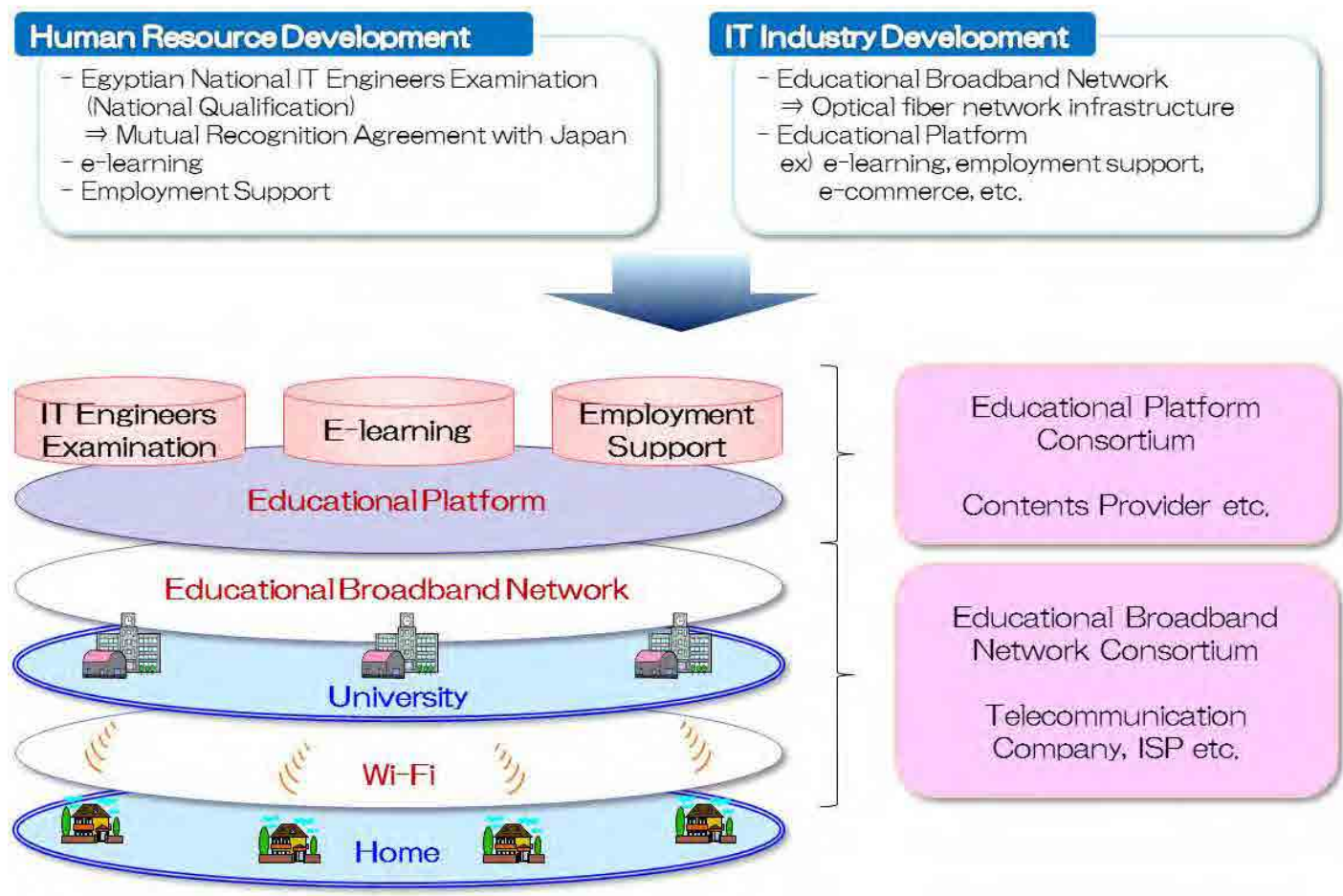


Fig.5-2-3 Conceptual view of the project to support IT human resource development and the fostering of the IT industry

Development Scenario 2:**“Project to improve the public job placement system”**

1. Objective	<p><u>Project purpose</u></p> <p>To help increase the employment rate by improving the existing public job placement system. System improvement will go beyond mere software upgrading (such as database) to redesign the system so that it allows job seekers and companies to use job matching service in an efficient and effective manner.</p> <p><u>Rationale (need) for project formation</u></p> <p>In Egypt, young people tend to look for a job with good salary or working conditions, rather than a job that is suitable for their ability, resulting in the mismatching between supply and demand to prevent improvement of employment. The results of questionnaire survey of Egyptian companies indicate that SMEs are actively hiring new employees, whereas young people do not show much interest in such opportunity. The project is therefore expected to contribute to the improvement of unemployment in the young age group by introducing a mechanism to promote effective and efficient matching between employers and job seekers. First of all, the current state of employment relating to young people indicates that there are various problems to prevent smooth job seeking, which are highlighted as follows.</p> <p>The current state of job placement support for PVTD and TVET graduates</p> <ul style="list-style-type: none"> - Vocational training schools operating as part of PVTD or TVET rarely provide job placement service or guidance for their students, or follow-up survey of graduates. A limited number of graduates find a job by using a personal network, but some cannot find employment that is suitable for their skills and earn a living by hard labor or street vending. - There are often the cases that students cannot determine if a job offer matches their ability and lose opportunity. <p>Finally, PVTD/TVET schools issue only a diploma to graduates but not a transcript. As a result, companies cannot obtain school record that is indispensable in evaluating and selecting a job applicant.</p> <p>Current state of job placement service for graduates of national universities</p> <ul style="list-style-type: none"> - Most national universities do not provide job placement support for their students, except for Cairo University where a NGO and student groups form a support organization, in addition to private universities. - MOMM maintains a database for job placement service, which does not receive attention of university graduates because it does not meet their needs in many aspects. - Finally, students tend to look for a high-paying job or a managerial post because they do not have the means to evaluate competence in an objective
--------------	--

	manner and often lose opportunity.
2. Implementation and support organizations	<p>The project should include the networking of employment support activities that are carried out separately by various organizations. The implementation and support organizations are listed below (see the conceptual view of the job matching network):</p> <ul style="list-style-type: none"> - Implementation organizations: MOLI and private companies engaged in computer system development - Support organizations: MOTI, MOE, ITC, MOIT (IT-related license), TTC (retraining), and AIAT (skills and technology upgrading)
3. Beneficiaries	
<p>The project's Beneficiaries are both job seekers and companies.</p> <p>Job seekers: For young IT professionals, new graduates of PVTD and TVET schools and those have graduated in the past five years, plus university graduates (regardless of technology level)</p> <p>Companies: Companies in all industries that have hiring plans</p>	
4. Project Outline	
<p>Based on MoMM's job information service (on the Web site), the present system will be modified and redesigned to promote effective job matching for the young age group. The system is capable of automatic screening data on job seekers and employers. This function will allow job seekers to clearly define their competence and desirable employment conditions, and qualifications and working conditions for employers. This way, employers and job seekers will be able to find the best opportunities and conditions for both of them, leading to effective job matching and employment. Other areas of system upgrading are outlined below.</p> <p><u>Key upgrading areas</u></p> <ul style="list-style-type: none"> - To develop an effective job matching system by using existing digital information and data on job seekers and employers, a software program to perform matching service will be developed and implemented. - MoMM-JMNY will send counselors to TVET and PVTD to conduct field guidance. - Efforts will be made to promote collaboration with vocational training facilities, both public and private, with an aim to provide employment support for job seekers who need to learn advanced technology. Such facilities include MoMM's training centers and skill training centers operated by the private sector. - An organization (job unit) will be established to encourage companies to increase hiring. - Obtaining certification under NSSP will be promoted to students and graduates of TVET and PVTD. - Efforts will be made to encourage job seekers with higher education to use the internship program or obtain skill certification. - Advertisement activities will be conducted to improve public recognition of the job seeker network. 	
5. Implementation Procedures	
<p>The project's implementation procedures are shown in the PDM (Precedence Diagram Method) format, as follows.</p>	

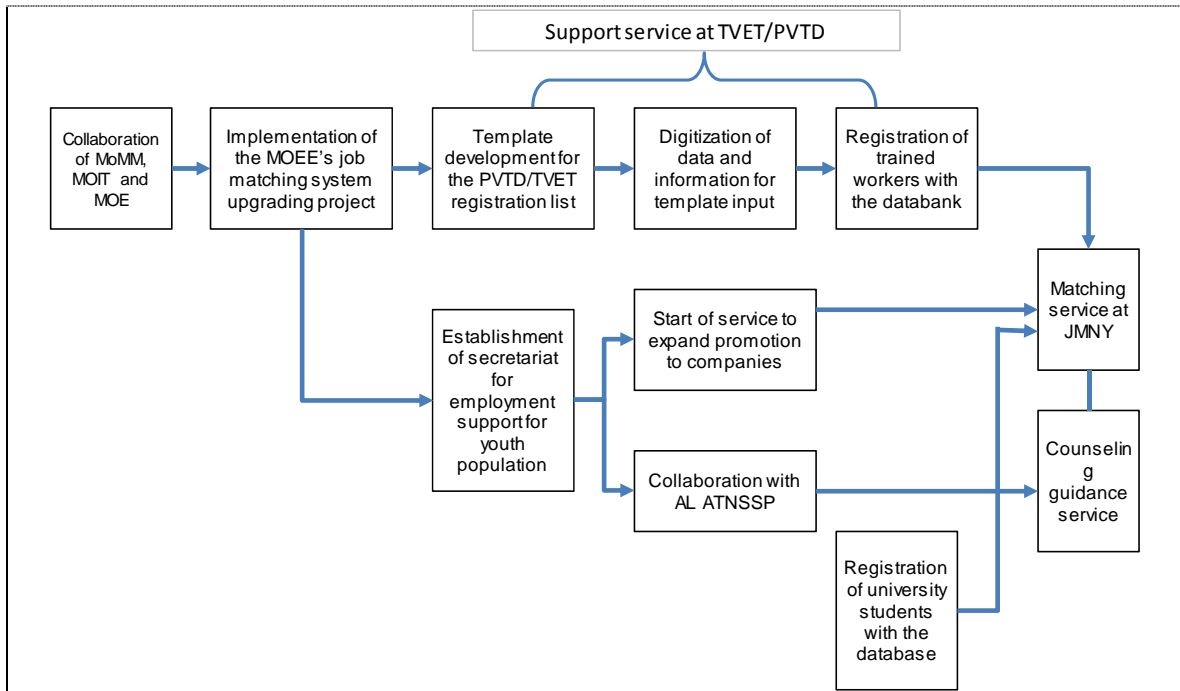


Fig.5-2-4 Implementation Procedures for Development of the Job Matching Databank for Young People

Collaboration between MOMM, MOIT and MOE

Based on MOMM’s job search site that covers the entire country, a new system will be developed to help job seekers and employers to gain access to other’s information, with the ability to match them automatically according to preset conditions. The system is therefore designed to introduce a qualified job seeker to a prospective employer. It will primarily target the young age group who does not access to public employment support. Official collaboration will be arranged with PVT/TVET that have large youth population, together with MOIT and MOE (supervising universities), which will act as support organizations. The collaboration is expected to produce an implementation roadmap.

Support activity at PVT/TVET

While PVT/TVET keep a register for their students, which has still to be digitized and is not recorded in a standard template format. Also, none of them conducts follow-up survey of their graduates and no class reunion is held at any of the schools. As a result, new graduates cannot find a job by using a network of graduates, not to mention the internship program under which no request is made to companies where alumni are working. The situation can be improved if the student register is properly maintained in an efficient manner. The project proposes digitization of the student register, followed by compilation into a database, which can also be used for the job seeking purpose. Needless to say, the register in a digital form will help streamline school management.

Preparation of the digitized register

The new register should preferably contain the following information: a) name, sex, and birth date; b) address and contact; c) school name, year of admission, and major; d) grades in a specialized course; e) skills obtained and their levels; f) licenses and other qualifications; g) record of internship training; h) a desirable job or trade; and i) intent to work overseas.

Establishment of the secretariat for job placement support for young people

The secretariat will be established within MoMM and will consist of the following divisions: a) data management on job seekers and companies; b) promotion; and c) counseling and guidance.

- a) Data management on job seekers and companies: The division will be responsible for management on the database registering job seeker data and development of templates.
- b) Promotion: The division will contact companies and promote employment, while proposing effective use of the databank.
- c) Counseling and guidance: The division will interview job seekers and provide advice and guidance in relation to job seeking strategy, a suitable industry and trade, and knowhow on interview at prospective employers. In addition, it will send counselors to PVTD, TVET and universities that do not have job place support service.

Databank registration of university students

As university students are majoring in diverse fields, together with large student population per university, it is difficult for universities to develop and maintain the databank. Instead, the system will be designed to allow students to create a template for databank registration. Meanwhile, it is known that new graduates face difficulty in finding a job because companies are concerned about the lack of work experience. Efforts should therefore be made to encourage students to obtain certification or license relating to technical and business skills. For this purpose, the template should be customized to accommodate relevant information (such as license and language proficiency).

Start of the job matching service at JNMY and promotion of overseas employment

After the completion of the above preparation process, job matching service will be launched. Notably, it will provide access to foreign job markets by linking the service with MoMM's job information site concerning foreign employers.

6. Estimated Expenses and Revenues (US\$)

Total cost for the first year (US\$8,120,000)

- Hiring of professional job counselors: \$
- Template preparation and data input at PVTD and TVET: \$1,670,000
- Development of a registered student database at PVTD and TVET: \$1,250,000
- Personnel engaged in maintenance of the student database and job placement support at PVTD and TVET (student affairs office): \$2,500,000
- Development of database software used for job placement support for young people: \$200,000
- Commissioning of technology and skill training to AIAT: \$2,000,000
- Operation of the secretariat for job matching service for young people (labor and office): \$500,000

Estimated benefits - \$300 million (based on the assumption that additional 50,000 jobs will be created annually)

- Growth of GDP as a result of increased production and business activity
- Increase in tax revenues including income tax due to the increase in working population
- Expansion of consumer spending due to higher income
- Revenues from training service by outside organizations
- Remittance by overseas workers

7. Implementation Schedule

Startup of the job matching system

- (1) Detailed design study (May – October 2012)
- (2) Organization of an executive committee consisting of related organizations in Egypt, and consensus building toward the sharing and implementation of design concept by implementation and support organizations (November – December 2012)
- (3) Preparation of a budget plan and a formal budget request (November – December 2012)
- (4) Confirmation of demarcation of responsibilities up to the implementation process and preparation of the roadmap (January – February 2013)
- (5) Promotion of template development and digitation of registered data at PVT/D/TVET schools (January – June 2013)
- (6) Startup of the secretariat for job placement support for young people (April 2013)
- (7) Launching of employment promotion activities targeting companies (April 2013)
- (8) Start of the job matching service as well as counseling and guidance (June 2013)

Collaboration with outside training organizations

- (1) Startup of the secretariat for job matching service and the guidance/counseling section (April 2013)
- (2) Consensus building for collaboration with outside training organizations (April – May 2013)
- (3) Start of collaboration activity (June 2013)

Launching of the project to develop a student register information system

- (1) Establishment of the job placement support office at TVET and PVT/D schools (January 2013)
- (2) Template development for student registration and data digitization (January – June 2013)
- (3) Registration on the job matching database according to the student's request (June 2013)

8. Expected benefits

The development of the new job matching service system is expected to produce positive impacts on the following areas: (1) industrial human resource development; (2) employment promotion; (3) investment promotion; and (4) mitigation of social insecurity.

- (1) Industrial human resource development

JMNY will provide guidance for job seekers and allow them to receive training, as required, for technical and business skills that meet the actual needs of industries.

As JMNY's service is provided in close collaboration with industries, it can collect information on the

actual HR needs. By incorporating the needs into the curriculum of training organizations that are in a collaboration agreement, both job seekers and companies will be able to enjoy the “win-win” relationship.

(2) Employment promotion

JMNY’s service will create a large number of employment opportunities for young people in a fair manner. This will hold the key to successful employment promotion.

Companies that hire employees through JMNY’s service will be able to find right people (qualified for a specific job) and assign them to suitable jobs and posts, leading to streamlining of work and cost reduction relating to recruitment. Also, JMNY’s job information system that covers the entire country will promote labor mobility, while achieving high quality job matching and creating employment opportunities.

For job seekers, participation in the above retraining system allows them to prepare an appropriate resume, resulting in the reduction of the unemployed period and employment promotion.

(3) Investment promotion

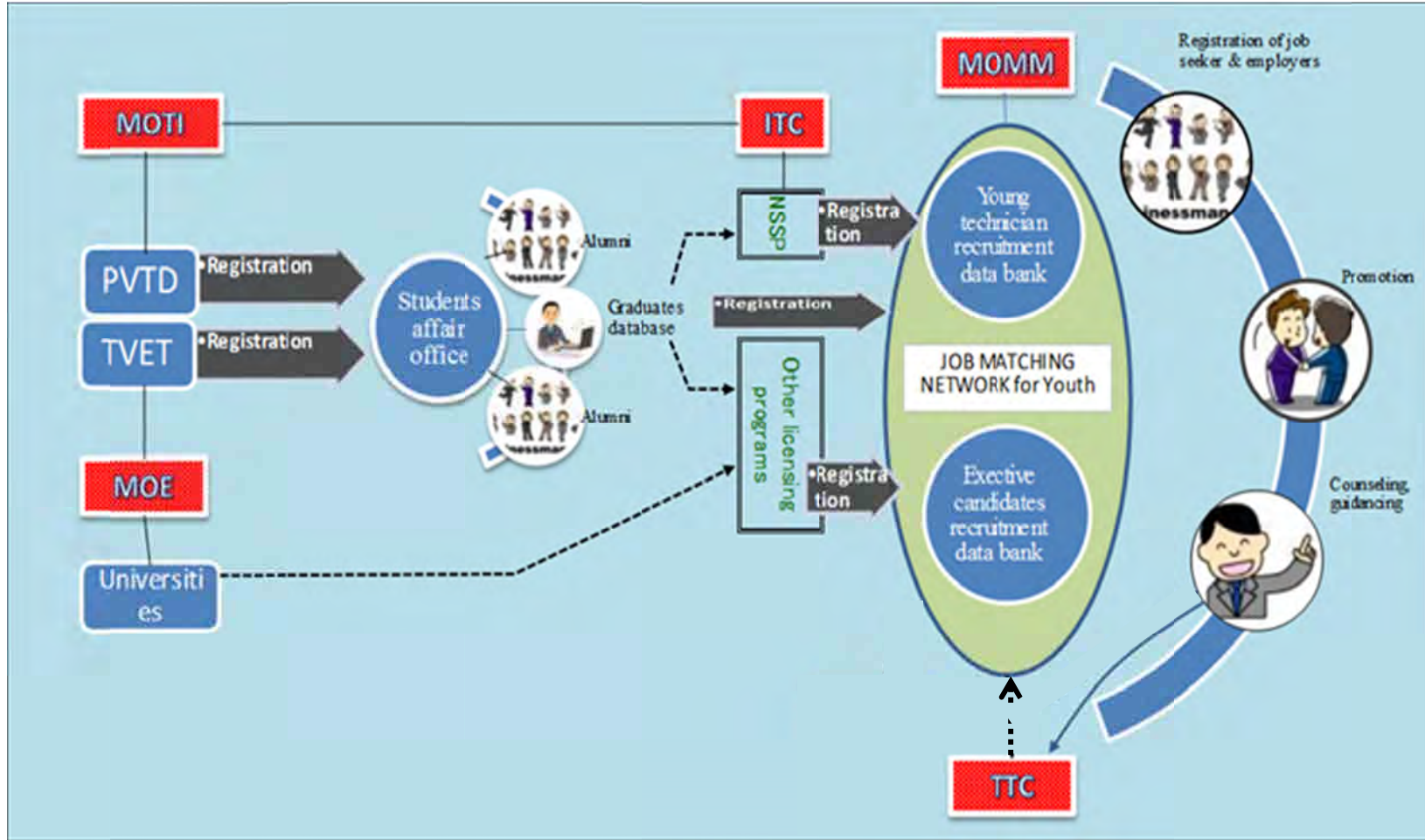
Availability of high quality workers and the ease of finding qualified employees are a major factor that is taken into account when companies make overseas investment decisions. In particular, companies in a labor intensive industry find the absence of the recruitment office at PVTD and TVET schools as a negative incentive. At the same time, quality of PVTD and TVET graduates is often questioned by not only foreign companies but local ones as well. Here, if JMNY’s service helps foreign companies to find workers who have skills that meet their needs or can acquire such skills before the start of commercial operation, it will work as a significant incentive for their investment decisions.

(4) Mitigation of social insecurity

Finally, the project will contribute to reduction of poverty and mitigation of social insecurity by increasing employment opportunities that lead to the decline in the unemployment rate. At the same time, provision of job placement support service for youth population that is often inaccessible to public support is important from the viewpoint of social fairness and justice, which is a key factor for social stability.

9. Key Points

- (1) From the employer’s perspectives, it is highly risk to hire young people who have no or little work experience or certified skills. This can be said for PVTD/TVET graduates and university graduates.
- (2) Furthermore, PVTD/TVET schools issue only a diploma to graduates but not a transcript. The schools are concerned about whether each student has obtained a passing mark and do not keep their performance record. As a result, companies cannot obtain school record that is indispensable in evaluating and selecting a job applicant. To improve the situation, it is important to encourage PVTD and TVET students to take NSSP’s skill certification test. If such certification becomes mutually recognized by other Middle East countries, it will promote overseas employment. In this regard, university graduates should also be encouraged to take an internationally recognized certification test and acquire work experience by using the internship program, which will expand employment opportunity.



Source: JICA study team

Fig.5-2-5 Conceptual view of the job matching network

Development Scenario 3:
“Project to promote engineering skill training”

1. Objective	<p><u>Project purpose:</u></p> <p>The primary purpose of the project is to teach knowledge and skills at international levels required by engineering industries (Egypt NSS level 3) to young people in Egypt, thereby contributing to development of the Egyptian industry.</p> <p>In the future, the network will be expanded to regions outside Cairo so as to receive trainees from other Middle East countries.</p> <p><u>Rationale (need) for project formation</u></p> <p>In Egypt, the skill training program on selected industrial job categories is conducted on the basis of national skill standards at PVTD’s 15 centers. Currently, training and certification is limited to NSS Levels 1 and 2, while Level 3 (international level) training has not been carried out for any job category. As Egypt goes through economic development, it will attract foreign direct investment in various areas, especially engineering industry. To capitalize on such opportunity, it is important to upgrade engineering skills of supporting industries including parts manufacturers. Also, the skill certification system that is founded on international standards can be used as an objective metrics of personal skills so as to upgrade quality of industrial human resources and stimulate further growth of Egyptian industries, which can respond to the criticism that TVET in the country fails to train persons who have high levels of skills demanded by industries. The project is designed to train skilled workers, under Japan’s assistance, in the engineering field where Japanese industries have strength by focusing on NSS Level 3 training that is not available at present.</p> <p>*NSS: National Skill Standard *PVTD: Productivity and Vocational Training Department</p>
2. Implementation and support organizations	<p><u>Implementation organization</u></p> <p>An engineering skill training center will be established jointly by Egypt and Japan (tentatively named “E-J Engineering Skill Training Center”). It will be operated as a semi-government organization.</p> <p><u>Expected investors and support organizations:</u></p> <ul style="list-style-type: none"> • The Industrial Training Council (ITC) • The Industrial Modernization Center (IMC) • The Chamber of Engineering industry of The Federation of Egyptian Industries (FEI) • The Arab Organization for Industrialization (AOI) • The Automotive Manufacturing Association (AMA) • Ministry of Trade and Industry (MoTI) • Ministry of Labor and Migration (MoMM) • Japan International Cooperation Agency (JICA)

	<ul style="list-style-type: none"> • Japan Vocational Ability Development Association (JAVADA) • Japan Automobiles Manufacturers Association (JAMA) • Japanese private companies
3. Beneficiaries	
<p><u>(Qualifications for admission)</u></p> <ol style="list-style-type: none"> 1) A person who has obtained NSS Level 2 certification; or 2) A person who has work experience of 5 years or longer in the same trade (skill); and 3) A person who has passed the center's entrance examination (which will be designed separately, including the testing method and the passing standard). <p>The center will conduct training course in the following trades:</p> <ol style="list-style-type: none"> 1) Metal press work (metal stamping operation) 2) Plastic molding (plastic injection molding operation) 3) Casting (iron casting operation) 4) Machining (lathe operation, and milling machine operation) <p>As Phase 1, 4 trades and 5 operations in the engineering filed have been selected. They will be finalized in the detailed planning stage by conducting detailed study on the existing facilities and equipment in Egypt and actual needs for engineering skills. Notably, trades in 1) and 2) are much requested by both the private and public sectors.</p>	
4. Project Outline	
<ol style="list-style-type: none"> (1) The E-J Engineering Skill Training Center will be established by joint efforts of the Egyptian and Japanese governments and related organizations. In making a final decision, detailed design study will be conducted, and based on its results, investors and contributions, the training fee, and division of responsibilities among related organizations will be determined. In addition, detailed design will take into account the Thai skill certification system and its operation method, which is operated under the leadership of Thai Automotive Institute (TAI) and Federation of Thai Industry (FTI) and under Japan's assistance. (2) The establishment of the center will be prepared under collaborative efforts by related organizations in Egypt and Japan. In principle, initial investment (construction, equipment, development of the course curriculum and textbooks, and training of trainers) will be funded under financial assistance of the two governments. Possibility of using the existing facilities will be studied. While it is proposed to take up 4 trades/5 operations as Phase 1, training will not necessarily be conducted at the same facility. Rather, possibility of using the existing facilities (to be jointly operated, including private companies) will be examined. (For instance, Arabic Institute for Advanced Technology is expected to be available for the purpose.) (3) In preparation for the establishment of the center, staff members and trainers will be hired and trained by foreign instructors. Trainers will be persons experienced in each field, who will be borrowed from companies or FEI. 	

- (4) In Phase 1, the center will admit maximum 30 trainees for each course, which will be increased subsequently. Thus, the five courses will start with a total of 150 trainees. However, as class size depends on availability of equipment and the number of trainers, further consideration should be made in the planning stage.
- (5) Trainees are required to have passed the entrance examination or have reached a specific level of standard.
- (6) The center's operation and training record will be audited and assessed periodically.

Then, a person who has completed any of the above training courses will be exempted from the practical skill test for NSS Level 3 but will be required to pass a final examination, which will be administered by ITC. Trainees who have passed the final examination will be certified and registered with National Qualification Agency (NQA), which will be established by the Egyptian government. In addition, the Egyptian counterpart has requested expansion of training coverage to Level 2, which will be discussed in the detailed design stage.

5. Implementation procedures

- (1) Related organizations in Egypt will discuss with JICA's Egypt office to finalize the implementation system and design. In particular, negotiation with ITC will be important and close communication will be critical in developing an overall framework.
- (2) The Egyptian government will request the Japanese government to conduct the detailed design study on this project. More specifically, ITC will submit a formal request via the MoPI.
- (3) Assuming that JICA's detailed design study will be carried out, the preparation committee for the establishment of the center will be organized by stakeholders of the Egyptian and Japanese sides.
- (4) The E-J Engineering Skill Training Center will be established on the basis of funds contributed by investors according to the agreement. Legal procedures required in Egypt will be responsibility of the Egyptian counterpart.
- (5) Required equipment and materials will be procured, together with preparation for the center's startup. The Japanese side will provide training equipment and teaching materials.
- (6) Announcement will be made to recruit trainees and the first entrance examination will be held.
- (7) Around 150 trainees who have met admission requirements will participate in the first training program.

6. Estimated Expenses and Revenues

Expenses and revenues expected for the project are estimated as follows (based on similar costs relating

to existing training facilities in Egypt, such as PVTD and AOI).

Expenses (thousand US\$)

- Building and equipment (excluding the land acquisition cost):	1,000
- Training equipment and materials:	3,500
- Training of trainers:	400
- Expatriate experts:	625
- Development of teaching materials:	500
- Operation cost (4 years):	2,600
Sub-total	8,625

Revenues (thousand US\$)

- Examination fee (annual):	10
- Training fee (annual):	240
- Subsidy (annual):	650
Sub-total	900

Initial investment will be granted by related organizations of both governments. As the annual operating cost is estimated at \$650,000, the examination and training fees to be earned in the first four years will be reserved for operation in the fifth and later years. In the third year, the number of trainees will be increased in consideration of balance with the operating cost. The deficit will be covered by the reserve and the working capital. While the training fee is estimated at \$2,000 per year, it is subject to change for various reasons, resulting in varying revenues.

7. Implementation Schedule

- (1) In May – September 2012, JICA will conduct “Feasibility Study on the Establishment of the E-J Engineering Skill Training Center.”
- (2) In October – November 2012, the preparation committee will be established in each country and the First Conference on the Establishment of the E-J Engineering Skill Training Center will be held in Cairo.
- (3) Between December 2012 and March 2013, procedures to approve the center’s establishment and its support will be taken in both countries.
- (4) In May 2013, the Egyptian and Japanese governments will sign the agreement on JICA project implementation (R/D).
- (5) In June 2013, preparation for the center’s establishment by experts will start.
- (6) In October 2013, the E-J Engineering Skill Training Center will be formally established.

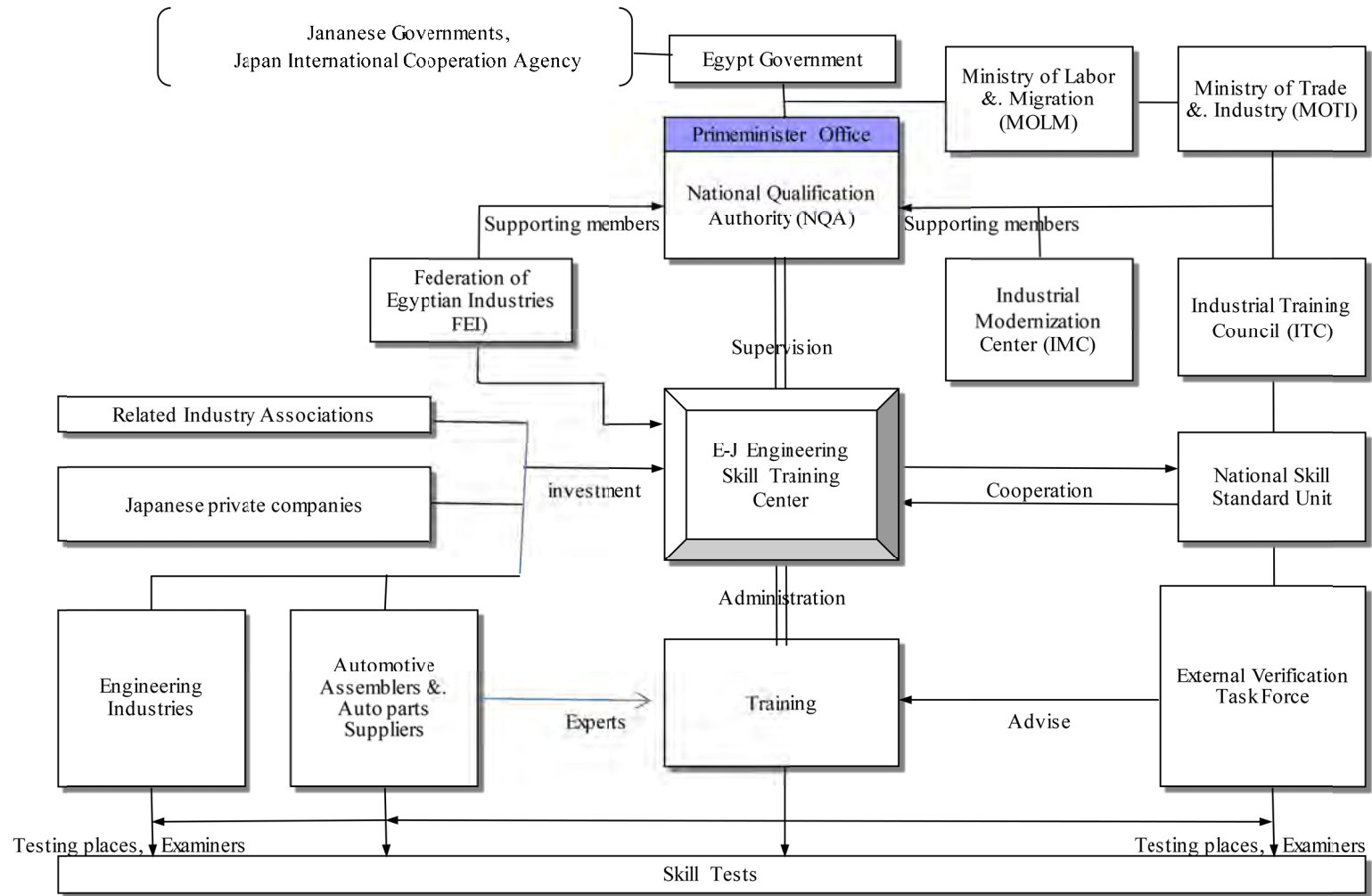
(7) In September 2014, the first training program will start.

8. Expected Benefits

- (1) Workers who have international level engineering skills are capable of showing them according to an objective standard, so that industries can recruit and retain human resources that meet their needs.
- (2) Production technology of local manufacturers, including supporting industries, are upgraded significantly.
- (3) Quality of industrial products made in Egypt improves to help industry growth by facilitating import substitution and export.
- (4) Industrial growth leads to a substantial increase in employment opportunity.
- (5) The increase in human resources having appropriate engineering skills helps attract foreign direct investment.

9. Key Points

- (1) While it is assumed that the center will be operated under the partnership of the public and private sectors (the latter taking leadership), initial investment needs to be funded by both governments.
- (2) While skill certification is conducted as a national qualification system, the center should be operated under the leadership of the private sector. For this purpose, participation of Federation of Egyptian Industries (FEI) and Arab Organization for Industrialization is essential and should be vigorously promoted.
- (3) The program will admit trainees who are currently employees. Then it is desirable to charge the training fee to companies.
- (4) Care should be taken to manage the skill certification process with adherence to rules and transparency so as to help establish good reputation in industry and society.



5-33

Fig.5-2-6 Conceptual view of engineering skill testing project

**Development Scenario 4:
“Project on E-J Automotive Mechanics Training”**

<p>1. Objective</p>	<p><u>Project purpose:</u></p> <p>The project is designed to provide systematic training for young people who intend to obtain certification for the NSS Level 3 automotive mechanic (the highest level) so as to teach automobile maintenance skills that meet international standards, thereby allowing them to make contribution to society by helping achieve the safe and comfortable road transport environment.</p> <p>In addition, the project will contribute to job creation and improvement of the unemployment issue by increasing automotive mechanics who will be increasingly demanded in the future.</p> <p><u>Rationale (need) for project formation</u></p> <p>NSS sets forth the following six skills relating to automotive maintenance under Mechanical Group (D) classification.</p> <ul style="list-style-type: none"> - Vehicle body mechanics - Automotive electric - Heavy vehicle mechanics - Light vehicle mechanics - Vehicle painting - Tire mechanics <p>Among them, basic courses for the above skills Level 1 and Level 2 courses for vehicle body mechanics and light vehicle mechanics are conducted at PVTD’s four centers under assistance of the South Korea government since December 2009 (a year later for Level 2 courses). For all the courses, the South Korea government has provided a wide range of support, ranging from the development of the curriculum and textbooks, training of Egyptian trainers, and provision of training equipment. At present, the Level 1 courses are training around 400 persons annually, which are far short of actual demand in the market. PVTD plans to offer the same courses at additional 4 centers and requests assistance to South Korea (totaling 8 centers).</p> <p>NSS has originally been developed under foreign assistance, but there is the shortage of training facilities to teach the required skills. At present, PVTD conducts NSS-based training courses at 15 centers, including automotive mechanics. However, training facilities and equipment are relatively old and there are centers that do not appear to meet the NSS skill standards. To increase the NSS courses further, therefore, it is imperative to renew or upgrade training facilities and equipment, to reeducate trainers,</p>
---------------------	--

	<p>and to revise and update the curriculum and teaching materials.</p> <p>It should be noted that the South Korea government has not decided to provide assistance for the establishment of the automotive mechanics courses at four centers. As for Level 3 training, PVTD gives priority to the full-fledged deployment of the Levels 1 and 2 courses and thus has not requested support. Meanwhile, an entrepreneur support project targeting automotive mechanics – driven by Social Fund for Development (SFD) – is said to require Level 3 skills. While a difference in skill level requirements between automotive mechanics in Japan and under NSS is not clear, Class 1 automotive mechanics in Japan are considered to have the highest skill level (there are 3 classes), and together with Class 2 mechanics, are capable of performing sophisticated maintenance work. Meanwhile, the Egyptian government has intention to make Level 3 skills as a requirement for opening a garage. (For this reason, the Level 3 courses are expected to cover entrepreneurship in addition to maintenance skills.)</p> <p>Against the above background, it is proposed to establish a new training center for NSS Level 3 automotive mechanics and operate it in cooperation of related organizations.</p>
2. Implementation and support organizations	<p><u>Implementation organization</u></p> <p>An automotive mechanics training center will be established jointly by Egypt and Japan (tentatively named “E-J Automotive Mechanics Training Center”). It will be operated as a semi-government organization. While initial investment and operation in the startup period (4 years) will be partially funded by both governments, it is aimed to become financially independent in the fifth year.</p> <p><u>Expected investors and support organizations:</u></p> <ul style="list-style-type: none"> • The Industrial Training Council (ITC) • The Industrial Modernization Center (IMC) • The Social Fund for Development (SFD) • The Arab Organization for Industrialization (AOI) • The Automotive Manufacturing Association (AMA) • The Automotive Dealers Association (ADA) • Japan International Cooperation Agency (JICA) • Japan Automobiles Manufacturers Association (JAMA) • Japanese private companies
3. Beneficiaries	
<p><u>(Qualifications for admission)</u></p> <p>(1) A person (both male and female) having Egyptian nationality and the age of 28 years or younger at the time of application;</p>	

- (2) A person who has obtained NSS Level 2 skill certification under Mechanical Group (D); or
- (3) A person who has graduated from an engineering department of a university; or
- (4) A person who has work experience of 5 years or longer in the same trade (skill); and
- (5) A person who has passed the center's entrance examination (which will be designed separately, including the testing method and the passing standard).

4. Project Outline

- (1) The E-J Automotive Mechanics Training Center will be established by joint efforts of the Egyptian and Japanese governments and related organizations. In making a final decision, detailed design study will be conducted, and based on its results, investors and contributions, the training fee, and division of responsibilities among related organizations will be determined. At the detailed design stage, similar facilities - the Saudi Japanese Automobile High Institute (Saudi Arabia) and the Thai Automotive Institute (Thailand) will be visited to learn their startup and operation.
- (2) The establishment of the center will be prepared under collaborative efforts by related organizations in Egypt and Japan. In principle, initial investment (construction, equipment, development of the course curriculum and textbooks, and training of trainers) will be funded under financial assistance of the two governments. Possibility of using the existing facilities will be studied.
- (3) In preparation for the establishment of the center, staff members and trainers will be hired and trained by foreign instructors (including overseas training). The ToT plan should be formulated in consideration of possibility to expand the center's facilities in the future (expansion of activity to other governors).
- (4) Then, operation of the automotive mechanics training center (one-year) will started with class capacity of 120 persons. It is intended to expand the center's activities in and outside the country with the center functioning as the core facility. Class capacity will be increased to 200 at maximum.
- (5) The center's operation and training record will be audited and assessed periodically.

Then, a person who has completed any of the training course will be exempted from the practical skill test for NSS Level 3 but will be required to pass a final examination, which will be administered by ITC. Trainees who have passed the final examination will be certified and registered with National Qualification Agency (NQA), which will be established by the Egyptian government.

5. Implementation procedures

- (1) Related organizations in Egypt will discuss with JICA's Egypt office to finalize the implementation system and design.
- (2) The Egyptian government will request the Japanese government to conduct the detailed design study on this project. More specifically, SFD will submit a formal request via the MOPI.
- (3) Assuming that JICA's detailed design study will be carried out, the preparation committee for the

establishment of the center will be organized by stakeholders of the Egyptian and Japanese sides.

- (4) The E-J Engineering Skill Training Center will be established on the basis of funds contributed by investors according to the agreement. Legal procedures required in Egypt will be responsibility of the Egyptian counterpart.
- (5) Required equipment and materials will be procured, together with preparation for the center's startup. The Japanese side will provide training equipment and teaching materials.
- (6) Announcement will be made to recruit trainees and the first entrance examination will be held.
- (7) The first training program will start with around 120 trainees who are qualified for admission. The curriculum will consist of the following subjects.
- Motor vehicle's structure and functions, and operating methods
 - Inspection, repairing, adjustment, and final inspection
 - Basic knowledge on maintenance equipment
 - Testing machines, measuring instruments and tools used for maintenance work, including their construction, functions and operating methods
 - Types and applications of materials used in automobiles, fuel and grease
 - General knowledge on drawings
 - Laws and regulations on vehicle maintenance, including maintenance standards
 - Knowledge on the car maintenance business and related laws and regulations
 - Accounting and bookkeeping
 - Computer operation
 - English

6. Estimated Expenses and Revenues

Expenses and revenues expected for the project are estimated as follows. Note that the estimation has been made on the basis of similar projects and does not warrant accuracy or reliability before project implementation.

Expenses (thousand US\$)

- Building and equipment (excluding the land acquisition cost):	3,750
- Training equipment and materials:	4,750
- Training of trainers:	625
- Expatriate experts:	625
- Development of teaching materials:	500
- Operation cost (4 years):	2,600
Sub-total	12,850

Revenues (thousand US\$)

- Examination fee (annual):	10
- Training fee (annual):	240
- Subsidy (annual):	650
Sub-total	900

It is assumed that initial investment will be granted by related organizations of both governments. As the annual operating cost is estimated at \$650,000, the examination and training fees to be earned in the first four years will be reserved for operation in the fifth and later years. In the third year, the number of trainees will be increased in consideration of balance with the operating cost. The deficit will be covered by the reserve and the working capital. While the training fee is estimated at \$2,000 per year, it is subject to change for various reasons, resulting in varying revenues.

7. Implementation Schedule

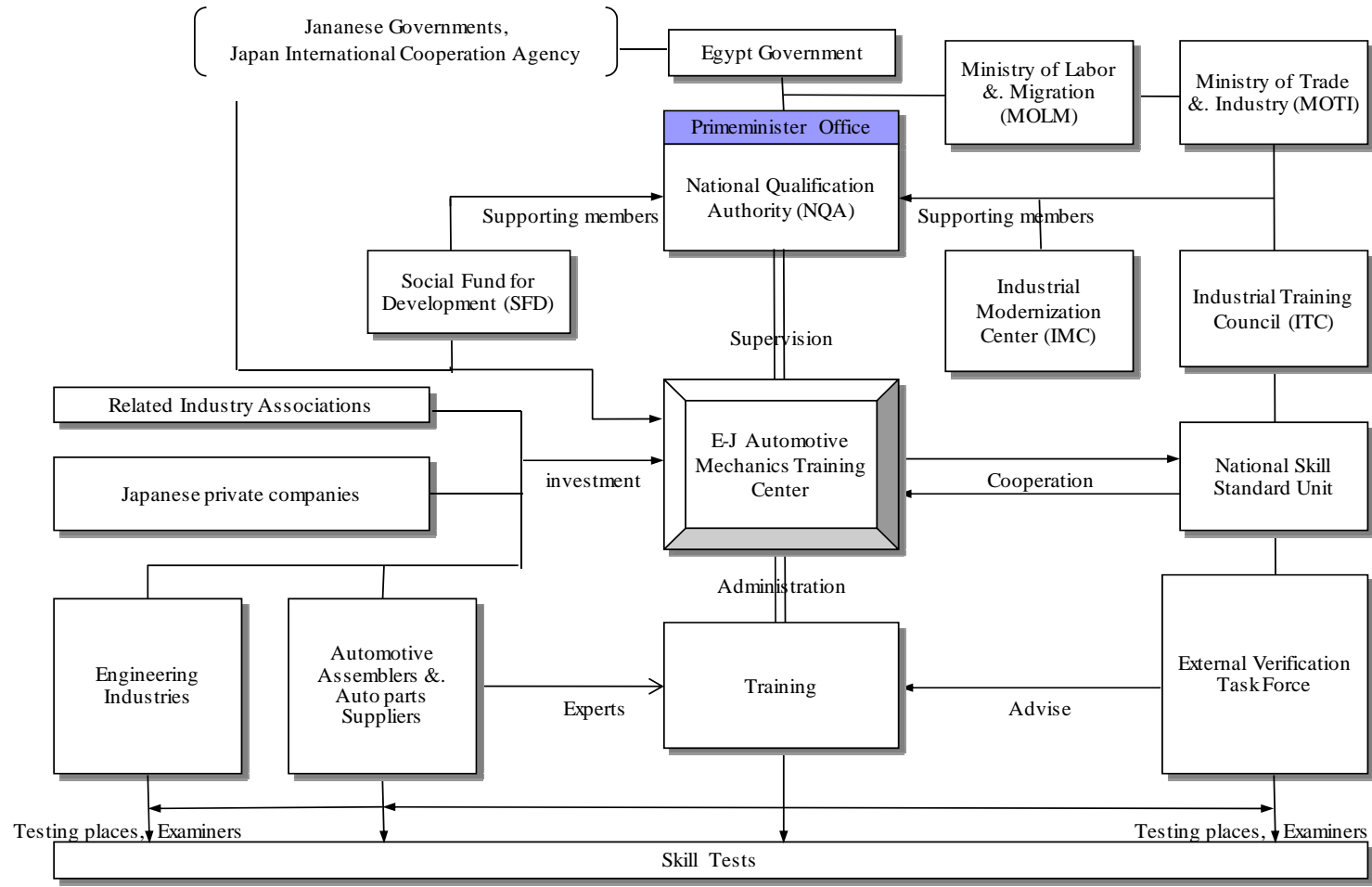
- (1) In May – September 2012, JICA will conduct “Feasibility Study on the Establishment of the E-J Automotive Mechanics Training Center.”
- (2) In October – November 2012, the preparation committee will be established in each country and the First Conference on the Establishment of the E-J Automotive Mechanics Training Center will be held in Cairo.
- (3) Between December 2012 and March 2013, procedures to approve the center’s establishment and its support will be taken in both countries.
- (4) In May 2013, the Egyptian and Japanese governments will sign the agreement on JICA project implementation (R/D).
- (5) In June 2013, preparation for the center’s establishment by experts will start.
- (6) In October 2013, the E-J Automotive Mechanics Training Center will be formally established.
- (7) In September 2014, the first training program will start.

8. Expected Benefits

- (1) Automotive mechanics having international skill levels are produced at the rate of over 100 annually (to be increased to 200 in the third year and later).
- (2) Improvement of maintenance skills lead to a safer society and motorization.
- (3) Availability of high quality mechanics helps stimulate the auto industry’s growth.

9. Key Points

- (1) While it is assumed that the center will be operated under the partnership of the public and private sectors (the latter taking leadership), initial investment needs to be funded by both governments.
- (2) The program will admit trainees who are currently employees. Then it is desirable to charge the training fee to companies.
- (3) Investors include Japanese companies, such as human resource development organizations as part of a company group headed by an automaker or a first-tier parts supplier, and schools training automotive mechanics.



5-39

Fig.5-2-7 Conceptual view of automotive mechanics training project

Development Scenario 5:**“Project to provide employment support for graduates of the EduEgypt program”**

1. Objective	<p>The MCIT is in charge of the IT industry and has been implementing various policies and programs with a strategic focus on the industry’s development. As of June 2011, there are approximately 4,200 companies in the Egyptian IT industry, which employ 207,000 persons. Although it is still small in size, the industry grows rapidly. Compared to 2010, the number of companies increased by 12.2% and the number of employees by 7.1%, outpacing the GDP growth rate. Clearly the MCIT’s policy has contributed to this growth. The MCIT sets forth policy priority in the next five years to focus on the expansion of IT service exports and human resource development to support it. The industry is therefore expected to expand further and there is increasing demand for high quality human resources.</p> <p style="text-align: center;">Table 5-2-1 Number of IT companies and & Employ</p> <table border="1" data-bbox="483 869 1353 1160"> <thead> <tr> <th></th> <th>2008</th> <th>2009</th> <th>2010</th> <th>2011</th> <th>yearly mean</th> </tr> </thead> <tbody> <tr> <td>A. IT Companies</td> <td>2,651</td> <td>3,288</td> <td>3,758</td> <td>4,215</td> <td>-</td> </tr> <tr> <td>B. Increase No. (y/y)</td> <td>303</td> <td>637</td> <td>470</td> <td>457</td> <td>466.75</td> </tr> <tr> <td>C. Increase ratio (y/y)</td> <td>12.9%</td> <td>24.0%</td> <td>14.3%</td> <td>12.2%</td> <td>15.8%</td> </tr> <tr> <td>D. IT Employments</td> <td>164,900</td> <td>179,000</td> <td>193,300</td> <td>207,000</td> <td>-</td> </tr> <tr> <td>E. Increase No. (y/y)</td> <td>3,400</td> <td>14,100</td> <td>14,300</td> <td>13,700</td> <td>11,375</td> </tr> <tr> <td>F. Increase ratio (y/y)</td> <td>2.1%</td> <td>8.6%</td> <td>8.0%</td> <td>7.1%</td> <td>6.4%</td> </tr> </tbody> </table> <p>Source: Modified by the Study Team based on MITC “Information and Communications Technology Indicators Bulletin”</p> <p>As a major instrument for human resource development, the MCIT has been implementing the “EduEgypt” program since 2007, in cooperation of the Ministry of Higher Education and State for Scientific Research. It intends to promote and expand the program in order to maximize effectiveness of IT human resource development. The “EduEgypt” program has the primary purpose of nurturing IT professionals and carries out education and training for university students at around 50 institutions. It targets the third- and fourth-year students and the MCIT issues a certificate of completion.</p> <p>The project is founded on a model to provide employment support service for students who are expected to complete the program and IT companies in a manner to promote appropriate matching between them according to actual skills and needs. Its ultimate goal is to generate an upward cycle to stimulate growth of the entire Egyptian industry by increasing employment of young people with higher education, followed by further job creation.</p>		2008	2009	2010	2011	yearly mean	A. IT Companies	2,651	3,288	3,758	4,215	-	B. Increase No. (y/y)	303	637	470	457	466.75	C. Increase ratio (y/y)	12.9%	24.0%	14.3%	12.2%	15.8%	D. IT Employments	164,900	179,000	193,300	207,000	-	E. Increase No. (y/y)	3,400	14,100	14,300	13,700	11,375	F. Increase ratio (y/y)	2.1%	8.6%	8.0%	7.1%	6.4%
	2008	2009	2010	2011	yearly mean																																						
A. IT Companies	2,651	3,288	3,758	4,215	-																																						
B. Increase No. (y/y)	303	637	470	457	466.75																																						
C. Increase ratio (y/y)	12.9%	24.0%	14.3%	12.2%	15.8%																																						
D. IT Employments	164,900	179,000	193,300	207,000	-																																						
E. Increase No. (y/y)	3,400	14,100	14,300	13,700	11,375																																						
F. Increase ratio (y/y)	2.1%	8.6%	8.0%	7.1%	6.4%																																						
2. Implementation and Support	- The Employment Support Project Consortium (organized by Egyptian and Japanese companies)																																										

Organizations	<ul style="list-style-type: none"> - Universities in Egypt (in particular, around 50 universities that implement the EduEgypt program) - The Ministry of Communications and Information Technology and its attached organizations - The Ministry of Higher education and State for Scientific Research - The Japanese government and related organizations
3. Beneficiaries	
<p>The PPP project will target university students who are expected to complete the “EduEgypt” program (around 5,000 persons per year) and IT companies in and outside the country, which are interested in hiring the students (including around 4,200 establishments in Egypt).</p>	
4. Project Outline	
<p>Under the project, a company specialized in employment support service will be founded with equity contribution by the Japanese government, the Egyptian government (MCIT) and private companies in both countries. The company will primarily provide the following information services.</p> <ol style="list-style-type: none"> (1) Provision of job information from IT companies to persons who are expected to complete the EduEgypt program (2) Provision of information on persons who are expected to complete the EduEgypt program to IT companies <p>First of all, the employment support company will operate a system to receive job information from IT companies and to distribute it automatically to the program participants. For IT companies, recruitment activity can be improved in terms of quality and quantity because the system allows them to send a job offer directly to human resources who are trained to become IT professionals with high skills. At the same time, the program participants can obtain job information from potential employers in a timely manner.</p> <p>Furthermore, companies offering the internship can strengthen ties with potential employees by distributing information on their internship program. This way, IT companies are expected to increase opportunities to identify and select human resources that meet their needs, while allowing the program participants to make preparation for job seeking by gaining work experience and learning appropriate skills.</p> <p>This service will be operated on a business model to collect an information service fee from IT companies, while the program participants can receive information with free of charge.</p> <p>On the other hand, provision of information on the program participants to IT companies will be accomplished by developing a system that registers information provided by the program participants (e.g., skills and area of interest and specialization) on a database and that selects candidates having qualifications demanded by prospective employers and provides their information for IT companies.</p>	

The Study has confirmed presence of companies that provide employment/job change support for present workers (including those currently unemployed), while there is none engaged in employment support for university students. This reflects the fact that most companies opt to hire persons with work experience, rather than new graduates. As a result, there is little possibility that the project competes with private companies that provide a similar service.

Furthermore, these companies generally serve all types of industries in order to minimize opportunity loss. In Egypt, however, there is the paucity of data required to measure competence and skills of individuals in an objective manner. If additional data are collected and used to meet the needs, it will require a much higher cost to find a right match because it takes considerable time and effort to select appropriate candidates by understanding the diverse needs of individual companies, while checking accuracy or authenticity of information provided by each job applicant (i.e., tradeoff between cost and quality of information).

On the other hand, as the project targets the IT industry, the needs of companies can be narrowed down and categorized into a limited set of data. Furthermore, use of the "EdyEgypt" program for accurate assessment of professional knowledge and skills helps create a business model to provide high quality service at an economical cost.

To ensure effective functioning of the human resource database, it is imperative for the MCIT to require the program participants to register necessary information. At the same time, efforts should be made to maximize reliability of registered data by adding the performance record of the program participants in cooperation of universities and research organizations.

This service will be operated on a business model to collect an information service fee from IT companies, while the program participants can receive information with free of charge.

5. Implementation Procedures

- (1) Discussion and negotiation between the two governments (including JICA) with regard to implementation of the project
- (2) Implementation of the feasibility study on project implementation
- (3) Formation of the Employment Support Project Consortium
- (4) Development of the project's detailed design, including operation, under participation of the Japanese government (including JICA), the Egyptian government (including MCIT), universities in Egypt, and the Employment Support Project Consortium
- (5) Designing of employment support service and system development
- (6) Start of test run of employment support service
- (7) Commercial launching of employment support service

6. Estimated Expenses and Revenues

(1) Initial cost

Table 5-2-2 Estimation of Initial Cost

Item	Amount	Remark (Japanese Yen)
Human resource information database	2,564	199,969,000
Job information database	1,742	135,844,000
Total (Note including taxes)	4,306	335,813,000

Note: As computer systems and equipment is expected to be installed within the university campus, the estimation does not include the rental cost for an equipment installation space.

The estimation covers costs for system development and installation associated with the establishment of the project but does not include costs and expenses relating to the creation of the Employment Support Project Consortium.

(2) Running cost (annual)

Table 5-2-3 Estimation of Running Cost

Item	Amount	Remark (Japanese Yen)
Human resource information database	99	7,734,000
Job information database	53	4,172,000
Network use fee	27	2,133,000
System maintenance and upgrading	29	2,250,000
Business management	77	6,000,000
Total (Note including taxes)	285	22,289,000

Note: As computer systems and equipment is expected to be installed within the university campus, the estimation does not include the rental cost for an equipment installation space.

The estimation covers costs for system development and installation associated with the establishment of the project but does not include costs and expenses relating to the creation of the Employment Support Project Consortium.

(3) Revenues (basic assumptions)

1) The number of IT companies and company size

It is assumed that the number of IT companies will grow at an annual rate of 15% (same as present) until 2015, and then, the growth rate will pick up and reach 20% in 2016 and onward, when the project is expected to produce tangible results.

As for the composition of companies by size, it is assumed that large enterprises (100 or more employees) account for 10% of the total and SMEs (less than 100 employees) the remaining 90%.

2) The number of service users

It is assumed that 40% of large enterprises and 20% of SMEs will use service provided under the project, although the latter will likely increase in cooperation of the Egyptian government (e.g., promotion and campaign). The figures therefore represent conservative estimate in consideration of some uncertainties, such as the period required to make the service recognized and accepted widely.

3) User fee

In Egypt, many companies recruit employees by using newspapers or other printed media or personal

connections (present or old employees, etc.), as discussed in 3.4. While the newspaper ad costs 100,000 yen each, use of personal connections does not incur much cost, so that small companies tend to rely on the latter channel and the recruitment cost becomes very small. Under these circumstances, the user fee for the service needs to be set at an affordable level for SMEs that account for major portions (around 90%) of the industry.

As the project is expected to provide Internet-enabled information service, the user fee charged by Internet service providers (ISPs) in the country is used as the basis of estimation, under the assumption that setting a user fee at the level similar to that for the Internet connection service will increase a prospect for wide use. At present, TE Data – the largest ISP in the country – sets the user fee for ADSL service at 75EL per month (512kbps), 100EL (1,024kbps), and 150EL (2,048kbps). Based on these figures, the user fee for the project's service is tentatively set at 1,000 yen per month for SMEs and 2,000 yen per month for large enterprises.

(4) Estimated revenues

On the basis of the above assumptions, the project's revenue stream is estimated as follows. Note that the first year's revenue (2014) is estimated to be equivalent to six months, rather than the full-year revenue, because the project will be on the trial run during the year. Also, while it is assumed that the service will be expanded to foreign IT companies in the future, the revenue stream up to 2016 will include local users only so as to allow for a certain period of time before the start of service expansion.

Table 5-2-4 Estimated Revenue Stream

Unit: JPY1,000

Year	2012	2013	2014	2015	2016
Total number of users (companies)	4,847	5,574	6,410	7,372	8,846
Large enterprises (100 or more employees)	Preparatory stage	Preparatory stage	197	454	544
SMEs (less than 50 employees)			89	204	245
Estimated revenue	—	—	286	658	789

7. Implementation Schedule

The project will be implemented roughly in three phases. Each phase is outlined as follows, including an estimated timeframe.

Preparation phase (1Q – 4Q, 2012)

A formal discussion on project implementation by the two governments (including JICA) will start. At the same time, feasibility study will be conducted for the primary purposes of examining details of the project and selecting companies in Egypt, which will participate in the Employment Support Project Consortium.

- Detailed project design and system design (1Q – 4Q, 2013)

The project's detailed design, including operation, will be developed under participation of the Japanese government (including JICA), the Egyptian government (including MCIT), universities in Egypt, and the Employment Support Project Consortium in order to define requirements for the proposed service and to design and develop a system that meets such requirements.

Start of test run and commercial launching (1Q – 4Q, 2014)

Employment support service will be started on an experimental basis to identify areas of improvement and shortcomings, and after improvement and adjustment, commercial service will be launched.

Procedures	2011	2012				2013				2014				2015
	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q
Negotiation between the two governments														
Implementation of the feasibility study on project implementation														
Formation of the Project Consortium														
Development of the project detailed design														
Designing of employment support serve														
Start of test run of employment support service														
Commercial launching														

Fig.5-2-8 Preliminary Implementation Schedule

8. Expected Benefits

(1) Industrial human resource development

As the project will be implemented in close collaboration with the EduEgypt program, it will not directly be involved in industrial human resource development. Instead, it envisages an indirect means of promoting IT human resource development by allowing IT companies to hire the program participants as interns, thereby reinvigorating the internship program itself. In fact, some of private universities in Egypt have a job placement office to encourage students to have internship experience. These efforts have successfully led to the rise in motivation toward study and employment. The project intends to model after them.

Meanwhile, the IT industry undergoes very rapid technological advancement in comparison to most industries, so that IT engineers are expected to adapt themselves to the industry's changing and increasingly sophisticated needs. As the EduEgypt program's purpose is to fill the gap between IT skills trained at school and actual resource requirements by the industry, the project is expected to help the program to achieve the goal by providing indirect support for training of IT engineers who can meet the needs.

(2) Employment promotion

The EduEgypt program has been established in an attempt to address the issue that universities do not fulfill their mission to produce competent IT professions required for the industry's growth. As discussed earlier, in all industries, Egyptian companies tend to give priority to the hiring of persons with previous work experience, rather than new graduates. The IT industry is no exception to this and seems to place more weight on work experience because of the rapid pace of technological advancement. An

IT company visited by the study team during the field survey indicated that it only hires persons who have work experience in the IT industry in order to obtain high quality IT professionals who can immediately contribute to the company's operation. This suggests the importance of developing the work environment that accepts new graduates of higher educational institutions.

Japan has been making concerted efforts to foster the IT industry since 2000 (referred to as the first year of the broadband era). According to industrial statistics ("Statistics of Japan" published by the Bureau of Statistics, Ministry of Internal Affairs and Communications, FY2005), the ICT sector has approximately 1,624,000 employees, accounting for 2.6% of the industrial total. On the other hand, the ICT industry in Egypt has only 208,000 workers, which represent 0.9% of the total (see Table 2-2-5 "Working Population by Industry"). It is considered to have great growth potential. While it is not realistic to compare the two countries directly because of difference in the state of IT infrastructure and related industries, if the MCIT continues to place the fostering of the IT industry on its top priority and infrastructure development is progressed accordingly, the rate of increase in the number of employees in the Egyptian IT industry can be increased from a present 7-8% to 10-15% in Japan. Under this assumption, the industry is capable of generating 106,000 to 178,000 jobs in the next five years. Furthermore, development of the IT industry will stimulate other industries, including creation of new businesses, resulting in much larger job creation.

(3) Investment promotion

On a single year basis, the project is expected to make a profit after 2015. Note that, as the estimation does not include costs and expenses relating to the establishment and operation of the Employment Support Project Consortium, a real deficit in FY2014 is expected to be larger than that shown in the table below.

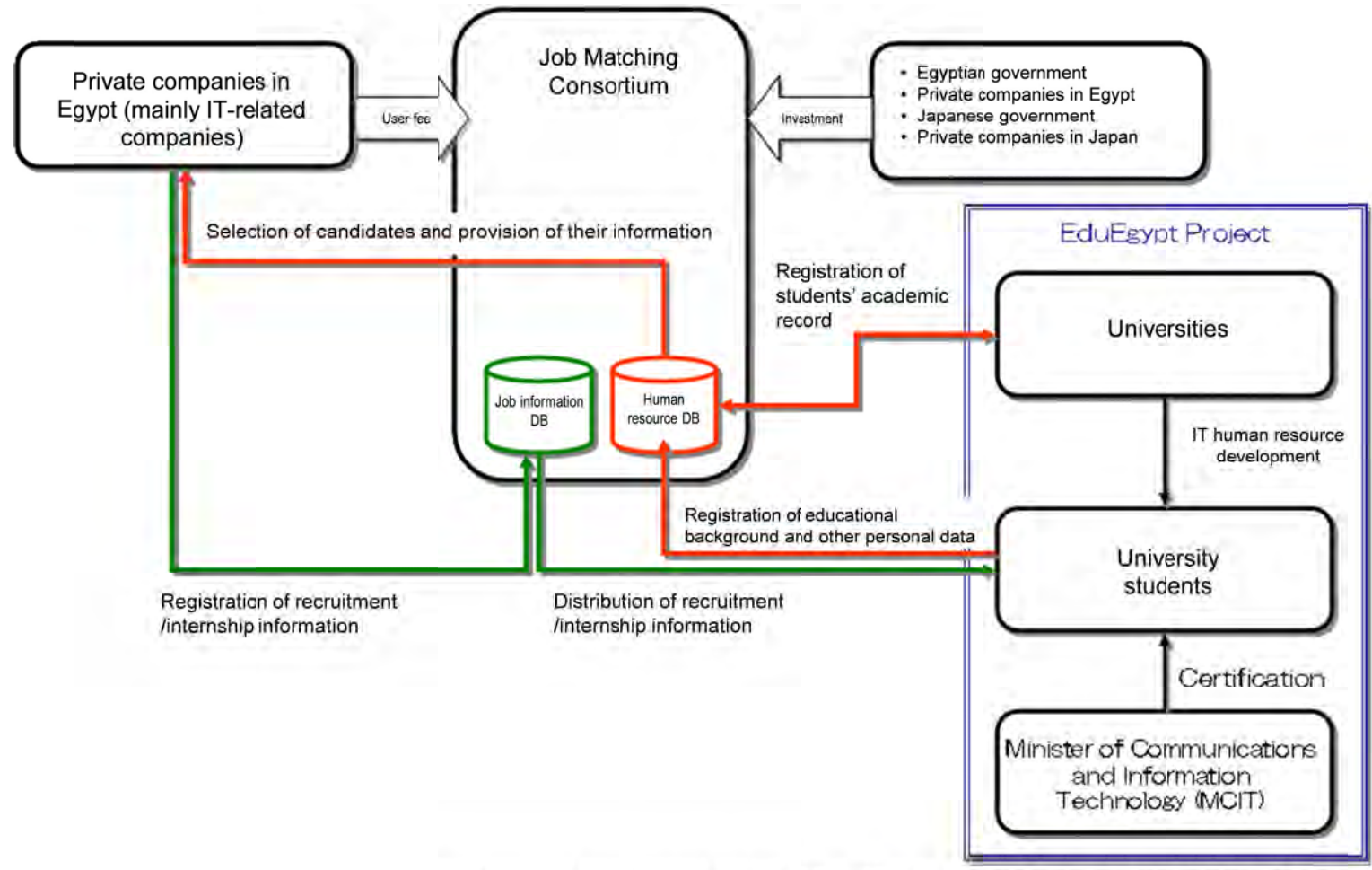
As for accumulated revenues and expenses, a cumulative deficit will continue to exist after 2016 because the initial cost is much larger than surpluses expected in later years, making it difficult to implement the project on a commercial basis by using private investment only. On the other hand, if the initial cost is funded by financial assistance of the Egyptian and Japanese governments, revenue and expense will become more or less even in 2014 (not including costs relating to the establishment and operation of the consortium) and a cumulative deficit will be eliminated in 2015. Thus, funding by the two government is indispensable in making the project financially feasible.

Table 5-2-5 Expected Revenue and Cost

Unit: JPY1,000					
	2012	2013	2014	2015	2016
Revenue	Preparatory stage		22,308	51,310	61,571
Cost			358,102	22,289	22,289
Earnings			-335,793	22,289	22,289
Revenue	Preparatory stage		22,308	73,618	135,190
Cost			358,102	380,391	402,680
Earnings			-335,793	-306,772	-267,490

9. Key Points

- (1) It is assumed that the MCIT will require participants of the EduEgypt program to register relevant data on the human resource information database.
- (2) To ensure the effective functioning of the human resource information database, it is important to store a variety of personal data including objective assessment of competence and skills by universities and other third party organizations. At the same time, as the human resource information database will be made widely accessible to IT companies in and outside the company, appropriate measures to protect privacy and related rights need to be taken, including the establishment of the rules for operation and use of the database service (e.g., the enactment of a law regulating publication of personal information) and the enhancement of information security in terms of technology.
- (3) To ensure smooth launching of service under the project, the MCIT needs to take a lead in encouraging its use by IT companies, including a campaign.
- (4) The successful implementation of the project is hinged on the government policy, i.e., the MCIT continues to foster the IT industry from long-term perspectives by setting policy priority to expansion of IT service exports and industrial human resource development.
- (5) The above cost estimation has been made on the basis of data (estimates and forecast) provided by IT companies in Egypt. In the actual implementation stage, however, accurate cost estimation should be made by defining detailed requirements.



*The IT human resource development service continues to be provided by the ongoing EduEgypt system.

Fig.5-2-9 Job Place Support for EdyEgypt Program Participants

5.2.2 Analysis of Industrial Impacts of the Development Scenarios

This section analyzes possible effectiveness of the five development scenarios shown in 5.2.1, i.e., benefits for the Egyptian industry as a whole. Effectiveness in terms of “industrial human resource development” and “employment promotion” – the stated objectives of the Study – will be discussed, as well as indirect benefits that can also be expected from implementation of proposed projects. In addition, all the development scenarios envisage implementation in Egypt and further deployment opportunities in other Middle East countries are discussed in 5.2.3.

Development Scenario 1:

“Project to support IT human resource development and the fostering of the IT industry”

(1) Direct benefits

1) Effect on industrial human resource development

As universities introduce the educational program focusing on the IT engineer examination, a large number of students - both science/engineering and liberal arts – are expected to participate and obtain certification that offers a great advantage for their future career. In Egypt, 400,000 – 430,000 persons are admitted to universities annually (of which nearby 370,000 are graduated). If 10% of the fourth-year students participate, as much as 40,000 persons will learn IT knowledge and skills according to professional standards. By offering the program at training institutes, IT professionals currently at work will be able to improve their skill levels. In the future, the program will be implemented in an e-learning format, which will provide a broader population throughout the country with opportunity to learn IT technology, thus contributing to productive application of IT in a variety of fields.

2) Effect on employment promotion

At present, the IT industry in Egypt registers rapid growth in terms of the number of companies, the number of employees, and sales. In particular, the total workforce has reached 230,000 (estimated) and is expected to maintain strong growth (see Fig.5-2-10). The project will help meet such demand by increasing supply of IT human resources.



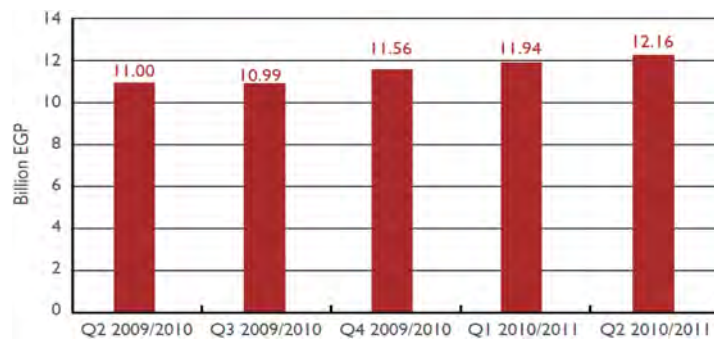
Source: Ministry of Communications and Information Technology, Ministry of Investment, General Authority for Free Zones and Investment

Fig.5-2-10 IT Industry Workforce Trend

On the other hand, the country’s massive PC user population including round 2 million university students, which forms a large networking environment, provides market opportunity for content providers. Unleashing such market potential will attract a number of content providers in and outside the country. As a result, the job market for IT engineers will thrive and lead to significant growth of the workforce. Also, dissemination of IT knowledge and skills to a broader population will create new business and employment opportunities in other industries.

(2) Indirect benefits

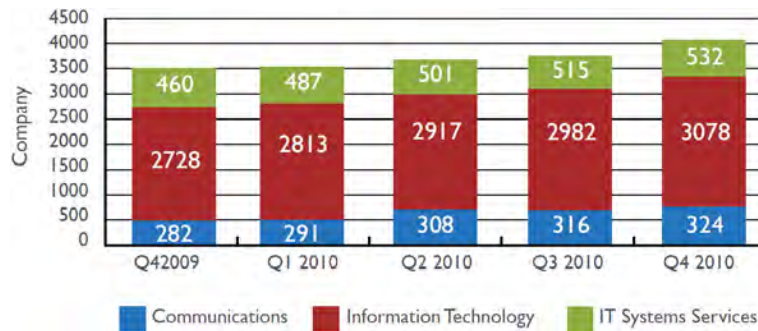
The IT industry’s total sales grew by 1,160 million LE between 2009 and 2010, a 10.6% increase (see Fig5-2-11). Of total, leading telecom carriers (classified into the IT industry) report revenue growth of 980 million LE (10.6%) during the same period.



Source: Ministry of Communications and Information Technology, Information Center

Fig.5-2-11 IT Industry Sales Trend

The figures indicate that large telecommunications companies (including Telecom Egypt, Vodafone, Mobinil, and Etisalt Misr) are dominating the IT industry (84% of total sales), and other subsectors (such as SI, software, application, and content) are fairly small and are considered to serve infant markets. On the other hand, the total number of companies in the industry grew by 464 (13.4%) in 2009-2010 (see Fig.5-2-12), outpacing sales growth. This suggests that the increase mainly comes from emergence of IT ventures with relatively small revenues.



Source: Ministry of Investment, General Authority for Free Zone s and Investment

Fig.5-2-12 IT Company Trend

The analysis indicates that, while the IT industry shows very high growth, it is mainly originated in telecom carriers that provide the IT infrastructure. Telecom companies have been growing thanks to rapid propagation of broadband service and cellular phone, but the former is driven by ADSL, while fiber optic service only holds a minor share. Cell phone ownership is still small in comparison to other countries. If these infrastructure bottlenecks are solved, the rest of the IT industry (SI, software, application, content, etc.) will likely grow rapidly to satisfy pent-up demand.

The IT engineer examination to be introduced under the project is designed to help improve technology levels of the IT workforce. At the same time, the Educational Broadband Network and the Educational Platform aim to create the environment that vitalizes the IT-related industries. Overall, the project meets the needs in Egypt and can serve as an impetus for investment in the IT industry.

Development Scenario 2:

“Project to improve the public job placement system”

(1) Direct benefits

1) Effect on industrial human resource development

A major issue facing the MoMM in relation to the present job placement system is the inability to supply skilled workers and engineers who are demanded by industries. The MoMM recognizes that it is partly attributable to the absence of a system to provide guidance for job seekers on the basis of the actual needs of industries, to say nothing of various issues relating to the training curriculum and the teaching system of vocational training institutes. In 2002 to 2007, it conducted the training of counselors (MoMM staff) to provide job-related guidance under a CIDA-assisted project, while guidance service has been partially improved. Yet, no systematic mechanism to link guidance with skill training/retraining has been established between the MoMM’s guidance service and training centers under its jurisdiction or vocational training schools under the MoIT or MOE. As the project aims to create an effective linkage between guidance and training services, its implementation will help produce human resources that meet the industrial needs. While the project’s primary purpose is to enhance the public job placement system, its effectiveness can be extended to industrial human resource development by incorporating a mechanism to promote collaboration with the training function under the MoMM.

2) Effect on employment promotion

Developing the system to link guidance and training/retraining functions constitutes a good strategy for employment promotion. Meanwhile, guidance service is expected to help solve a major obstacle for young people to find a job, i.e., some students do not realize their competence or skill levels and look for a high paying job or a managerial post. In fact, the question survey conducted by the study team indicates that SMEs have strong labor demand exceeding supply (after factoring the number of workers who leave their job). The difficulty in recruiting workers makes an ironic contrast to the high unemployment rate of the young age group. Reducing such mismatch between SMEs and students by using an effective guidance system will contribute greatly to employment promotion.

Finally, the present job matching system requires manual tasks by job seekers and counselors. The proposed system will automate them by aid of computer software and with thus streamline the job matching process, thereby allowing counselors to be concentrated on their service. The project is considered to be effective from this perspective.

(2) Indirect benefits

The project will promote a good match between companies and job seekers on the basis of actual needs and skills and will help divert young people to growing industries. This will lead to quality and productivity improvement, then to the improvement of competitiveness.

In addition, the establishment of the job matching system capable of selecting candidates qualified for a specific job in an efficient manner will become a good incentive for foreign companies that consider investment in Egypt.

Development Scenario 3:

“Project to promote engineering skill training”

(1) Direct benefits

1) Effect on industrial human resource development

Training for the 4 trades/5 operations proposed in this development scenario is also strongly requested by the Egyptian industry during the field survey. In particular, sheet metal working, plastics molding, and die making and maintenance (which form the foundation of the first two) are considered to be the largest weakness of the Egyptian manufacturing industry, which strongly expects training of skilled workers. Some of large enterprises that have close relationship with foreign companies have already started their own training program, but far short of the industry-wide effort. According to the Chamber of Engineering Industries including automotive and electrical equipment industries, skilled workers required for each of the above trades amount to at least 10,000 persons in the country. The project is expected to start as a small operation, but in the near future, the training center to be established in Cairo alone will train around 200 skilled workers per trade per year, thus contributing to the steady expansion of the supply base.

2) Effect on employment promotion

In Egypt, wide acceptance of skill certification is expected to play an important role in addressing issues relating to the traditional TEVT system to promote fair and objective evaluation of personal skill levels and to achieve a good match between workers and jobs. Subsequently, the manufacturing industry can reinforce its technological base and improve productivity, thereby contributing to the country's economy and industry. While skill certification is not directly linked to employment promotion, it helps meet the needs of industries for engineering skills.

(2) Indirect benefits

The increase in the number of skilled workers and the rise in engineering skill levels will produce a variety of benefits for industries. In addition to the strengthening of the technological base, export growth on account of increased competitiveness, acceleration of import substitution, and attraction of direct investment by foreign manufacturers can be listed as such benefits. In particular, dies and sheet metal products are mostly designed and manufactured in other countries, and local companies can only take care of maintenance. Developing local sources in these areas will certainly bring significant benefits. In consideration of the fact that manufacturing industries in other Middle East countries face a similar situation, the Egyptian industry can be in a position to establish a production base for dies and similar products if required skills are to be acquired ahead of others.

Development Scenario 4:

“Project on E-J Automotive Mechanics Training”

(1) Direct benefits

1) Effect on industrial human resource development

PVTD has already started a project to train automotive mechanics under the assistance of the South Korean government, but it is still small in comparison to demand. PVTD is now requesting further support to South Korea. The training program primarily covers basic skills and is not designed to train mechanics capable of performing comprehensive and sophisticated maintenance work. Thus, the project will fill the gap and contribute to human resource development in the area where supply shortage continues to exist. Furthermore, establishing a collaborative relationship with ongoing Levels 1 and 2 training programs will increase supply of the workforce having basic knowledge and skills to the auto industry. When the project and the PVTD training courses are combined, around 500 workers having skills required by the auto industry will be trained annually.

2) Effect on employment promotion

At present, Social Fund for Development (SFD) is most active in promoting the training of automotive mechanics. According to its mission to support entrepreneurs, SFD pursues policy to encourage business startup by automotive mechanics and is already implementing a support program with some results. On the other hand, car dealers have constant demand for automotive mechanics. Although an exact number of mechanics required in the future is not estimated by SFD or the car dealers' association, strong demand can easily be inferred from rapid growth of car sales in the country and frequent encounter with cars that broke

down on the road. Thus, the training of highly skilled automotive mechanics will certainly meet the needs and contribute to employment promotion on a nationwide basis.

(2) Indirect benefits

At present, a large number of poorly maintained vehicles are left on the road in both urban and rural areas. Many of them seem to be on the brink of being scrapped because repair parts are no longer available. In any case, if proper maintenance or repairing is done, the number of abandoned vehicles will decrease to improve the traffic condition, especially in a large city. Furthermore, it will lead to mitigation of health risk caused by exhaust gas and reduction of loss of time in daily life to increase time for a more productive activity. Finally, the auto industry can expect new demand because the increase in the number of mechanics helps establish a more reliable maintenance system to assure safety. Although detailed research is needed to make accurate estimates, these indirect benefits will likely amount to a significant value.

Development Scenario 5:

“Project to provide employment support for graduates of the EduEgypt program”

(1) Direct benefits

1) Effect on industrial human resource development

As the project will be implemented in close collaboration with the EduEgypt program, it will not be directly involved in industrial human resource development. Instead, it envisages an indirect means of promoting IT human resource development by allowing IT companies to hire the program participants as interns.

As the IT industry undergoes very rapid technological advancement, there often arises a difference between the industrial needs and trained skills. The EduEgypt program aims to fill the gap between actual skill levels trained and resource requirements by the industry by producing qualified human resources, i.e., at an annual rate of 5,000 IT engineers.

2) Effect on employment promotion

The EduEgypt program has been initiated in an attempt to address the issue that universities do not fulfill their mission to produce competent IT professions required for the industry’s growth. As discussed earlier, Egyptian companies tend to attach much importance to work experience and little to new graduates. The IT industry seems to place more weight on work experience because of the rapid pace of technological advancement. An IT company interviewed by the study team indicated that it does not hire new graduates

because it looks for high quality IT professionals who can immediately contribute to the company's operation. This suggests the importance of developing the work environment that accepts new graduates of higher educational institutions, and the success of the EduEgypt program in accomplishing its objective will help create such environment.

(2) Indirect benefits

The IT industry in Egypt, while showing high growth in the number of employees as well as companies, is still small in size as compared to other industries and is considered to be in an early development stage. In fact, technologies widely adopted in industrialized countries, such as electronic commerce and payment, are far from being pervasive in the country. In this regard, the project has a secondary effect of spurring IT business as a whole. This can then drive industrial growth as a whole by introducing new technologies for new business development and solution. At the same time, the project's direct benefit in the area of employment promotion targeting IT companies will improve mobility of the workforce in a way to promote a good match between industrial needs and actual skills. The resultant growth and thriving of the IT industry will help attract foreign direct investment by a variety of industries.

5.2.3 Opportunity for Region-wide Deployment of the Development Scenarios

To promote deployment of the development scenarios to the rest of the Middle East region, there are several key success factors that are taken into account, as follows.

(1) Deployment of the regional certification/qualification system

To deploy the IT engineer examination system to other Middle East countries, for instance, the mutual recognition agreement needs to be concluded between the Japanese government and each country. Once mutual recognition is in place, the examination system to be implemented in Egypt, together with the educational program and content (including e-learning), can be easily transplanted because it uses Arabic. Furthermore, since there is a small time difference within the region, the examination can be administered simultaneously throughout the region so as to ensure skill assessment according to uniform standards. As a result, the IT engineer examination will be used as a regional tool to promote employment.

The same can be said about the skill certification. Aside from the consideration of the need as to whether the Japanese system should be adopted, the mutual recognition approach is critical to maximize reputation of the certification system. Thus development of mutually

recognizable certification systems in the Middle East countries holds the key to successful deployment of the development scenario on a region-wide basis.

(2) Development and distribution of content in Arabic

Most of the Middle East countries use Arabic as their mother tongue. From perspective of business opportunity using ICT, creation of content in Arabic serves as a strong impetus. If a certification system is imported from Japan or other countries, its content, including textbooks, must be translated to Arabic. (Note: under the automotive mechanics training project implemented under the assistance of the South Korea government, all of Levels 1 and 2 textbooks have been translated to Arabic by the Korean counterpart.) Due to the historical background relating to industrial development in the Arabic language zone, a number of technical terms in English and other languages may not be found in Arabic. In fact, their translation (i.e., creating new vocabulary) constitutes an important step for industrialization. Development of content in Arabic is therefore indispensable in promoting industrial human resource development according to standards commonly recognized in the region.

(3) Acceleration of IT infrastructure development

The development of interconnected networks is a key factor that should be taken into account when deployment to other countries is planned. If other countries have compatible networks, internetworking is feasible. If not, IT infrastructure should be built from scratch. Internetworking will facilitate use of content developed in Egypt by using the Educational Broadband Network and the Education Platform.

Finally, effective cooperation/partnership between telecommunications carriers in different countries will play a critical role. At present, telecommunications business in most countries (including landline service) is monopolized by a government-funded service provider. On the other hand, the cellular phone market is in the state of intensive competition, regardless of national boundaries. Furthermore, content development business sees an increasing number of players and government needs to take a lead in ensuring healthy competition. In general, the IT market has a relatively low entry barrier because of small initial investment requirements, but government leadership is required for infrastructure development and construction of the groundwork to promote growth of IT business.

(4) Need for fostering the spirit of information sharing

In the region, a general notion about information sharing may be an obstacle to the deployment of the development scenarios. Due to social, cultural and/or political factors, the Middle East countries and people tend to avert information sharing, which is commonly seen at personal, organizational and national levels. Meanwhile, the Internet use is subject to government regulation and control in the region, including the Gulf States. These factors are viewed as latent problems relating to further promotion of IT use. Without information transparency and sharing, efforts to deploy the development scenarios on a region-wide basis by implementing various projects would reach an impasse at a certain stage.