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The Korean Case Study: Past Experience and New Trends in Training Policies

Young-Sun Ra and Kyung Woo Shim

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This paper is the result of a joint partnership between the Social Protection Unit of the World Bank and the Korean Ministry of Labor on Skills Development. This partnership was aimed at better understanding the Korean skills development strategy and drawing lessons and best practices for developing countries. This paper benefited from the financial support of the Korean Ministry of Labor and the World Bank. The paper expresses the authors' own views on the topic which are not necessarily those endorsed by the World Bank or the Korean Ministry of Labor.

Abstract: Korea's skills development strategy has been highlighted as one of the key driving forces of the country's economic development. This paper examines the main features and evolution of this strategy from the 1960s to the present. In particular, it discusses how the skills development policies have contributed to economic development and poverty reduction. The findings in the paper highlight a set of important lessons for the design and implementation of skills development policies, which could be useful for other developing countries.

JEL Classification: J24, J28, J65

Keywords: Korea, skills development, economic development, poverty reduction, financing scheme, delivery, market-friendly, employability

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Authors:

Young Sun Ra, KRIVET (Korea Research Institute for Vocational Education and Training), 15-1 Chongdam-Dong, Kangnam-Gu, Seoul 135-949, Korea. Phone: (82-2) 3485-5096. E-mail: ysra@krivet.re.kr

Kyung Woo Shim, Senior Social Protection Specialist, The World Bank, 1818 H Street, NW Washington D.C. 20433, USA, E-mail: shimkw2000@yahoo.co.kr

TABLE OF CONTENTS

I. INTRODUCTION 1

1.1 Skills Development and the Role of Government 1

1.2 The Role of Government in Korea's Skills Development 2

1.3 Korean Skills Development System 5

II. CHARACTERISTICS OF THE KOREAN SKILLS DEVELOPMENT SYSTEM 9

2.1 Skills Development for Economic Growth 10

2.1.1 Division of the Role of the Government and the Private Sector: Government-Led Policy for Training Planning and Private Sector-Led Training Provision 10

2.1.2 Complementarities between Vocational Education and Vocational Training 13

2.1.3 Adaptation of Training Fields to Meet Industrial Demand 15

2.1.4 Appropriate Financing Mechanisms 17

2.1.5 National Qualifications System 19

2.1.6 Establishment of Decentralized Vocational Training Management Organizations 20

2.2 Skills Development for Reduction in Poverty and Inequality 22

2.3 Issues and Challenges 23

2.3.1 Labor Market Surveys 25

2.3.2 Evaluation of Training Programs 27

III. EVOLUTION OF SKILLS DEVELOPMENT SYSTEM FOR ECONOMIC DEVELOPMENT ... 30

3.1 Prior to the Skills Development System (Before 1967) 30

3.1.1 Economic Background and Labor Market Situation 30

3.1.2 Policy Response 32

3.2 Take-Off of Enterprise Skills Development System (1967-1970s) 33

3.2.1 Economic Background and Labor Market Situation 33

3.2.2 Policy Response 36

3.3 Expansion of Public Skills Development System (1980s) 43

3.3.1 Economic Background and Labor Market Situation 43

3.3.2 Policy Response 45

3.4 Transition to the Levy-Grant (Rebate) System (1990's) 47

3.4.1 Economic Background and Labor Market Situation 47

3.4.2 Policy Response 48

4.2.2 E-Learning 52

IV. SKILLS DEVELOPMENT STRATEGY FOR POVERTY REDUCTION 54
4.1 Skills Development for Reduction in Poverty and Income Inequality 54
4.1.1 Economic Development vs. Reduction of Poverty and Inequality 54
4.1.2 The Skills Development System since the Asian Financial Crisis 57
4.2 Skills Development System for Vulnerable Groups 59
4.2.1 IT Training for the Unemployed in Response to the Economic Crisis 59
4.2.2 Skills Development Accounts for the Unemployed 62
4.2.3 SMEs Training Consortium 63
4.2.4 Training Programs for Non-Regular Workers 64
4.2.5 Training Programs for the Aged 66
4.2.6 Training Programs for the Self-Employed Poor Workers 67
4.2.7 Training Programs for Unemployed Female Household Heads 68
4.2.8 Training Programs for Self-Support 68
4.2.9 Regional Unemployment Training Program 69
V. MAIN LESSONS LEARNED 70
REFERENCES 74

Table of Tables

TABLE 1. EVOLUTION OF SKILLS DEVELOPMENT SYSTEM IN RESPONSE TO ECONOMIC DEVELOPMENT 7

TABLE 2. NUMBER OF SKILLED WORKERS TRAINED DURING SECOND TO SEVENTH FIVE-YEAR 11

TABLE 3. EMPLOYMENT TREND BY INDUSTRY, 1953-1963 (1,000 PERSONS) 31

TABLE 4. TECHNICAL MANPOWER REQUIREMENTS DURING FIRST FIVE-YEAR ECONOMIC DEVELOPMENT 33

TABLE 5. EMPLOYMENT TREND BY ECONOMIC ACTIVITY, 1963-1972 (1,000 PERSONS, PERCENT) 34

TABLE 6. EMPLOYMENT TREND BY INDUSTRY, 1972-1979 (1,000 PERSONS, PERCENT) 35

TABLE 7. REQUIREMENT OF SKILLED WORKFORCE DURING SECOND FIVE-YEAR PLAN (1,000 PERSONS) 36

TABLE 8. NUMBER OF TRAINED WORKERS BY TYPE, 1967-1970 (PERSONS) 37

TABLE 9. SUPPLY AND DEMAND OF SKILLED LABOR: 1972-1976 39

TABLE 10. NUMBER OF TRAINEES BY TYPE DURING THIRD AND FOURTH FIVE-YEAR PLAN (1972-1981) 40

TABLE 11. NUMBER OF TRAINEES BY TYPE, 1992-1998 50

TABLE 12. NUMBER OF INCUMBENT WORKERS WHO PARTICIPATED IN E-LEARNING COURSE 53

TABLE 13. UNEMPLOYMENT TRENDS BY INDUSTRY: 1997 AND 1998 (1,000 PERSONS, PERCENT) 55

Table of Figures

FIGURE 1. NUMBER OF TRAINEES BY MAJOR OCCUPATIONAL TRAINING FIELD (1967-1992) 16

FIGURE 2. NUMBER OF TRAINEES BY PRE-SERVICE AND IN-SERVICE TRAINING COURSE (1992-2005) 51

FIGURE 3. TREND OF GINI COEFFICIENT IN KOREA (1980-2006) 56

FIGURE 4. NUMBER OF TRAINEES IN IT TRAINING FIELDS: 1999-2006 60

I. INTRODUCTION

1.1 Skills Development and the Role of Government

The organizing themes of this paper are whether a government should intervene in the human resources development market, especially in the training market; if yes, what should be the rationale for the intervention; and how it should intervene. Controversy over these issues has been mainly discussed under two theories: the human capital theory and the public goods theory. The human capital theory focuses on the responsibility of both the individual worker and the enterprise. The public goods theory focuses on the nature of training as a public good and therefore on the failure of the skills development market.

Human capital theory was the dominant theoretical approach to skills formation. This theory assumes that market failure does not occur in the economy and considers that all training can be classified into general training or specialized training, in which both the individual worker and the enterprise have training investment incentives. It also states that direct training provision by the government is not desirable and as a result, optimal efficiency of skills development can be achieved under the principles of a free, competitive market. Furthermore, the human capital theory maintains that government intervention in skills development is unnecessary and may be harmful, assuming that the free, competitive market can bring about sufficient investment in skills development. Therefore, the only action a government needs to take is to refrain from intervention and to make sure that a free, competitive market is well functioning. After all, if the strength of the freely competitive market provides appropriate incentives for the acquisition of

skills, the government needs only be concerned with maintaining a well-functioning market, using various practices such as abolishing price controls, promoting the circulation of market information, and fostering competition.

In the real labor market, however, market failures like poaching of workers and other externalities occur inevitably. Firms are likely to under-provide general training because they worry that trainees, once their training has been completed, will be enticed away by other employers. Such market failure causes inefficient resource allocation. Many factors cause market failure, but the public good argument can be highlighted here. Vocational training is considered a public good. It is likely to be under-provided when left entirely to the private sector. The benefit of skills training does not accrue exclusively to the workers who underwent training and can be shared by other people in society like a public good; and employers are reluctant to provide training to their workers or assume the total cost of training. Therefore, the government should intervene in skills development to produce an optimal level of training either by providing subsidies or incentives to enterprises and workers or directly providing training to workers.

1.2 The Role of Government in Korea's Skills Development

The Korean case offers a good example of the active role played by the government in skills development of workers. Korea is well known for adopting a government-led skills development system to assure industry the supply of a skilled workforce and to protect the vulnerable groups of population.

Governmental intervention in skills development at an early stage in Korea's industrialization was necessary for three reasons. Firstly, workforce mobility was frequent at the time of rapid industrialization in Korea. Enterprises, rather than training their own workers, practiced "free-riding and poaching" of the workers trained by others. Secondly, a massive unskilled workforce began to migrate from rural to urban areas. The resulting differences in employment rates and skill levels among the national workforce were significant and were reflected in individual productivity and wage disparities. To redress the inequality in employment and income distribution, therefore, the government needed to enhance job opportunities and productivity through training provision. Thirdly, government intervention was needed because the demand of future skilled workers would not be met if skills development were left to the free market.

In the late 1990s, especially when the Korean economy faced the Asian financial and economic crisis, the government found another rationale for intervening in the skills development market. This time the rationale was not so much to meet the training demand generated by the rapid economic development, as to protect the vulnerable or socially underprivileged groups of the population from the harshness of the economic downturn and the ever increasing degree of competition in the market economy.

As described above, government intervention as a strategy intended to resolve market failure does have some rationality. It contributed to meet increasing skills demands at the initial stage of economic development. It also transformed mass unskilled youth leaving rural areas to a skilled workforce through vocational education and training (Shim, 1997). This skills development policy served a double purpose. While training opportunities were provided to an annual urban influx of

up to 400,000 unskilled rural youth, it also met the demand of the skilled workforce during Korea's high growth stage in the 1970s-1980s (Suh, 2002).

Although government intervention aims to correct market failures, it is also understood that government action in the name of public interest could fail for bureaucratic reasons. Civil servants have the capacity to act in ways to maximize their individual interests (e.g., bureaucratic freedom; agency problems, maximize their own achievements, promotion, wages, etc.) as economic subjects. The time-borne question of government efficiency then arises. Government failure also occurs when the government is unable to properly identify the changes of various skills demands (Shackleton, 1995). The neoliberal perspective can also be applied to the context of training markets. The neo-liberals took up the position that government intervention in the market to correct market failures can often result in market distortions and inefficiency of resource allocation.

For example, in Korea, demand for a highly skilled workforce was on the rise from the beginning of the 1990's. Enterprises began suggesting that the government-driven vocational training policy could not satisfy high skills demand (Jeong, 2002). There was an assertion that the government, nevertheless, has continued to force and regulate education and training for private enterprises with the justification that a government-led policy (in particular, the training grant policy) can help resolve market failure (Shim, 1997; Lee, 1998; Jeong, 2002).

In short, the issue appears that when it is justified for the government to intervene in the skills development market, what would be the proper ways and means of intervention and to what extent these means should be exercised. This issue remains a challenge that governments need to

appropriately address depending on the stage of development and country circumstances, and studies of best practices may be of help.

1.3 Korean Skills Development System

Many scholars agree that human capital was the driving force behind Korea's economic growth during the rapid industrialization period. According to "On the Mechanics of Economic Development" by Lucas (1988), the actual economic growth rate between the 1960s and 1980s showed significant differences among selected countries: India (1.4 percent), Egypt (3.4 percent), Korea (7.0 percent), Japan (7.1 percent), U.S. (2.3 percent), and advanced countries on average (3.6 percent). His paper also pointed out that this noticeable difference in the growth rate would continue, with the speed of human capital accumulation being the only variable able to explain the differences. The International Labour Organization (ILO) General Assembly Report of 2008 listed Korea as a successful catch-up country, along with Hong Kong, Ireland, and Singapore. The report alluded to the government-led education and vocational training policy as one of the reasons for Korea's rapid economic progress. Korea possessed tremendous human capital potential with a 96.2 percent average primary school enrolment rate and 4.25 years of the average education level in 1960, whereas other countries with similar economic development levels were at 34.2 percent and 1.8 years, respectively. It was also pointed out that the human resource development policy of the government was modified with flexibility to respond to skills shortages in the industrial sector through the Korean economic development plans.

Table 1 summarizes the evolution of the skills development system in Korea in response to the demand of the economic development over time. First, the in-plant training obligation policy and the optional training levy system were introduced in the 1970s in order to meet the need for a mass skilled workforce for new industries. Public training facilities were also established with foreign grants, credits and loans. When the oil shocks in the 1980's triggered an economic slowdown and sharply diminished skilled workforce demands, the government pursued a stabilization of the economy and a balanced growth of society; this event made private enterprises to shrink their training activities and pursue quality improvements by expanding the depth and level of the skilled workforce, and the public training institutions maintain the level of training activities with a long-term perspective. In the 1990's, the in-plant training obligation policy was converted into a training levy-grant (rebate) system as part of Employment Insurance (EI) System. This new system provided steady financial resources for expanding in-service (incumbent) training. During the economic crisis of 1997, the mass provision of training opportunities for the unemployed played a critical role, and the skilled development system was actively used for other vulnerable groups of population as part of safety nets. The skills development system expanded its scope to cover the vulnerable groups further and shifted its focus. As the world became more globalized and competitive in the 2000s, the skills development system was further expanded to ensure lifelong employability for all, including both incumbents and vulnerable people.

Table 1. Evolution of Skills Development System in response to Economic Development (1960s-2000s)

	1960s	***1970s***	***1980s***	***1990s***	***2000s***
Per Capita GDP	$80	$254 →$1,676	$1,645 →$5,418	$6,417 →$9,438	$10,841 → $20,000
Economic Development Stage	1st & 2nd Five Year Economic Development Plan(FYEDP)	3rd & 4th FYEDP: Heavy Chemical Industrialization & Take-Off for High Growth	5th & 6th F FYEDP: Stabilization & Open Economy Policy	7th or New Economy Plan. Average Growth, Low Unemployment & Economic Crisis in 1997	Global Economy & Slow Economic Growth
Stage of Skills Development System	Introduction of Skills Development System (1967)	Enterprise Training System Take-Off Period	Public Training Institutes Expansion Period	Transition Period & Reorganization under EIS	Innovation Period with surveys and evaluations
Demand for Skilled Workforce and Responding Skills Development Strategy	For transition from an agricultural to industrial economy → Supply of skilled workers manly through formal education system; non-formal skills development system introduced with	Shortage of skilled workforce in heavy-chemical industries→ unlimited supply of unskilled workforce migrating from rural areas; technical high schools and public training centers established;	Economic Stabilization Policies and declining demand for skilled & technical manpower → Establishment of HRD Service & expansion of public training centers for skilled and master craftsmen.	Increasing demand for upgrade training for incumbent s& mass training provision for the unemployed → The levy system for the obligatory enterprise training system converted into levy-grant	Flexible labor market & lifelong skills development for both incumbents, the unemployed, and other vulnerable workers

	1960s	***1970s***	***1980s***	***1990s***	***2000s***
Per Capita GDP	$80	$254 →$1,676	$1,645 →$5,418	$6,417 →$9,438	$10,841 → $20,000
	subsidies for enterprise training.	obligatory enterprise training system with a training levy option.		(rebate) system under EI; mass training of unemployed as a safety net.	
Related Laws	1967: *Vocational Training Act*	1974: *Voc. Trg. Special Measure Act;* 1976: *Basic Voc. Trg. Act*	1976: *Basic Vocational Training Act*	1995: *EI Act* 1999: *Promoting Worker's Voc.l Trg.* Act	1995: *EI Act* 2004: *Worker's Skills Development Act*
Market Failure and Government Intervention	Market failure of skills supply (frequent scouting and poaching)	Relief of market failure by government-led regulatory policy	Employers avoiding enterprise training & appearance of government failure	Government intervention changed to incentives (levy-grant system) and to public training for vulnerable groups	Correcting gov't failure by strengthening incentive system for SME training and public training for vulnerable groups,

Note: EI (Employment Insurance)

Source: Ministry of Labor of Korea, Yearly; Korea National Statistical Office, Yearly; Park, Sung-jun. 1992; Shim, Jae-Yong, 1997; and Lee, Kye Woo, 2006

II. CHARACTERISTICS of the KOREAN SKILLS DEVELOPMENT SYSTEM

Korea first adopted the skills development system in 1967 by an enactment of the Vocational Training Act to provide a skilled workforce for industrialization. Since then, Korea has successfully aligned the skills development policy with the different stages of economic development and met skills demands by continuously improving the skills development system. The skills development system complemented the economic cycles of the Korean economy—from supplying skilled workers for export-oriented light industries in the 1960s and early 1970s, heavy and chemical industries in the 1970s and 1980s and technically more advanced and knowledge based industries in the 1990s and 2000s. In doing so, the skills development system that drove industrialization by directly supplying, or obligating enterprises to supply, a skilled workforce mainly for the manufacturing industry was transformed in 1995 into an incentive-based encouragement system within the framework of Employment Insurance (EI), and again in 2004 into the strengthened incentive system to support lifelong employment under the *Worker's Skills Development Act.*

In the aftermath of the Asian financial crisis in 1997, the government shifted the emphasis of the skills development policy from supporting economic growth towards reduction in poverty and inequality and creation of employment opportunities. The government concentrated on securing training opportunities for the disadvantaged groups, such as, the unemployed, non-regular workers, the aged, females, the under-educated, and SME workers, in order to reduce relative poverty and social polarization.

2.1 Skills Development for Economic Growth

The following sections describe how the Korean skills development policy has successfully served its economic development policy from the late 1960s to the late 1990s. It highlights the predominant role played by the government in the planning, financing and regulating, while delegating the responsibility for training provision to the private sector; the complementary role played by formal education and non-formal training; adaptation of training trades to industrial development processes; the evolution of the financing system; the parallel development of the qualifications system; and the development of training management organizations.

2.1.1 Division of the Role of the Government and the Private Sector: Government-Led Policy for Training Planning and Private Sector-Led Training Provision

It is evident that the government-driven skills development policy supported the economic development policy in Korea. Skilled workers were trained and supplied in accordance with the demand of the advancing industrialization – from light to heavy and again to advanced industry. As shown in Table 2, about 2.5 million workers were trained and supplied during the 30-year industrialization period: 1967-1996. This technically qualified workforce became the basis for high growth. In the Korean manufacturing sector, labor productivity increased from 12 percent of that of the United States in 1976 to 30 percent by the early 1990s.

Table 2. Number of Skilled Workers Trained during Second to Seventh Five-Year Economic Development Plans (Person, Percent)

Type	Total	2nd Plan	3rd Plan	4th Plan	5th Plan	6th Plan	7th Plan
	1967-96	1967-71	1972-76	1977-81	1982-86	1987-91	1992-96
Total	2,501,588 (100.0)	98,863 (100.0)	312,736 (100.0)	495,739 (100.0)	273,151 (100.0)	313,275 (100.0)	1,006,822 (100.0)
Public Training	623,736 (24.9)	36,317 (36.7)	81,294 (26.0)	120,117 (24.2)	121,044 (44.3)	113,802 (36.3)	151,160 (15.0)
In-Plant Training	1,502,479 (60.0)	47,225 (48.8)	177,350 (56.7)	337,388 (68.1)	114,773 (42.0)	116,389 (37.0)	708,354 (70.3)
Recognized Training	375,373 (15.0)	14.321 (14.5)	54,092 (17.3)	38,234 (7.7)	37,334 (13.7)	83,034 (26.5)	148,309 (14.7)

Source: Ministry of Labor of Korea, Yearly.

Korea shows exemplary practices of government-led skills development. The Government of Korea initiated a development strategy based on two premises. First, the government should select core industries (e.g., the light or heavy chemical industry) to be developed. Second, the government should assess the existing training capacity of employers, and when it found the then-existing capacity was deemed insufficient to meet the scaled-up needs for skilled and technical manpower, the government should either support employers to carry out enterprise training or directly train the workforce needed.

The first two Five-Year Economic Development Plans (FYEDPs) were the foundation for the industrialization of Korea. Estimates of the supply and demand of the skilled workforce were included in the plans. Based on these estimates, the skills development policy was developed and then implemented. The introduction and subsequent revisions of the Vocational Training Act and

skills development plans were also a crucial part of the FYEDPs, and the Five-Year Scientific and Technology Promotion Plans (1962-66 and 1966-77) or Five-Year Human Resources Development Plan (1972-76), which were developed in parallel with the FYEDPs..

Over the years, the management of the training programs and their funding schemes has evolved. At the outset of the industrialization in the 1960s and 1970s, the government played the dominant role in the planning, financing and regulation of skills development. However, the main responsibility for providing training services was delegated to the private sector. In the provision of training, the government encouraged large enterprises to play a key role by providing subsidies and other inducements to employers (1967). Consequently, private sector's share of training provision was much greater than the public provision (Table 2). As the government realized that the training subsidies for enterprises could not be continuously expanded due to fiscal constraints, the government started imposing compulsory training obligations on enterprises (1974).

Also, the government adjusted its role in accordance with the economic cycle over time. At the beginning of the 1980s, the international recession slowed the pace of Korean export growth, and consequently the domestic demand for skilled workers contracted. Enterprises sharply reduced their training activities; however, the pubic training institutions maintained the high level of their training activities. The government believed that training and productivity improvement would require a long gestation period, and the same level of training activities should continue. Consequently, when the economic cycle turned to prosperity in early 1990s, the sharply increasing demand for a skilled workforce could be met without much difficulty. Moreover, as the advancement of information technology and globalization proceeded fast, the government recognized the ever expanding private sector activities. Consequently, the government started

converting the levy-based heavily regulated obligatory training system into a levy-grant incentive system and actively promoted private sector training activities (1995). In 2004, the Worker's Skills Development Act further shifted the role of government to adapt to the new economic and labor market environment. The government dropped the obligatory training regulations completely and strengthened the incentive system for enterprises to switch from pre-employment training of new recruits to in-service training of incumbent workers and from a supply- to a demand-driven training system. With these changes, the government laid the foundation for supporting workers' lifelong skills development and further expansion of training provision by enterprises. As the private sector grew and take initiative in the economy, the government placed more emphasis on promoting private sector-led training.

2.1.2 Complementarities between Vocational Education and Vocational Training

Skilled workers are generally supplied through both formal pre-employment vocational education and non-formal, targeted vocational training programs. Pre-employment vocational education contributes to a skilled workforce through long-term formal education, and targeted vocational training programs focus on short-term training of new recruits and incumbent workers. Many countries implement targeted vocational training programs to meet a variety of skills demands while retaining a formal vocational education system (Suh, 2002).

In the case of Korea, formal vocational education and non-formal vocational training were developed and implemented complementarily so as to adequately supply the human resources needed for industrialization. The complementary implementation of the two tracks has been beneficial in ensuring skilled manpower in a timely manner. For example, during the Third FYEDP

period (1972-76), formal vocational schools and targeted non-formal vocational training programs met the demand for additional skilled workers almost half and half, respectively.

Of course, general formal vocational education was developed ahead of the targeted non-formal vocational training in the late 1950s. However, when it became clear that formal vocational schools under the Ministry of Education alone could not meet the increasing demand for skilled workers as the industrialization accelerated, the government decided to develop targeted, short-term, non-formal vocational training under the aegis of the Office of Labor (later became the Ministry of Labor) in late 1960s to meet the demand for skilled workers in a more efficient manner. Division of the responsibilities between the two Ministries fostered healthy competition and complementarity.

The successful development of the formal vocational education and non-formal vocational training owes to several factors. First, there was ever increasing demand for a skilled and technical workforce. Second, non-formal vocational training targeted initially out of school youth who dropped out of high schools or high school graduates who did not proceed with higher education and therefore did not compete with formal vocational education for clients. As technology advances, the formal vocational education gradually lost its traditional role and elevated its level to higher education (technical or junior colleges), and non-formal vocational training also targeted high school graduates who did not proceed with higher education (vocational training colleges in 1977 and later polytechnic colleges in the 1990s) and already employed workers of enterprises. Since both target high school graduates at the same level of education, therefore, there is a potential overlap between the two tracks for pre-service training. However, the polytechnic colleges focus on those training programs which require more investment in facilities and equipment, compared with technical colleges which are mostly private colleges. Third, the quality

of both formal and non-formal vocational education and training was high because the universal primary education had already been attained in the 1950s, and universal secondary education had been attained by 1980s.

For those less developed countries with a low educational attainment and a weak industrial base, an emphasis should be placed on basic education rather than early vocational education and training. Once basic education is well established, a vocational education and training system would be more effective and efficient in supplying a skilled workforce.

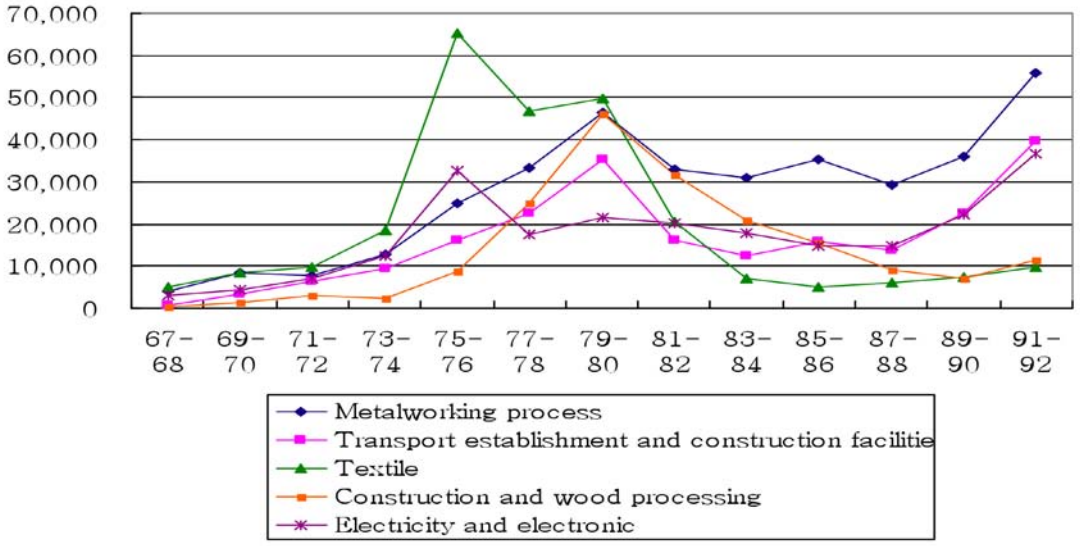
2.1.3 Adaptation of Training Fields to Meet Industrial Demand

It is important to decide which occupational fields should target a training system. Public training institutes targeted those occupations commonly demanded by all industries, while enterprise-based training was encouraged to focus on specialized occupations or those where training required expensive facilities. In this way, training occupations have been adjusted to meet the changes in industrial demand over time. Figure 1 shows the change in the number of trained persons per training field from 1967/1968 to the early 1990s. It also indicates the number of participants by year in the five training fields (within a total of 13 fields) with the largest number of trainees: metal processing; transport equipment, and construction installation; textiles; construction and wood processing; and, electricity and electronics.

As indicated by the boom of the textile industry during the early stages of industrialization, the number of trained persons in textiles had increased sharply by the mid-1970s, but diminished gradually, occupying the smallest portion in the 1980s. The construction and wood processing industry recorded its highest point in the late 1970's, decreasing rapidly thereafter. The metal

processing as well as transport equipment, and construction installation fields represented the smallest proportion during the early industrialization stages but increased gradually by the end of the 1970s to support the process of heavy chemical industrialization. Its speed of descent has henceforth been insignificant. The electricity and electronic industries increased constantly. Reviewing the overall changes in the number of training occupations, they increased from 13 fields/396 specific occupations in 1982 to 456 specific occupations in 1991, implying the number of occupations increased and the scope of each occupation more specialized due to advancement in industrialization.

Figure 1. Number of Trainees by Major Occupational Training Field (1967-1992)



Source: Ministry of Labor of Korea, Yearly.

2.1.4 Appropriate Financing Mechanisms

The strategy for securing appropriate financial resources to support skills development has varied over time, depending on the stage of economic development. When the vocational training policy was first introduced, the government adopted a training subsidy policy for the largest 16 companies (1967). The objective of the subsidy policy was to instil the training culture among enterprises on the premise that training is a public good. Although the subsidy did help the establishment of the in-plant training system among large-scale companies, it could not be spread to other enterprises without the increase in the total amount of subsidy, and its sustainability was limited by the constraint in government budgets.

As the capability of private enterprises increased with economic development, the government initially mandated that enterprises of a certain scale (e.g. on the basis of the number of employees) in key industries invest in their workforce (up to 10%) through in-house vocational training (1974), and then gave all large scale enterprises an option to choose either provision of in-plant training or the payment of a training levy (1976). Later, the standard for the training obligation was changed from the number of workers to the amount of training expenses as a percentage of total wage bill (1987), and varied types of training was recognized (1991) . Although the government initially mandated large enterprises only to invest in training, later it applied the mandate to even small and medium enterprises, which were not prepared to provide in-plant training. Moreover, since the government could not update the level of the training levy in line with the actual in-plant training expenses in a timely manner, the majority of the enterprises ended up paying the levy, instead of conducting in-plant training (Lee 1983). This may be an

example of excessive government intervention in training markets or a government failure in correcting the market failure.

However, the training levy system was effective in mobilizing funds for public vocational training. The government used the training levies to build up the Vocational Training Promotion Fund (1976 Act). The fund financed establishment of numerous public training institutions and the Vocational Training Management Corporation that managed them (1981).

Since 1995, the training expenses have been reimbursed from the training fund established with the training levy collected from all enterprises under the Employment Insurance (EI) System. This levy-grant (rebate) system has served as a financial incentive for enterprises to invest in training of their workers either in-plant or at training institutions outside. Moreover, the EI fund has reimbursed for small and medium-sized enterprises (SMEs) with an amount which is much greater than the actual training expenses. Whether this SME-friendly financial incentive policy did achieve the intended aim of increased training was hotly debated, suggesting difficulties with government interventions in the training market. Since 2001, other innovative methods to further promote SME training are being implemented.

As an important part of Korea's financial strategy for training programs, the Korean government sought foreign financial assistance to invest in training provision at the early stage of economic development and obtain technical knowledge on advanced skills development systems. In this respect, the government of Korea coordinated foreign assistance effectively to gain maximum benefit with the least cost. While the foreign credits/loans were used to purchase foreign equipment and technical expertise, the government matched the loans by providing local facilities

(land and buildings) and operational expenses. Moreover, for certain projects, while credits and loans were obtained from the World Bank (1975, 1977) and the Asian Development Bank (1972), technical assistance was received from the ILO and UNDP, as well as advanced countries such as Germany and Belgium as a grant. In the end, foreign financial assistance helped establish 25 training institutes, which contributed to supplying the skilled workforce for the industrialization of Korea.

2.1.5 National Qualifications System

The qualifications system plays the role of a signal in the labor market, certifying the skills and capabilities required by industry. Korea developed a qualifications system together with the vocational training system during its industrialization period. At first, the qualifications system was designed to increase the credibility of the training programs among employers and the general public, as supported by the *Vocational Training Act* of 1967. A skills certification clause of the Act established standards by which the government could certify the level of a worker's skills. Furthermore, the Act separated testing into two categories: the Minister of Labor oversaw the written test, and a commissioned organization carried out the practical test.

The *National Technical Qualifications Act* was enacted in 1973 to merge various certification regimes operated by the individual ministries and agencies and to introduce an officially unified certification processes. At the time of enactment, the Ministry of Science and Technology managed the national qualifications scheme with an emphasis on the qualifications for the heavy chemical industry. In 1981, the managing ministry was shifted to the Ministry of Labor, expanding qualifications beyond those relevant to heavy chemicals. As a result, the national technical

qualifications scheme could evaluate the results of all vocational training programs more consistently and fairly, and contributed to the efficiency of employment services in Korea. The national qualifications system also contributed to laying the foundations of human resource development to effectively support industrialization, by performing a feedback function on whether vocational training programs are conducted in such a way that the demands of industry can be met, and to manage the pool of qualified human resources for continuous improvement of their qualifications in an efficient manner.

As time goes, cooperation between the public and private sectors became more important in managing the qualifications system. The private sector has been increasingly asked to assume a larger part of the management of the national qualifications system. The number of private qualifications is currently over 800, as compared to the 586 government technical qualifications.

2.1.6 Establishment of Decentralized Vocational Training Management Organizations

The Korean experience supports the premise that it is desirable to establish an independent decentralized entity responsible for running public training institutes after a certain level of development. As the public vocational training institutes, which were mostly established with foreign financial assistance, were run as independent legal entities and their number increased, the administrative capacities of the Korean government (i.e., Ministry of Labor at the time) to coordinate them had reached its limits. Each vocational training institute had to properly set and run courses, curricula, operational methods, and teacher qualification criteria according to the frequently changing industry and skills demands. The governmental bureaucracy could not meet the changing demands in a flexible and speedy manner.

Within this context the Vocational Training Management Corporation was established in 1982, which was transformed into the Human Resources Development Service of Korea (HRDS Korea) in 1991. In fact, Vocational Training Management Corporation was the organization that unified the qualification function of the Ministry of Science and Technology with the vocational training facilities management function of the Ministry of Labor. The immediate effect of the merger was the removal of duplicated functions and increased administrative efficiency. The Corporation also managed institutions responsible for training of the instructors for public training institutes and established a vocational training research institute.

As the 1990s began, the public training institutes under the HRDS of Korea were reorganized into vocational specialization schools (e.g., one-year skilled training courses) and vocational technical colleges (e.g., two-year multifunctional technical training courses) to meet the needs for highly educated trainees of the industries, and the instructor training institutes developed into the Korea Technical Education University (1991). Nevertheless, industry demands were not fully satisfied and vocational technical colleges became more like educational institutions losing touches with industry. To resolve these issues, vocational specialization schools and technical colleges were absorbed into the Korean Polytechnic Colleges in 2005 (currently there are 40 campuses), and the HRDS specializes in managing and operating the qualifications system.

With some argument that the government-led skills development system needed to be transformed into the private sector-led system, the Ministry of Labor transferred some public vocational training centers of the HRDS to the Korea Chamber of Commerce and Industry (KCCI) (1993) and asked to operate them in competition with other public training institutes (now the Polytechnic Colleges) with government's financial support. The KCCI placed emphasis on (i) the

course development to adapt to changing industry demands, (ii) improvement in training methods, (iii) increased utilization of training facilities, (iv) flexibility in training occupations, and (v) reduction in vocational training expenses. Some teaching innovations were introduced such as the utilization of simulation classes, modular teaching programs, programmed teaching and learning materials, and hiring of external instructors.

2.2 Skills Development for Reduction in Poverty and Inequality

Mass unemployment since the 1997 economic crisis called attention to the poverty problem and the importance of creating jobs (or employment policy) as the source of income. Ever since, the skills development policy was highlighted as a practical measure to alleviate the problems of poverty and social polarization. Of course, income gaps arise inevitably due to different personal capabilities or environment. However, it is desirable to adopt policy measures to guarantee equality of opportunity to develop one's capability. While accepting the outcomes of competition, policy improvements to provide equal opportunities for developing human capability can function like a social safety net. In this context, the skills development policy in Korea since the 1997 economic crisis concentrated on securing training opportunities for the vulnerable groups, such as, the unemployed, non-regular workers, the aged, females, the under-educated, and SME workers, in order to reduce relative poverty and social polarization.

Considering the high correlation between countries with high training participation rates to countries with higher employment rates, higher GNI per person, and lower Gini coefficients, the government felt it necessary to increase skills development budgets as a means of social integration for vulnerable groups. When Korea's 2004 education and training budgets were broken

down by the target group, the employed workers occupied 38.3 percent, followed by 24.2 percent for youth. Some 18.4 percent was allocated for the unemployed workers, and 4.7 percent for women and the aged workers.

The proportion of public expenditures for training of the unemployed as percentage of GDP was 0.04 percent in 2004, which is still far smaller than the OECD average (0.18 percent) even when we take into account the relatively low unemployment rates in Korea. Since in-service training tends to focus on well-educated and highly skilled employees in consideration of investment return, the government has tried to expand public training as a means to encourage skills improvement among the unskilled and other vulnerable groups, such as the unemployed, women, non-regular workers, and small business owners, to improve their productivity and income.

2.3 Issues and Challenges

The skills development system in Korea made great contributions to rapid economic growth by supplying the needed skilled workforce and made strenuous efforts for poverty reduction by emphasizing training of the disadvantaged. The Korean economy maintained a 7-8 percent annual growth rate during the 1970's and 1980's, and around 6 percent in the 1990's. Many economists attribute this high level of growth to the high level of investment in human resources and the adequate supply of skilled manpower.

However, the skills development system in Korea faces new issues and challenges. Two issues stand out. Firstly, the skills development system faces a challenge of meeting the skills

requirements of the globalizing and knowledge-based economy; secondly, the effectiveness or efficiency of Korea's skills development system is questioned.

Regarding the issue of changing demand in the labor market, as the 2000s began, the economic and labor market environment in Korea was directly affected by the world-wide economic slowdown, IT revolution and globalization waves. The Korean economy had maintained high growth rates of 6-8 percent for 30 years since the 1960s. However, the growth trend began to slow to 4 percent per year since 2001. The quantitative demand for the skilled workforce was negatively affected by the severe economic slowdown, corporate restructuring, and structural changes in the early 2000's. The qualitative demand for labor was also affected. The level of skills needed in labor market began rising, and the life spans of specific technologies were cut in half. Consequently, it became difficult for a worker to maintain the occupational competence for the whole working career with regular education and initial pre-service vocational training. A worker needed to be trained to keep up pace with the changing skill demands. Furthermore, a mismatch between the number of job seekers and available jobs became serious, as the generation and extinction of new jobs took place faster, and as labor mobility increased along with changes in the industrial structure. The statistics on the annual unemployment experience rate rose from 4.8 percent in 1996 to 10.3 percent in 2000 and to 9.5 percent in 2004. In addition, temporary and informal work has increased, and the gap in working conditions including wages and salaries became widened between regular and non-regular workers and between large businesses and SMEs.

Regarding the second issue of the efficiency of the skills development system, a straightforward example can be found from the poor results of the training programs for the unemployed.

Although the size of the unemployed workers enrolled in the training programs reaches about 100,000 persons per year, the proportion of drop-outs during the course is high, and the percentage of employment is less than 50 percent. In addition, some 290,000 disadvantaged workers, excluding SME workers, are trained annually with less than 50 percent employment rates. However, annual expenses for training of the unemployed and other disadvantaged groups, excluding SME workers, reach some $350 million equivalent (Ministry of Labor of Korea 2009).

2.3.1 Labor Market Surveys

To meet the challenges, two approaches have recently been undertaken: one is to conduct human resources and training demand surveys; and the other is to carry out rigorous evaluation of training institutions, training programs, and trained workers.

Regarding the surveys, since 2005, the Ministry of Labor has conducted demand surveys by region in order to provide raw data needed for the planning and organization of training programs. The Ministry of Labor sought the most effective method of skills development for the unemployed and other workers, based on the results of the manpower and training demand survey in line with industrial changes in each region. This training demand and supply survey by region is composed of an establishment survey, training demand survey of the unemployed, and a training supply capability survey of the vocational training institutions for training the unemployed.

Firstly, the establishment survey addresses the training demands of businesses. This survey is classified into two types of surveys. One targets those workers who will be trained on the job or in-plant, and the other aims at those who will be trained through external training. Therefore, these surveys cover not only the additional workers demanded, but also types of training to be

given to the new workers and existing workers, in particular the types and content of external training.

Secondly, the unemployed training demand survey covers previous work experience, intended employment, or business to be launched, experience of being trained as an unemployed worker, and the training demand.

Thirdly, the survey on the 'unemployed' vocational training institutions aims to analyze the supply capability of the training institute. The survey is conducted on 703 nationwide vocational training institutions. Major survey contents include the training achievements of the previous year, the proposed training program for the following year, and the number of trainees.

The importance of statistical analysis has increased that can support the efficient or effective skills development and the formulation of technical manpower supply and demand policy. Many nationwide surveys relate to the labor market in Korea, such as the Economically Active Population Survey by the Korea National Statistical Office and the Establishment Labor Status Survey and Monthly Labor Statistics Survey by the Ministry of Labor. However, such a statistical survey is a cross-sectional survey that shows a snapshot view of the labor market at a given point of time. It therefore has limitations in understanding the dynamic perspectives of the economic participation of the individuals, the labor market movement process, and changes in income and consumption.

A panel survey has the advantage of revealing information that cannot be identified by the cross-sectional data. Since the cross-sectional survey captures one point in time, it is difficult to explain time-change trends of labor market variables like behaviors and attitudes. However, a panel survey studies the same sample repetitively over a long period of time, which makes it easy to explain the

changes in trends or movements like behavior and attitudes over time. Therefore, the government recently supported various research institutes to carry out panel survey studies as follows. Korean Labor and Income Panel Study (Korea Labor Research Institute: KLI), Workplace Panel Survey (KLI), Youth Panel (KLI), Korean Education and Employment Panel (Korea Research Institute for Vocational Education and Training: KRIVET), Human Capital Corporate Panel (KRIVET), Graduates Occupational Mobility Survey (Korea Employment Information Service). These labor market research institutes not only carry out the survey studies, but also conduct evaluation of efficiency or effectiveness of training programs as an input to their policy development studies.

2.3.2 Evaluation of Training Programs

The evaluations were initially designed to enhance the competitiveness of the private training institutes, whereby outstanding organizations and courses (ranging from 10 to 100) are selected every year, and a certain percentage (approximately 10 percent) of poor-performing organizations is closed down. The number of evaluations has ranged between 600 and 1,500 since the start of the program in 1999.

This type of evaluation targets training institutes carrying out training programs for the unemployed, commissioned group training, training for the priority occupational categories, consortium training for SMEs, and distance training. The evaluation methods include paper evaluation (HRD-net evaluation data input), field evaluation by an evaluation committee member, a satisfaction survey by trainees, and an evaluation by the branch office of the Ministry of Labor.

At the initial stage, training evaluations were conducted to monitor performance of the training institutes. However, evaluations gradually focused on trained workers in order to ascertain the

impact of training programs, in particular those financed by the employment insurance fund since it is also a public fund (Choi, 2002).

To date, only a few econometric evaluations have been carried out to determine re-employment degrees, wage levels, and productivity improvements as a result of skills development programs. For example, Lee and Kim (2003) analyzed the impact of in-service training on enterprise productivity and investment, and Kim et al. (2004) covered, in addition, vocational training for the unemployed, using the employment insurance database. Jeong et al. (2005) studied the employment and wage effects of training. Kim (2004) and Kang et al. (1999) analyzed the wage and employment effects among initial training graduates using the Labor Panel (KLIPS) data. Recently, comprehensive research on the actual conditions of training graduates has been conducted (Ryoo et al., 2007; Chae et al., 2008). The following summarizes the evaluation study results of various training programs.

Firstly, regarding vocational training for the unemployed, the employment probability was estimated by comparing training completers who found employment with those who did not, even though a matched comparison group could not be designed from the beginning of the training program (Ra et al., 1999; Jeong et al., 2001; Lee, 2000; Kim et al., 2004; Ryoo et al., 2007; Chae et al., 2008). Most research results show some positive effect on re-employment, but no meaningful difference in wages, job quality, and employment sustainability. Further efforts should be made to improve the evaluation scheme to include comparison groups and ascertain whether skills development programs are an effective tool to create employment opportunities for the vulnerable and alleviate unemployment.

Secondly, regarding pre-service institutional training and in-service training of incumbent workers, positive effects were reported regarding wage levels, employment continuity, and job mobility (Chae et al., 2008). Although cost-effectiveness or rates of return were not reported, they are expected to be high for in-service training programs since they are of short duration with relatively low costs.

Thirdly, the impact of enterprise education and training on productivity was also studied. However, the results differ among studies and are inconclusive (Kim 2004 et al and Jeong et al 2005). The study of Kim (2008) showed with a statistical significance that enterprises, which made use of the levy-grant incentive system, did invest in worker's in-service training more than those, which did not make use of it. However, the effect was not statistically significant when enterprises were matched by their characteristics.

III. EVOLUTION OF SKILLS DEVELOPMENT SYSTEM FOR ECONOMIC DEVELOPMENT

As stated in the first chapter, the evolution of the skills development system in Korea can be divided into two stages: one in support of economic development starting from 1967 through the mid-1990s; the other in support of reduction in poverty and inequality since the mid-1990s up to the present time. Although the two themes coexisted throughout the review period, one theme overrode the other in each of the two stages. The first stage is discussed in this chapter, and the second stage in the next chapter.

3.1 Prior to the Skills Development System (Before 1967)

3.1.1 Economic Background and Labor Market Situation

An abundant labor force was supplied to the non-agricultural urban sector due to the rapid population growth in the wake of the Korean War (1950-1953) and the migration of people from rural to urban areas during the early stage of industrialization, resulting in high rates of unemployment. However, the agricultural sector still absorbed more than 60% of the labor force, and the demand for skilled workers in the industrial sectors was not high (Table 3)..

Table 3. Employment Trend by Industry, 1953-1963 (1,000 Persons)

	Employment by Industry				Composition Rate (%)		
Year	Total	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
1953	6,536	4,928(-)	321(-)	1,287(-)	75.40	4.91	19.69
1954	6,550	4,865(-1.3)	353(+10.0)	1,332(+3.5)	74.27	5.39	20.34
1955	6,578	4,811(-1.1)	386(+9.3)	1,381(+3.7)	73.14	5.87	20.99
1956	6,628	4,767(-1.0)	424(+9.8)	1,437(+4.1)	71.92	6.40	21.68
1957	6,700	4,736(-0.7)	466(+9.9)	1,498(+4.2)	70.69	6.96	22.35
1958	6,798	4,716(-0.5)	515(+10.5)	1,567(+4.6)	69.37	7.57	23.06
1959	6,923	4,710(-0.2)	569(+10.5)	1,644(+4.9)	68.03	8.22	23.75
1960	7,082	4,720(+0.2)	629(+10.5)	1,733(+5.4)	66.65	8.88	24.47
1961	7,269	4,744(+0.5)	695(+10.5)	1,830(+5.6)	65.26	9.56	25.18
1962	7,500	4,789(+0.9)	771(+10.9)	1,940(+6.0)	63.85	10.28	25.87
1963	7,779	4,856(+1.4)	855(+10.9)	2,068(+6.6)	62.42	10.99	26.59

Note: () is growth rate year-on-year, + is increase, - is decrease.

Source: Kim and Seo, 1987.

In 1962, the government announced the First Five-Year Economic Development Plan (FYEDP). This plan emphasized the import substitution industrialization policies focusing on key manufacturing industries (e.g., cement, oil refinement, and fertilizer); by the mid-term, however, this plan evolved into an export-oriented industrialization strategy. The government secured the necessary technical workforce by prescribing a minimum number of engineers to be hired by each company and by adjusting upward the number of students to be enrolled in the departments of science and engineering colleges. In addition, the government formulated a plan to train 6,000 new workers every year by implementing various policies, such as increasing the number of technical high school graduates, improving facilities and curricula, and providing evening vocational classes at all

technical high schools. In the end, as the supply of technical manpower was considered sufficient, no skills development policies like establishment of a vocational training system were considered.

3.1.2 Policy Response

At that time, vocational training was implemented not as a support for the industrialization policy, but as a part of social policies established sporadically in response to a number of social problems, which became serious with the rapid population increases in the aftermath of the Korean War and the growing rural-to-urban migration. The main purpose of vocational training was the rehabilitation of the disabled and welfare recipients, and vocational guidance for low-income women or teenagers accommodated at social welfare facilities. The training fields encompassed a range of industries, from hair styling and make-up, carpentry, agriculture and stockbreeding, accounting and clerical work, printing, and electricity to machinery.

In accordance with the *Craftsman Training Ordinance* under the *Labor Standard Act* and the *Industrial Education Promotion Act*, a skilled workforce was supplied; however, the number was very small. The *Craftsman Training Ordinance* stipulated that employers could voluntarily train the necessary workforce at a production site using the apprenticeship method. The policies were, thus, largely influenced by the intentions of employers. In addition, the technical training institute was established at technical high schools and colleges in accordance with the *Industrial Education Promotion Act* and selected trainees with high school or higher education and who were under 30 years old. It provided technical education in the eight main industrial fields. The annual output, however, was only 480 persons. The importance of fostering technical manpower apparently was

not clearly recognized in the early stage of economic development, when GDP per capita was a mere US$ 80.

However, when the government started preparing the First Five-Year Plan (1962-1966), it began to consider the need for introducing a systematic skills development system. It recognized the need to implement technical manpower training in parallel with the industrial development since the human resources development requires a long gestation period (Table 4).

Table 4. Technical Manpower Requirements during First Five-Year Economic Development Plan (1,000 Persons, Percent)

	1961	***1962***	***1963***	***1964***	***1965***	***1966***
Engineer	8,616	10,994	12,814	15,032	17,055	19,411
Technician	11,128	55,509	66,129	78,266	87,739	97,059
Craftsman	279,670	282,933	339,131	402,334	444,974	485,293
Total	299,414	349,436	418,164	495,632	549,758	601,763

Source: Suh, 2002.

3.2 Take-Off of Enterprise Skills Development System (1967-1970s)

3.2.1 Economic Background and Labor Market Situation

With the implementation of the Five-Year Economic Development Plans focusing on light and heavy-chemical industries as export industries, labor demand increased rapidly. The unemployment rate was 8.1 percent in 1963 when the economically active population census was first conducted, but fell to the 4 percent mark in the 1970s (Table 5).

Table 5. Employment Trend by Economic Activity, 1963-1972 (1,000 Persons, Percent)

Year	Older than 15 Years					Labor Force Participation Rate	Employment Rate	Unemployment Rate
	Total	Economically Active Population			Economically Non-Active Population			
		Total	Employed	Unemployed				
1963	14,551	8,230	7,563	667	6,321	56.6	91.9	8.1
1964	14,967	8,341	7,698	643	6,627	55.7	92.3	7.7
1965	15,367	8,754	8,112	642	6,613	57.0	92.7	7.3
1966	15,753	8,957	8,325	632	6,796	56.9	92.9	7.1
1967	16,121	9,180	8,624	556	6,941	56.9	93.9	6.1
1968	16,456	9,541	9,061	480	6,915	58.0	95.0	5.0
1969	16,852	9,747	9,285	462	7,105	57.8	95.3	4.7
1970	17,468	10,062	9,617	445	7,407	57.6	95.6	4.4
1971	18,118	10,407	9,946	461	7,711	57.4	95.6	4.4
1972	18,819	10,865	10,379	486	7,954	57.7	95.5	4.5

Source: Korea National Statistical Office, Yearly.

The size of employment had been increasing by roughly 300,000 persons per year on average (about 3.5 percent) before 1970, Then it increased by 460,000 (about 4.1 percent) per year by the mid-1970's, resulting in a decline of the unemployment rate and an improved employment structure (Table 6).

Table 6. Employment Trend by Industry, 1972-1979 (1,000 Persons, Percent)

Year	Total	Agri/Forestry/ Fishing (Primary)	Mining And Manufacturing (Secondary)	SOC Other Services (Tertiary)	Annual Increase Rate			
					Total	Primary	Secondary	Tertiary
1972	10,382	5,238(50.5)	1,468(14.1)	3,674(35.4)	4.4	9.2	3.9	-1.7
1973	10,942	5,445(49.8)	1,779(16.2)	3,719(34.0)	5.4	4.0	21.2	1.2
1974	11,421	5,481(48.0)	2,027(17.7)	3,914(34.3)	4.4	0.7	13.9	5.2
1975	11,692	5,339(45.7)	2,235(19.1)	4,118(35.2)	2.4	?2.6	10.3	5.2
1976	12,412	5,514(44.4)	2,708(21.8)	4,191(33.8)	6.2	3.3	21.2	1.8
1977	12,812	5,342(41.7)	2,866(22.4)	4,604(35.9)	3.2	?3.1	5.8	9.9
1978	13,412	5,154(38.4)	3,092(23.1)	5,167(38.5)	4.7	?3.5	7.9	12.2
1979	13,602	4,866(35.8)	3,209(23.6)	5,527(40.6)	1.4	?5.6	3.8	7.0

Note: ( ) is component ratio.

Source: Korea National Statistical Office, Yearly.

The era of a limitless supply of labor ended and some shortages of a skilled workforce appeared in some industrial sectors, marking the beginnings of a shift in the employment structure. For example, the implementation of the Second Five-Year Plan (1967-1971) demanded a total skilled labor force estimated at 493,000 workers, of which an urgent influx of 165,000 additional skilled workers was required. However, the technical high schools could supply only 69,000 skilled workers, and the remaining 96,000 skilled workers had to be supplied by the vocational training system (Table 7).

3.2.2 Policy Response

Vocational Training Act (1967-1974)

To respond to the rapidly increasing demand for a skilled workforce, the Vocational Training Act (VTA) was enacted in January 1967. The background of the Act was: (i) a sharp increase in demand for skilled labor resulting from rapid industrialization; (ii) availability of large numbers of unskilled youth who do not proceed to a higher level of education; (iii) insufficient technical educational and traditional apprentice training capacity to meet workforce projections; and, (iv) mandates to expand the provision of training by firms. The outcome of this act was a threefold increase in trainees between 1967 and 1970, from 10,738 to 30,558. Table 8 shows that during the period 1967-1970 a skilled workforce was provided through vocational training (86,688 workers) at a level similar to the 1967 estimates of training requirements (80,200) for the same period (Table 7).

Table 7. Requirement of Skilled Workforce during Second Five-Year Plan (1,000 persons)

	1967	***1968***	***1969***	***1970***	***1971***	***Total***
Total Demand	363.1	397.0	430.4	462.5	493.5	493.5
Additional Requirements	34.6	33.9	33.4	32.1	31.0	165.0
Technical High School Graduates	11.6	12.4	14.9	14.9	14.9	68.7
Vocational Trainees Demanded	23.0	21.5	18.5	17.2	16.1	96.3

Source: Ministry of Labor of Korea, 1967.

In the wake of the enactment of the Vocational Training Act of 1967, increases in the supply of skilled workers were made in two modes: the public vocational training system and the in-plant training system. By the end of the First Five-Year Plan in 1966, there were simultaneous problems of a shortage of skilled workers in industries and an excess supply of teenagers, who had not

pursued higher education (college or university) but had not been able to get jobs, causing social problems. As the first policy response to these economic and social problems, the provision of public vocation training was chosen to transform the teenage cohort into a skilled workforce. At the public expenses, military facilities were commissioned to train teenagers, and government agencies, and non-profit organizations undertook training of the unemployed. Local governments operated short-term accelerated training courses with an emphasis on manual arts and handicrafts in order to increase exports and raise the side-incomes of farming families.

Table 8. Number of Trained Workers by Type, 1967-1970 (Persons)

Type	***Total***	***1967***	***1968***	***1969***	***1970***
Total	86,688	10,738	20,180	25,212	30,558
In-Plant Training	33,922	3,890	8,022	8,527	13,483
-Craftsman	27,111	3,140	5,918	6,503	11,550
-Technician	6,811	750	2,104	2,024	1,933
Public Vocational Training	30,313	1,502	7,093	9,878	11,840
-Training at military facility	3,721	1,278	853	777	813
-Gov't agencies	5,553	224	510	2,514	2,305
-Corporations	6,906	-	784	1,459	4,663
-Promotion training centers	13,597	-	4,946	4,961	3,690
-Rural voc. Trg. centers	50	-	-	-	50
-Central Voc. Trg. center	486	-	-	167	319
Special Training	7,483	2,346	1,965	2,766	406
-Instructors	811	246	160	195	210
-Managers	461	-	105	246	110
-Supervisors	6,211	2,100	1,700	2,325	86
Correspondence Training	14,970	3,000	3,100	4,041	4,829

Source: Ministry of Labor of Korea, 1971.

At the same time, government intervened in skills development by enterprises, especially large enterprises, through provision of direct subsidies for in-plant training programs. The outcome was an increase in participation rates. Between 1967 and 1971, the number of enterprises providing in-plant training increased from 15 to 81, and the number of trainees increased from 3,000 to 14,300. Eventually, however, constraints in the budget forced the government to suspend the subsidy, resulting in sharp reductions in the number of enterprises and trainees (Lee 2006).

Vocational Training Special Measure Act (1974-1976)

In 1971, the government announced the Third Five-Year Economic Development Plan (1972-1976), and in order to support it, set up the Third Five-Year Human Resources Development Plan. This plan adjusted the quantitative size of the skills development programs in accordance with the supply and demand plans and placed more emphasis on training quality. The Plan foresaw a shortage of technicians during the plan period and suggested extension of some technical high schools to five years and expansion of vocational training facilities. The Plan also anticipated that the supply of skilled workers would be in short by 1976 and decided to expand technical high schools and public vocational training facilities. Public training emphasized a skilled workforce required for export and heavy-chemical industries and strengthening of skills training at rural and military training facilities (Table 9).

The government intervention in enterprise training shifted from the subsidy policy to a regulatory policy since it recognized that the projected shortage of skilled workers could not be met by the voluntary training by enterprises. In 1974, the government promulgated the *Vocational Training Special Measure Act* and obligated large enterprises employing more than 500 workers in key

industries (mining, manufacturing, electricity, gas, water supply, construction, transportation, storage, communications, and services) to conduct in-plant pre-service training programs through December 1976.

Table 9. Supply and Demand of Skilled Labor: 1972-1976

Classification	*Total*	*1972*	*1973*	*1974*	*1975*	*1976*
Demand	3,184.2	504.6	567.5	631.8	701.9	778.2
Supply	3,193.6	502.5	564.8	635.5	706.9	783.9
-Already Employed	2,779.9	440.9	494.7	550.4	613.0	680.9
-Industrial and technical school graduate	159.6	29.2	32.6	32.6	32.6	32.6
-New industrial and technical school graduate	54.3	-	2.2	12.5	17.6	22.0
-(Vocational training graduate)	(199.8)	(32.4)	(35.3)	(40.0)	(43.7)	(48.4)
Excess or deficiency	9.6	△2.1	△2.7	3.7	5.0	5.7

Note: △is a short supply.

Source: Ministry of Science Technology of Korea, 1971.

Although this special measure was taken in support of the military government's heavy-chemical industry policy, it faced a stiff opposition by enterprises. The measure disregarded the reality of enterprises. Especially, the measure imposed a compulsory training obligation to those industries uniformly irrespective of their difference in training capacity and the demand for new workers (Lee, 1992 and Park, 1992, Lee, 2006).

Basic Vocational Training Act (After 1976)

In 1976, as part of the preparation for the Fourth Five-Year Development Plan (1977-81), the government enacted the *Basic Vocational Training Act* (BVTA). The law combined the *Vocational Training Act* (1967) and the *Vocational Training Special Measure Act(1974)* to encourage

enterprises to play more active role in meeting the increasing demand for skilled and technical manpower in the newly industrializing society. This new Act, first, obligated all enterprises employing more than 300 workers to provide in-plant training for new workers within 10% of total workers, as announced by the government annually by industry. Second, the Act allowed enterprises to pay training levies in lieu of carrying out the in-plant pre-service training obligation.

Ever since, the enterprise training played a predominant role in meeting the skilled and technical human resources in Korea. In 1979, over 90,000 employees were trained through the in-plant enterprise training program (Table10). In 1978, enterprises undertaking in-plant training programs accounted for around 70 percent of all obligated enterprises. The rest of the obligated enterprises opted to pay training levies. In 1976, the government also enacted the *Vocational Training Promotion Fund Act* to promote vocational training activities including public vocational training with the training levies collected from enterprises which were not undertaking in-plant training.

Table 10. Number of Trainees by Type during Third and Fourth Five-Year Plan (1972-1981)

Year / ***Institution***	***Third Five-Year Plan for Economic Development***					
	Total	***1972***	***1973***	***1974***	***1975***	***1976***
Total	309,593	27,525	39,851	41,310	75,254	125,653
Public	78,151	9,918	16,234	16,356	17,480	18,164
Public corporation1)	11,200	678	1,174	2,106	2,999	4,243
Government agencies2)	39,499	3,893	5,164	8,757	10,240	11,445
(K.N.O.P. 3)	(3,267)	-	(1,515)	(833)	(355)	(564)
Local government	27,452	5,347	9,896	5,492	4,241	2,476
In-plant	177,350	10,799	14,124	12,940	42,667	96,820
Authorized training institutes	54,092	6,808	9,493	12,015	15,107	10,669
Year / ***Institution***	***Fourth Five-Year Plan for Economic Development***					
	Total	***1977***	***1978***	***1979***	***1980***	***1981***

Total	495,616	83,027	100,425	129,297	104,502	78,365
Public	119,994	14,878	19,201	28,488	31,153	26,274
Public corporation (1)	56,294	5,539	10,041	12,672	15,029	13,013
Government agencies (2)	37,064	7,468	4,769	8,594	8,933	7,290
KNOP (3)	(2,815)	(543)	(802)	(518)	(603)	(349)
Local government	26,646	1,871	4,391	7,222	7,191	5,971
In-plant	337,388	58,739	73,038	90,992	66,213	48,406
Authorized training institutes	38,234	9,410	8,186	9,817	7,136	3,685

Note: (1) Public Corporation Training Institutes were integrated into the Human Resources Development Service of Korea on 3.18.1982. (2) Trained workers are included in KNOP (Korean Nation Occupational Placement: retraining programs for workers with American military facilities). (3) Trained workers of KNOP during 1970-1972 is 8,220 persons.

Source: Ministry of Labor of Korea, Yearly.

With the second oil shock in 1979, economic growth slowed down, and the in-plant training requirement was enforced only on very large enterprises. Accordingly, the in-plant training activities declined sharply while public training activities continued more or less at the same level (Park et al., 1993). In 1986, the government modified the standards for assessing training levies from the total number of employees to total payroll. At that time, about two-thirds of obligated enterprises opted to pay the training levy and did not provide training. Although the levy system was effective in mobilizing funds for public training, it was not as effective in promoting voluntary in-plant training (Shim, 1997; Lee, 1998; Jeong, 2002). To promote the provision of training by small and medium enterprises (SMEs), however, the government enlarged the coverage of the in-plant training obligation to all enterprises with more than 200 workers in 1990, and to 150 workers in 1992. Many SMEs chose to pay the levies instead of carrying out in-plant training programs.

Viewed in the historical perspective, the implementation of this policy made a significant contribution to the enhanced recognition of the need for vocational training and a skilled workforce. It is not easy to find successful cases of implementing such a policy among developing countries with income levels less than US$ 1,000 in GDP per capita.

Assistance from International Organizations and Advanced Countries

In the 1960s, the government suffered from financial shortages and a lack of technical expertise in implementing the skills development policy. The government placed the highest priority on the economic development, and this in turn generated a high level of demand for a skilled workforce. Accordingly, the government planned to establish scores of vocational training institutions in a short period, but the fiscal situation did no permit such a plan. It therefore decided to resort to the grants from international organizations and advanced countries.

The first such grant support came from the government of Germany in 1967 to establish a public vocational training institute in Busan, train instructors and develop training curriculum. This was followed by grants from UNDP/ILO in 1970 for the establishment of the Central Vocational Training Institute in Incheon for training of instructors, supervisors and technicians and research and development in training; from Unicef/UNDP/ILO for the establishment of l vocational training centers in rural areas; and from the governments of Belgium and Japan in 1976 for establishment of vocational training centers and provision of technical assistance in urban areas.

It soon became clear that the grant assistance had not been sufficiently large and rapid enough to meet the planned requirements for skilled and technical manpower. The government decided to obtain credits and loans from international organizations like the Asian Development Bank (ADB)

and the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA). These credits/loans became the tool that enabled the government to provide full-scale public vocational training. Training centres were established on the basis of the population density and regional development centers. The ADB loans of $3.7 million in 1972 supported the building of training institutes in five locations (Chuncheon, Incheon, Daegu, Gwangju, and Seongnam).

The government looked for loans with better terms and obtained two loans of a total of $37.8 million in 1975 and 1977 for the establishment 15 vocational training centers. The most notable characteristic of the IBRD loans was the aid coordination initiated by the Korean government. The IBRD loans did not include consultant expert service fees and overseas training expenses. Instead, the government negotiated with bilateral donors to absorb these expenses through international cooperation. For example, preparation of equipment lists and allocation of training spaces as a basis for the construction of training centers were made by the German technical assistance experts on the basis of the training curriculum and utilization factor analysis. German technical support significantly contributed to the development of the vocational training system in Korea.

3.3 Expansion of Public Skills Development System (1980s)

3.3.1 Economic Background and Labor Market Situation

The early 1980s witnessed a worldwide economic slowdown and the proliferation of protective trade barriers, coupled with domestic political and social instability. The Korean economy suffered from three substantial problems in the early 1980's: a slow down in growth due

to decreasing exports; a deteriorating balance of payments caused by the increased cost of imported oil; and, serious inflation pressures. Growth rates were negative and the unemployment rate reached 5.2 percent. The 1980s can be described as 'the period of medium growth and medium unemployment'. The average annual unemployment rate was 3.9 percent, but the economic growth rate was an average of 7 percent per year, far lower than in the 1970's. The industrial structure changed from a labor- to a capital-intensive structure, which was also reflected in industrial employment patterns. Employment in the primary industries dropped by 88.1 percent over the 10 ten years from 1976 to 1986, with employment in secondary and tertiary industries rising quickly (by 48 percent and 86.8 percent, respectively).

The Fifth Five-Year Economic Development Plan began in 1982, and was renamed the Five-Year Economic and Social Development Plan, implying a shift in government's focus from quantity-oriented development to quality-oriented growth, with emphases on both economic and social development. New demands on occupational training emerged as the economic and industrial structure changed, and the target group for training, i.e., out of school teenagers, diminished as income levels rose. That is, as the industrial structure changed from labor intensive to more technology intensive and from mass production to various kinds and customized small production, demand increased for an advanced- and multi-skilled workforce. With social recognition of the importance of education as well as increasing incomes, the ratio of students who went on to college rose, while the social demand for both secondary vocational education and short-term vocational training declined.

3.3.2 Policy Response

This period can be characterized as accommodation of economic changes in the skills development system. Accommodation can be summarized in three major areas. First, the public vocational training system expanded continuously, while the enterprise training system declined. Second, the standards for assessing training levies to be collected from enterprises were changed to encourage enterprise training more broadly. Third, retraining programs were undertaken systematically for laid-off or job-transfer workers.

First, in-plant trainees fell from 337,000 during the Fourth Plan (1977-1981) to 115,000 in the Fifth Plan (1982-1986). To make up for the decline in enterprise training activities due to the economic recession and government's stabilization policies, the public training system was expanded. This expansion of the public training system was significantly promoted by the establishment of the Korea Vocational Training Management Agency and the Technical Training Colleges (currently Polytechnic Colleges). The Vocational Training Management Agency was established in 1982, integrating 24 public training institutes and the vocational training research center affiliated with the Ministry of Labor, the Changwon Technical College affiliated with the Ministry of Science and Technology, and the Korea Technology Qualification Agency responsible for skills testing and certification. Technical Training Colleges were established to train a professional workforce possessing both specialized knowledge and high-level skills. At first, there were only two Polytechnic Colleges – Changwon and Inchon. However, the total number increased to 40 in 2008, as they were expanded and restructured as Korea Polytechnic Colleges from 1994.

Second, with the amendment of the *Basic Vocational Training Act* (BVTA) in 1987, it became easier for enterprises to satisfy the compulsory training obligation and avoid training levies. The training obligation was changed from the number of trainees to training expenses. In addition, the recognized employer's training expenses was broadened to include investment in training facilities and equipment as well. Also, training expenses covered not only pre-service training of new workers, but also in-service training of already employed workers up to 80% of total training courses. Furthermore, enterprises could fulfill their training requirements not only by conducting in-plant training, but also by enrolling their workers in outside training institutes, as specified by the Minister of Labor.

Third, retraining programs for laid-off workers began in the aftermath of the second oil shocks in 1979-1980. However, since 1986, retraining programs were launched systematically for both already laid-off workers and those workers intending to shift their occupations. Moreover, for the first time, training stipends or cost of living expenses were provided to trainees during the training period.

Despite many advantages of enterprise training (i.e., easy to train workers, using in-plant supervisors, facilities and equipment and smooth placement in the enterprises), the paradigm of the government-led enterprise training system in the 1970s began to undermine. It was pointed out that the training levy system was effective in mobilizing funds for public training, but the compulsory enterprise training backed by training levy system hindered training provision through excessive regulations (for example, standards for training costs per trainee, training course, period, facilities, instructors, training syllabi and materials, etc.). The rate of enterprises participating in workers' training participation sharply declined from 60.7 percent in 1980 to 15.5 percent in 1987.

The number of in-plant training institutes declined from over 500 in 1974 to 130 by 1987. Enterprises preferred to pay training levies instead of fulfilling their training requirements, resulting in a kind of government failures (Lee 2005, Shim 1997).

3.4 Transition to the Levy-Grant (Rebate) System (1990's)

3.4.1 Economic Background and Labor Market Situation

The labor market between 1987 and 1997 recorded almost full employment (2.4 percent average annual unemployment rate). This period can be summarized as one of medium growth and low unemployment. The "three low booms" – low exchange rate, low oil prices, and low interest rate – contributed to a double-digit growth rate. However, small item and large quantity production systems came to their limits in the late 1980's due to changes in the international economic environment and rapid changes in the labor-management relationship. The characteristics of the labor supply structure in this period were referred to as an increase of the well-educated population and an increase in female participation in economic activities. Owing to these favorable conditions, the total labor force participation rate started to climb gradually in the mid-1980's, reached 60 percent in 1990, and then increased to 62.5 percent in 1997 just before the Asian financial crisis. From the labor demand side, the trend of a transition to the service industry was set and accelerated. The change of the industrial structure occurred rapidly in this period (i.e., automation, technology advancement, and mechanization). Thus, demand for the skilled labor in the manufacturing sector fell, and the demand for technicians and professionals rose.

By 1997, the GDP per capita of Korea was over US$ 10,000, and it was no longer listed as a borrower from IBRD. To the contrary, Korea established its position as an advanced industrial country, became one of the Asian dragons, attained the ranking of the 11th largest trading country in the world, and joined the OECD. It even became a model of development for less developed countries. That is, until the bankruptcy of Hanbo Steel on January 23, 1997 and the deterioration of its national credit rating.

3.4.2 Policy Response

Transition to a Levy-Grant (Rebate) Skills Development System under the Employment Insurance System

The government-led economic development ended with the Sixth Five-Year Economic and Social Development Plan (1987-1991), and the government established the Five-Year Plan for the New Economy (1993-1997). The main goals of the new plan were to adhere to the free market economic principles more rigorously, step up the international competitiveness of the Korean economy, and promote a welfare state. One of the major strategies to attain these policy goals was to develop human capital, and the government formulated the Industrial Manpower Supply and Skills Development Restructuring Plan in 1994. The major thrusts of the Plan were to transform the unemployed population into an industrial workforce, restructuring the skills development system, reorganize the national technical qualification system, and stabilizing the skills supply.

A decisive event to reorganize the skills development system was the introduction of the Employment Insurance (EI) system in 1995, which was expanded to cover all enterprises in 1998. A

reformed skills development system was integrated into the EI system together with unemployment compensation and employment service systems as part of the active labor market policy (ALMP).

The major theme of the reformed skills development system was to drop the enterprise training obligation policy and introduce a set of new policies to induce and support enterprises to provide life-long training services for their workers on a voluntary basis. All enterprises were obligated to pay training levies as part of the employment insurance premium for their workers and were given training grants (i.e., reimbursement of their training levies) when they carried out training services for their workers. Training grants were given on the basis of actual training expenses within the limits established by government. As an inducement, small and medium enterprises were reimbursed at a higher rate than large enterprises. Training services could be offered in-plant or at outside training institutions under a training contract. The grants covered not only the initial, pre-service training, but also in-service upgrading training and all training services throughout the life of a worker.

This reformed skills development system was based on the philosophy that training is a public good and cannot be governed completely by perfectly competitive market principles. The government should intervene in the training market to prevent free-riders and promote human capital accumulation to enhance national competitiveness. However, the mode of government intervention was not diverse and cumbersome as in the past, but was encouraging and supportive to promote voluntary participation of enterprises in the training of their workers. The new skills development system was implemented in full scale by the enactment of the *Worker's Vocational Training Promotion Act* (renamed the *Worker's Skills Development Act* in 2004) at the end of 1997.

Indeed, the reformed skills development system or the levy-grant system did promote voluntary enterprise training significantly. While only 22.5% of enterprises (employing more than 150 workers) trained their workers in 1994 (one year before the reform), as much as 63% of enterprises (employing more than 150 workers) participated in training of their workers in 2002. The number of workers trained by enterprises more than doubled between 1992 and 1998 (from about 120,000 persons in 1992 to almost 260,000 persons in 1998) (Table 11).

Table 11. Number of Trainees by Type, 1992-1998

			1992	1993	1994	1995	1996	1997	1998
Total			180,018	188,408	217,337	223,894	221,817	253,558	491,529
Craftsman	Total		178,864	184,034	213,095	217,738	214,259	245,044	481,595
	Public	Total	26,131	26,206	31,761	30,586	36,644	49,257	182,853
		HRD Service of Korea	18,116	18,407	22,704	21,220	25,615	36,970	169,153
		KORCHARM	-	-	1,869	2,069	3,253	5,450	8,076
		KEPAD	-	193	241	224	198	195	233
		Gov. agencies	5,082	4,991	4,815	4,825	4,570	4,355	3,011
		Local government	2,933	2,615	2,104	2,248	3,008	2,287	2,380
	In-plant		122,457	122,151	152,030	160,413	151,303	173,686	258,037
	Public Authorized training		30,276	35,677	29,304	26,739	26,312	22,101	40,705
Multifunctional technician			-	-	961	3,004	4,733	5,843	7,177
Master			594	352	286	417	480	579	474
Training instructor			560	4,022	2,992	2,735	2,345	2,092	2,283

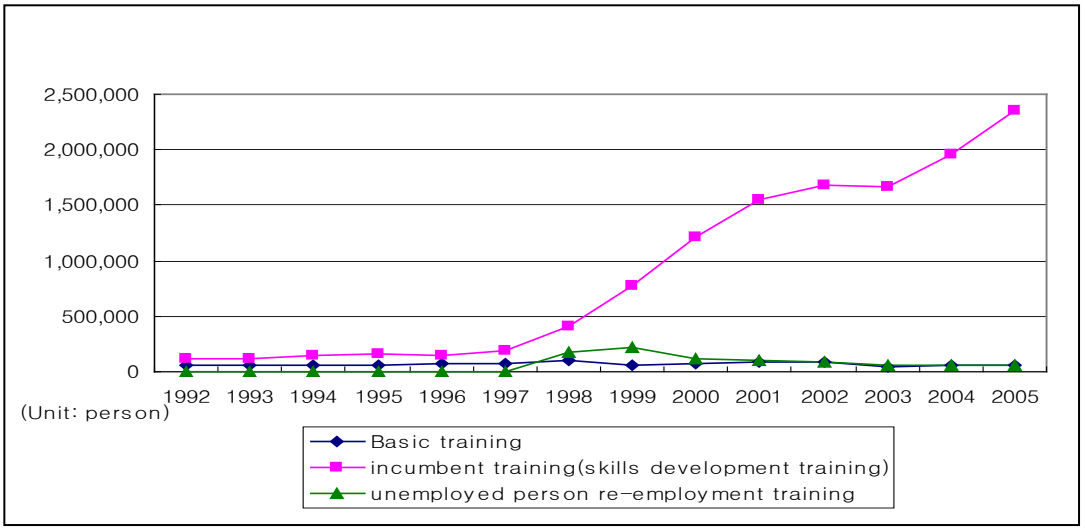
Note: Korea Employment Promotion Agency for the Disabled (KEPAD).

Source: Ministry of Labor of Korea, Yearly.

Since the adoption of the Levy-Grant Skills Development System under the EI system, the number and proportion of in-service training of incumbent workers vis-à-vis pre-service (initial) training of newly recruited workers increased rapidly (from 56,407 in 1992 to 77,201 in 1997, 79,196 in 2000, and 53,999 in 2005)(Figure 2)

The sharp decrease of persons enrolled in pre-service training programs was closely related to a deteriorated job creation in the manufacturing industry, on which traditional pre-service (initial) training was based. The proportion of workers in the Korean manufacturing sector decreased steadily, 23.5 percent in 1992, 19.0 percent in 2004, and 17.6 percent in 2007.

Figure 2. Number of Trainees by Pre-Service and In-Service Training Course (1992-2005)



Note: Basic training included training for craftsmen, multi-skilled technicians, and master craftsmen, as well as priority occupational training.

Source: Ministry of Labor of Korea, Yearly.

4.2.2 E-Learning

At that time, e-Learning was rapidly spreading into all fields of education and training with active participation by the private sector and with the policy support from the government. In particular, the Ministry of Labor declared the e-Learning support policy as a part of a skills development system, so that the foundation is laid to provide lifetime education opportunities for all workers. The Ministry of Labor approved training through e-learning as legitimate training expenses under the Employment Insurance Act.

Since 1999 when the Ministry of Labor began implementing the e-Learning support policy, the number of incumbent workers participating in enterprise e-Learning sharply increased by 55.5 times: from 19,653 in 1999 to 1,108,734 in 2006. While 2.5 percent of the trainees had participated in e-Learning, the figure for 2005 was around 43.8 percent and 2006 was 38.1 percent. The number of training institutes that carried out e-Learning also increased steadily: from 16 in 1999 to 181 in 2006, that is, an increase of 11.3 times. Accordingly e-Learning has well positioned as an important methodology for training of incumbent workers.

Table 12. Number of Incumbent Workers Who Participated In E-Learning Course

Year	***E-Learning Course(A)***	***All Training Courses(B)***	***Percent (A/B)***
1999	19,653	781,408	2.5
2000	137,712	1,220,334	11.3
2001	406,159	1,555,402	26.1
2002	571,006	1,584,823	36.0
2003	718,112	1,661,978	43.2
2004	864,612	2,059,727	41.9
2005	1,061,985	2,426,709	43.8
2006	1,108,734	2,916,613	38.1

Source: Ministry of Labor of Korea, 2007c.

IV. SKILLS DEVELOPMENT STRATEGY FOR POVERTY REDUCTION

4.1 Skills Development for Reduction in Poverty and Income Inequality

4.1.1 Economic Development vs. Reduction of Poverty and Inequality

The mass unemployment that arose since the economic crisis in 1997 called attention to the polarizing society caused by the increasing poverty and inequality. In the wake of the Asian financial crisis, the economic and labor market conditions changed drastically. Korea officially requested a relief loan from IMF on November 21, 1997 after a series of incidents such as, the chain reaction of bankruptcies among business conglomerates, precipitating stock prices, sharp rises in the exchange rate, and exhausted foreign exchange reserves. Companies froze hiring and reorganized management, and by February 1998 had caused a 3.7 percent decrease in employment from the same month of the previous year. The most serious employment decrease trend occurred in the mining, manufacturing, and construction sectors. The unemployment rate shot up from 1.5% in 1997 to 5.6% in 1998, registering 15.9% in construction, and 6.7% in mining and manufacturing industries (Table13).

Table 13. Unemployment Trends by Industry: 1997 and 1998

(1,000 Persons, Percent)

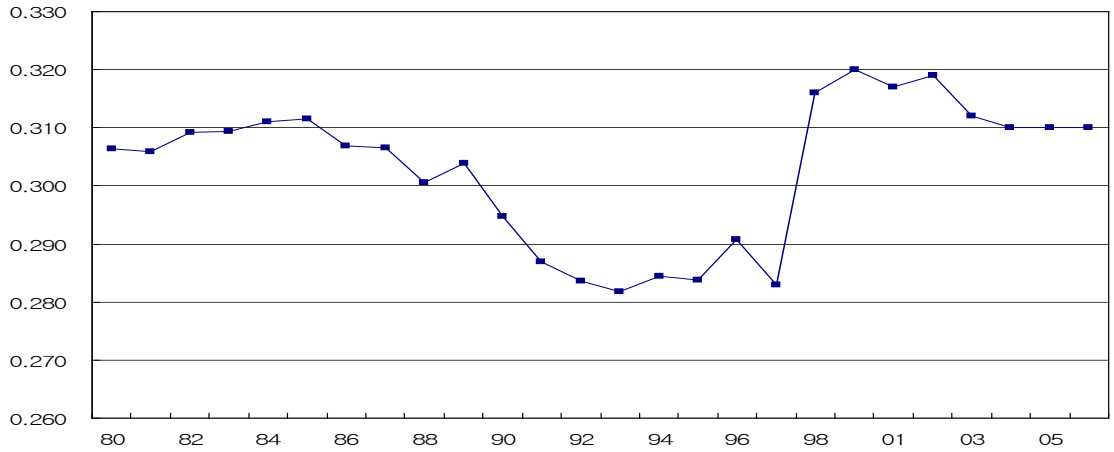
	1997			***1998***			***Increase/ Decrease Rate***
	Size		***Percent***	***Size***		***Percent***	
Total	319	(1.5)	100.0	1,193	(5.6)	100.0	273.9
Agr./forestry/fishing	4	(0.2)	1.3	17	(0.7)	1.4	315.2
Mining	81	(1.8)	25.4	279	(6.7)	23.4	244.4
Manufacturing	80	(1.8)	25.1	278	(6.7)	23.3	247.0
Service	235	(1.6)	73.7	897	(6.2)	75.2	281.7
Construction	50	(2.4)	15.7	299	(15.9)	25.1	498.4
Wholesale/retail	110	(1.9)	34.5	346	(5.9)	29.0	214.4
Other service	75	(1.2)	23.5	252	(3.8)	21.1	236.0

Note: Figures in parenthesis represent the unemployment rate.

Source: Korea National Statistical Office, 1998.

In fact, poverty and inequality were not new phenomena in Korea. Prior to the 1960s when industrialization commenced in Korea, the average national income was approximately US$ 80, and the Gini coefficient among urban households was 0.42. Within ten years (1970's), however, the Gini fell to 0.35 and within 20 years (1980's) to 0.31, suggesting that income distribution improved in tune with the economic development. Domestic and overseas professionals regard Korea as an exceptional case in achieving high economic growth while maintaining reasonably sound levels of income distribution. As shown by the Gini coefficient change trend by year (Figure 3**),** income distribution improved from the early 1980's to the mid-1990's.

Figure 3. Trend of Gini Coefficient in Korea (1980-2006)



Source: Korea National Statistical Office, Yearly.

Yet the income distribution gap has become sharply wider since the 1997 economic crisis, and this trend continues to the recent time. Income gaps increased concurrently with the increase of the unemployment rate. Actually, according to one study (Ryoo et al., 2008), the relative poverty ratio, based on disposable income, has shown a steady increase from 11.3 percent in 1996 to 17.9 percent in 2006, and the "five-level multiple" income distribution index (dividing income of the top 20 percent by the bottom 20 percent) increased from 4.98 in 1999 to 9.80 in 2006, suggesting that the poverty and income distribution problem remained a serious concern. It has been pointed out that policy should take into consideration the aged, females, the under-educated, and SME workers, in order to alleviate wage differentials among laborers. College graduate males working for large-sized companies employing more than 500 persons have an absolute majority in the high wage income class and significantly contribute to unequal income distribution in the country (Kang, 2004).

4.1.2 The Skills Development System since the Asian Financial Crisis

Mass unemployment since the 1997 economic crisis called attention to the poverty problem, and the importance of creating jobs (or employment policy) as the source of income was highlighted. Ever since, the skills development policy was highlighted as a practical measure to alleviate the problems of social polarization. Of course, income gaps arise inevitably due to different personal capabilities or environment. However, it is desirable to adopt policy measures to guarantee equality of opportunity to develop one's capability. While accepting the outcomes of competition, policy improvements to provide equal opportunities in principle can function like a social safety net. In this context, the skills development policy in Korea since the 1997 economic crisis concentrated on securing training opportunities for the vulnerable classes, such as, the unemployed, non-regular workers, the aged, females, the under-educated, and SME workers, in order to reduce relative poverty and social polarization.

Considering the high correlation between countries with high training participation rates to countries with higher employment rates, higher GNI per person, and lower Gini coefficients, the government felt it necessary to increase skills development budgets as a means of social integration for vulnerable groups. When the 2004 education and training budgets for adults by target group in Korea were broken down, the employed workers occupied 38.3 percent, followed by 24.2 percent for youth. Only 18.4 percent was allocated for the unemployed workers, and 4.7 percent were for women and the aged workers. The proportion of public expenditure for training of the unemployed as percentage of GDP was 0.04 percent in 2004, which is far smaller than the OECD average (0.18 percent) even when we take into account the low unemployment rates in Korea. Since in-service training tends to focus on well-educated and highly skilled employees in

consideration of investment return, public training needs to be expanded as a means to encourage skills improvement among the unskilled and vulnerable groups. For the vulnerable classes, such as the unemployed, women, non-regular workers, and small business owners, the government recognized that it was urgent to ensure skills development to improve their productivity and income.

Globally, poverty reduction measures for the vulnerable classes have tended to evolve from welfare-oriented policy to workfare-oriented policy linked with jobs. That is, human capability development is emphasized for integration with the labor market from the perspective of social integration of the vulnerable classes, with the recognition that a knowledge gap is the main source of social exclusion, causing renewed inequality and constraining participation in socio-economic activities. In particular, the vulnerable classes, alienated from capability development opportunities, cannot easily deviate from a low-skills vicious cycle: low skills – low income and unstable employment – low capability development – low skills.

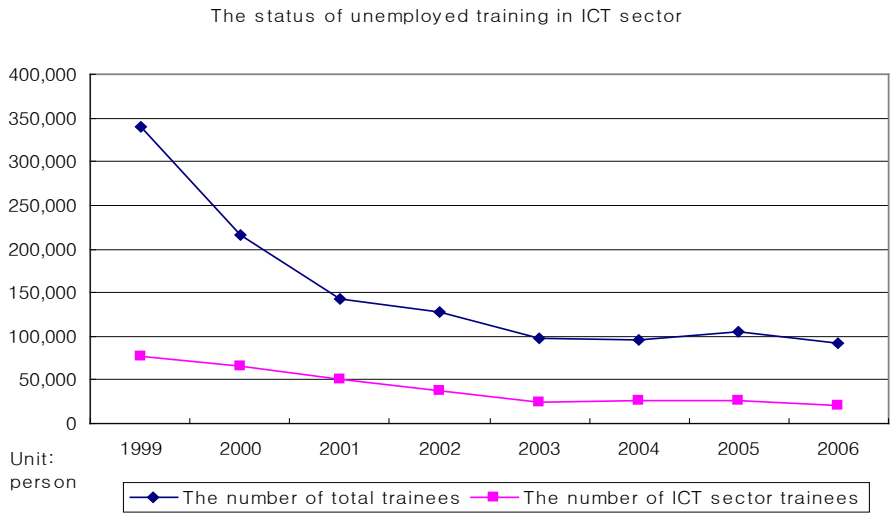
In the following sections, it is shown how the skills development system in Korea has shifted its policy emphasis from promoting rapid economic development by supplying the demanded skilled human resources towards reduction in poverty and income inequality, especially for the unemployed, the SME workers, and other vulnerable people like non-regular workers, the aged, self-employed poor workers, household head women, welfare recipients, and other poor groups.

4.2 Skills Development System for Vulnerable Groups

4.2.1 IT Training for the Unemployed in Response to the Economic Crisis

In the wake of the 1997 Asian financial crisis, the number of unemployed increased from 561,000 persons in the fourth quarter of 1997 to 1,235,000 persons in 1998, marking a 5.9 percent unemployment rate. Above all, the number of the unemployed who lost jobs due to company restructuring significantly increased from 320,000 persons in 1997 to 1,079,000 persons in 1998, representing 87.4 percent of all unemployed. The Korean government established comprehensive measures against unemployment in March 1998, in anticipation of a slow recovery and prolonged unemployment problems. Of the comprehensive measures against unemployment, large-scale vocational training programs contributed greatly to stabilizing employment in a short period of time. The programs expanded particularly training in information technology (IT), contributed to the overcoming of the economic crisis, and laid the foundations for Korea to re-emerge as a strong IT country. The number of unemployed vocational trainees was about 65,000 persons in 1999, but the number increased to 330,000 persons by 1999, of which 76,000 persons, or about 23%, participated in training for the IT sector.

Figure 4. Number of Trainees in IT Training Fields: 1999-2006



Source: Ministry of Labor of Korea, Yearly.

One important reason for the intensive investment in IT training by the government was its understanding that the IT industry could readily absorb the unemployed, especially the well-educated young unemployed, given its high growth rates and knowledge content. While the entire economic growth rate was -6.7 percent in 1998 due to the economic crisis, the IT sector grew by 20.7 percent. In retrospect, the government projection was right on the mark. When the vocational trainees in all programs were analyzed by the level of educational attainment, graduates from technical colleges or higher educational institutions accounted for 48.0 percent and 47.5 percent of total trainees in 1999 and 2000, respectively. However, in the fields of IT training, trainees with higher educational background occupied 62 percent and 66.9 percent in 1999 and 2000, respectively.

IT training provided by non-formal education and training institutes became popular during the post-economic crisis period. Most of these schemes were government-supported, either in part or in full. They may be grouped into customized programs suitable for the needs of contracted companies and self-paying individuals. In addition, there were two types of government training programs. First, specialized training support programs were operated by the Ministry of Information and Communication (1998-2000) with the training periods ranging from shorter than one month to longer than six months. The content of the training courses corresponded to the acquisition of internationally certified qualifications, multimedia, internet information security, internet company foundation, transfer education, and SOHO (small office and home office). The average employment rate of trainees completing the courses was 52 percent. Second, the Unemployed Vocational Training Program (1999-2000), which was managed by the Ministry of Labor, was also noteworthy. The training courses were separated into electronics training and information and communication training.

Even though workforce training in the IT fields was popular, its effects had been inadequately examined. Only Kim (2002) attempted to evaluate the outcomes in the IT training fields. Even where training periods exceeded six months, IT training was helpful in boosting the probability for obtaining employment by 25%, but was not helpful for gaining higher incomes. In addition, the type of training institutes that finance training costs affected the probability of employment. In particular, IT training in private institutes rather than in public institutes was more favorable for improving employability. Judging from these results, lessons for government's IT training policies can be summarized as follows: (i) concentrating on high-quality training within the given budget is more desirable than expanding the number of trainees in terms of higher employment probability;

(ii) It is desirable that the private sector provides IT training even where the government funds the training costs.

As shown in the above analysis, Korea restored stabilizing employment conditions with the provision of large-scale training programs at the time of the economic crisis in 1997. In particular, the government concentrated on IT training to help resolve the well-educated, young unemployed issues. As a result, the overall re-employment achievements were improved, and the more diversified IT field training programs were provided in the private sector in response to the demand for an advanced workforce in the IT industry. These training programs made significant quantitative and qualitative contributions to Korea becoming a strong IT country.

4.2.2 Skills Development Accounts for the Unemployed

The skills development account is a voucher accorded for the unemployed to select suitable training courses. This account system was established to overcome some hurdles of the traditional training system for the unemployed. Firstly, the traditional training courses offered were supplier-oriented and inflexible. They did not reflect the structural changes in industry, labor markets, and training clients. Secondly, the traditional training courses were offered without cooperative participation of employers, workers' unions, and employment service centers, and therefore were mismatched with the demand of job markets. The skills development account enables the unemployed workers to take initiative in selecting training courses and to receive ample information and counseling from counselors (Ministry of Labor of Korea 2009).

The skills development account system have been implemented sequentially: the trainee's job-search registration, counseling and account opening (employment service center) → training

course selection and training participation (trainee)→ training fee invoice (training institute) → payment and settlement detail transmission (financial institute) → budget execution (government).

The skills development account was opened to the job-seeker during the pilot project in the second half of 2008. Monitoring and training satisfaction surveys on the pilot project showed the intended policy effects: the number of training courses was increased, the length of training courses shortened, and the participants more satisfied with training activity than before.

4.2.3 SMEs Training Consortium

Although the levy-rebate system under the employment insurance system did serve as an effective incentive for job-related skills development, it was unfavorable to SMEs (Ra et al 2006 and Lee 2005). Both large enterprises and SMEs paid training levies, yet a disproportionate share of the rebates went to large enterprises. While 77.6 percent of large enterprises trained 37.5 percent of their total workers, making use of the training-levy rebate incentive system in 2002, only 4.7 percent of SMEs offered training programs to only 4.2 percent of their total workers, receiving the training-levy rebates (Lee 2006). The inequitable situation in the use of training levy-rebate incentives between large enterprises and SMEs implies that financial incentives are either inadequate or they alone may be insufficient for SMEs to undertake training of their workers. Besides the financial incentives, additional actions should have been taken by the government to address the constraints facing SMEs. In this regard, the SMEs training consortium is well known as a best practice in addressing three types of issues (financial, informational, and organizational constraints on training) facing SMEs.

SMEs in collaboration with government and non-governmental organizations undertook a pilot SME training consortiums project in 2001, with successful outcomes. The pilot project focused on SMEs because they were hit hardest by the 1997 Asian crisis, held greater capacity for employment, and had lower productivity. The training consortiums project aimed at preventing further aggravation of unemployment and improving the productivity of SME workers by helping a group of SMEs organize themselves as a training consortium and providing it with training management specialists financed by public funds to relieve the organizational, informational, and technical constraints facing SMEs in training of their workers. The facilitators in organizing SMEs and in training their workers have been employers' organization like the Korea Chamber of Commerce, large enterprises to which SMEs supply goods and services, and training institutions located near the SMEs. There were six consortiums in 2001 (with 1,029 member SMEs and 4,000 workers trained), but they increased to 69 consortiums in 2007 (with 134,000 member SMEs and 295,000 workers trained).

4.2.4 Training Programs for Non-Regular Workers

Non-regular workers generally refer to non-typical workers including temporary or fixed-term workers, casual workers, dispatched workers, commissioned workers, and call-based workers. The proportion of non-regular workers in Korea was 35.5 percent in August 2006, significantly higher than other major advanced countries. Both the relative and absolute size has increased significantly since the 1997 economic crisis. It has recently retreated in the past three years but remains at around 5.4 million workers.

Within the current skills development system, non-regular workers receive special treatments in three training programs: support for taking external training courses, and the skills development card system.

Firstly, Under the Employment Insurance Act, some workers attending external institutional courses are eligible to receive reimbursement of the training fees up to 80 percent within the limit of the unit occupational training costs as announced by the government. However, non-regular workers are reimbursed at 100 percent of the training fees.

Secondly, since the end of 2006, non-regular workers can receive a skills development card from an employment service center and use the card for government-approved external training courses without prepaying the training fees. The government then pays directly to the external training institute upon completion of the training courses. The amount of training fees to be covered by the card is limited to 3 million Won during the five-year period. For non-regular workers' easy access to external training courses, the government has approved and promoted training courses by e-learning. In 2007, about 5,000 persons opened the account, but only some 500 workers completed training courses.

As described above, non-regular workers enjoy some preferential treatment in training. However, the gap between regular and non-regular workers in skills development needs to be narrowed further. Impediments to skills development by non-regular workers remain. Firstly, there is difficulty of non-regular workers' access to skills development training. Those non-regular workers who are excluded from the EI system are also excluded from training and even those non-regular workers covered by the EI system have limited access to training due to difficulties in securing

adequate time for training, training expense burdens, and access to the training facilities. Secondly, there are employers who are reluctant to invest in training of these non-regular workers due to the fear that they may leave the enterprise after skills development training. Lastly, there are no bright prospects for career development since skills development programs are often disassociated with changes in status or compensation within the enterprise.

4.2.5 Training Programs for the Aged

The scope of the term “aged” varies from 50 and above to 65 and above, depending on specific laws and regulations. The percentage of employed persons over 65 years of age among the entire work force was 5.9 percent in 2005 and 6.2 percent in 2006. The percentage of the employed workers over 55 years among the permanent work force was 4.9 percent in 2005 and 5.5 percent in 2006. These figures can be explained by the older worker’s difficulties in adapting to new technology, human resource management, declining productivity, and weak physical function. On the other hand, training opportunities for the aged are insufficient, and employment of the aged is not endorsed due to rigid work environment policies.

Preferred training fee levels for the aged are available as part of the training programs for the unemployed workers in general. In addition, there are training programs exclusively for the aged. For the aged only, there are two training programs: one is offered by the Ministry of Labor, and the other is provided by local governments.

The Ministry of Labor, through commissions with the Human Resources Development Service (HRDS) of Korea, provide short term (less than one month) training courses for women and the old aged and then facilitate their employment. The HRDS annually selects training institutions through

competition among social welfare organizations, public and recognized private training institutions, non-profit organizations or associations. In 2007, selected training institutions were 137, offering 47 different courses for 2,900 workers. Training courses cover the minimal skills needed for employment, industrial safety and hygiene, sound work ethics, and safety (4 hours a day, 20 hours a week).

The local governments finance training courses offered for the aged by the Training and Employment Centers for the Aged, which is the first institution dedicated exclusively to training of the aged in Korea

4.2.6 Training Programs for the Self-Employed Poor Workers

Compared with other advanced countries, the percentage of self-employed entrepreneurs has been quite high in Korea, increasing rapidly in particular since the economic crisis in the mid-1990s. In 2005, self-employed and non-paid family workers accounted for 35% of the labor force. In addition, their average monthly income has been falling, and the total number of self-employed with limited access to social safety nets has been on the rise. To compound the problem, the self-employed tend to be aged and have a low level of academic background.

Given that the problems associated with self-employed entrepreneurs have recently emerged as a social issue and skills development training is mobilized as a means of assisting the vulnerable groups, the self-employed poor workers has also drawn attention. Currently, special training services are provided for 2,500 self-employed entrepreneurs, whose earning is less than 48 million won per year or who have been confirmed to receive a credit rating recovery support.

4.2.7 Training Programs for Unemployed Female Household Heads

Skills training for unemployed female household heads was initially provided for the short term and in simple occupational groups. However, since 2002, the training period has been extended up to one year, and training has covered professional occupations as well. As a result, 1,985 female household heads were trained in 2005 with a 3.4 billion won investment. Of the women trained, 722 were employed, an employment rate of 42.3 percent.

For each woman trainee, a training allowance of approximately 400,000-500,000 Won was provided, including allowances for transportation, meals, household subsidies for the trainee and for each family member (limited to three members).

4.2.8 Training Programs for Self-Support

Self-support training is designed for the beneficiaries as defined in the National Basic Livelihood Security Act. The Minister of Labor carries out this vocational training program to increase the will to work and employment competencies. The applicants must have registered as job seekers and have gone through vocational adaptation training. And trainees are chosen based on their willingness to be trained and their aptitude.

With regard to selected training institutions, they should have over three years of education and training experience in the same or similar fields. Training courses must be approved by the Ministry of Labor as suitable for wage employment and self employment, and the duration of training can run from one month to one year. Trainees can attend the training courses up to three

times. Again, the state pays the entirety of training, inclusive of a training allowance, transportation, meals, etc.

Since 2003 the rate of self-support upon completion of the training program has been on the rise, however, it needs to be improved further. In 2006, among 3,509 persons who completed the training program, 854 persons (24.3 percent) became successfully self-supportive.

4.2.9 Regional Unemployment Training Program

The regional unemployment training program (formerly called 'the employment promotion training program') is provided for those who are not covered by the Employment Insurance Act, poor farmers and fishermen, youth, and others who need employment support. This training program is operated by local governments with their own resources and through training institutions commissioned by the city or provincial government. Trainees must register with employment service centers first and then apply for training at the local government with which they have official residence. Training allowances are provided for training participants. In 2007, some 4,400 persons benefited from this training program.

V. MAIN LESSONS LEARNED

The lessons learned from the Korean skills development experience are as follows:

First, Korea found the rationale for **government intervention in the training market** in its imperfection: i.e., market failure. The government tried to overcome the skills shortage in the labor market with various training policies and programs adjusting to the different stage of the economic development period (1960-1990). The government's training policies and programs played an important role to support macro-economic policies and made effective contributions to the high economic growth rates. This supportive role of the training policy underscores the importance of the demand-driven nature of the training policies and programs. The demands for skilled human resources, which were generated by the high levels of savings and investments of the Korean economy, were effectively met by the government interventions in the training market. The logic was not the other way around; i.e., it was not the government interventions in training market that generated demands for human resources and created job opportunities. In this sense, the recent expansion of the training programs for the disadvantaged groups should be rigorously evaluated.

Second, **the respective roles of the government and the private sector** must be determined in the context of the development stage of each individual country. The government led skills development planning, financing, and regulation at an early development stage, in particular for pre-service training for the new recruits. However, the government gradually increased the involvement of the private sector in the later stages, especially in providing in-service training for incumbent workers. The Korean case shows that the public and private sectors each can have a useful division of labor in planning/financing/regulation on the one hand and provision and

delivery of training services on the other hand. It also shows that vocational education and training (VET) policies should be designed and implemented with careful consideration of the development stage and industrial environment.

Third, it is necessary to establish **complementarities between formal pre-employment vocational education and non-formal targeted vocational training programs**. In Korea's case, these two tracks were developed in a complementary fashion. Investment in both tracks is essential to address various skills needs and minimize the gap between supply and demand of the skilled human resources. However, in those countries with a weak educational development and industrial base, more emphasis should be placed on basic education rather than vocational education and training (VET) since VET is more effective in countries with a broad attainment of basic education and growing industrial sectors.

Fourth, **training sectors must constantly be adjusted to meet new industrial needs.** In Korea, while public training institutes managed training for commonly demanded occupations, training for specific occupations or those requiring expensive facilities were encouraged to be undertaken by enterprise-based institutes. Furthermore, yearly trends in the number of trained persons by occupation reflect changes in Korea's industrial demand. The increase in the number of training fields also implies Korea's industrial diversification throughout its development process.

Fifth**, appropriate financing mechanisms** to support skills development must be aligned with the respective stage of economic development. In 1967, Korea introduced a direct training subsidy system, which was replaced by a compulsory training obligation in 1974, followed by the training levy option system in 1976. It was then followed by a training levy-rebate incentive scheme under

the Employment Insurance (EI) System in 1995. Moreover, the establishment of public training institutes was financed by loans from IBRD, ADB, and other industrialized countries in the 1970's and 1980's.

Sixth, the **National Qualifications System**, which plays a critical role of signaling in the labor market, is an indispensable mechanism in effectively managing the training programs and the trained workforce, and improving employment service and stability. Korea adopted a national qualifications scheme together with the vocational training policy, which mandated and standardized vocational training evaluations.

Seventh, when a country reaches a certain level of development, it is recommended that **decentralized, independent vocational training management organizations** be established to allow for increased flexibility in the creation and operation of training programs. In Korea, the administration of skills development moved from direct government management to an independent entity under the name of 'Korea Vocational Training Management Agency' in 1982. Since then, the public training institutes have been constantly reorganized as part of a decentralized and semi-independent organization to meet the needs for the highly skilled trainees and technicians.

Eighth, since the 1997 Asian financial crisis, increased focus has been placed on **skills development for reduction in poverty and inequality.** These programs target the disadvantaged, such as the unemployed, employees of SMEs, the aged, non-regular employees, and poor female workers. These training programs play an active role in reintegrating the disadvantaged back into the labor market.

Finally, **skills development policy development, labor market surveys, training programs evaluation, and research and development (R&D)** cannot be overlooked when examining ways to support the uninterrupted skills development. The labor market surveys and training programs evaluation have become increasingly important since the demand and supply of skilled and technical human resources have been severely affected by the fast pace of IT technology development, globalization, and knowledge-based economies. The changes in the labor market should be monitored and analyzed more frequently and systematically, and the effects of training programs evaluated rigorously.

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Summary Findings

Korea's skills development strategy has been highlighted as one of the key driving forces of the country's economic development. This paper examines the main features and evolution of this strategy from the 1960s to the present. In particular, it discusses how the skills development policies have contributed to economic development and poverty reduction. The findings in the paper highlight a set of important lessons for the design and implementation of skills development policies, which could be useful for other developing countries.

HUMAN DEVELOPMENT NETWORK