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ABSTRACT

Korea must develop a new policy framework to sustain its economic development. Democratic principles, such as voluntary participation and creative initiatives by the private sector, should replace government guidance and control as the economy's engine of growth. Major goals of the new economy are as follows: promotion of industrial structural adjustment; establishment of rules for fair competition; promotion of technology development; development of the information industry; development of small and medium-sized firms; development of the agricultural and fishery sectors; reform of vocational education and labor relations; and efficient use of energy and resources. The vocational system training has been shaped and initiated mainly by the government as part of outward-looking economic development strategy. As the Korean economy has grown and undergone structural change, the demand for authorized vocational training has increased. Issues include entry workers without proper vocational qualifications, significant change in the gender of the work force, and few opportunities for vocational training for the handicapped. Future policies need to address the lack of skilled workers and human resource development that reflects individual needs. Strategies to reform the vocational training system include establishment of a technician training system, a career education system, modular instruction, a dual system in technical high school education, and school-industry cooperation. (YLB)

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CASE STUDIES ON TECHNICAL AND VOCATIONAL EDUCATION IN ASIA AND THE PACIFIC

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CASE STUDIES ON TECHNICAL AND VOCATIONAL EDUCATION IN ASIA AND THE PACIFIC

*The Role and Function of the Vocational Education and
Training in the New Economic Plan in Korea*

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1. INTRODUCTION

A country like Korea, whose economic system is mainly dependent on international trade, requires technological development in order to survive against the serious international competition of the world market. Technological development in Korea is producing significant changes in the nature of works. From the 1960s till the early 1970s, the number of skilled workers among total workers, had increased as much as twice (from 14.9 per cent to 28.2 per cent) and many jobs of technician level has increased in 1990s. Also, as shown in Figure 1, the nature of the nation's industry has been changed from "labour intensive" to "technology intensive", which demands more technicians and technologists.

With these changes in the nature of work caused by technological development, the roles and functions of the vocational education and training including the objectives, system, types of programs, content of curriculum, should be deorganised considering the social economic perspective.

This study attempts to discuss the characteristics of the vocational training system and the backgrounds of the New Economic Plan in Korea to identify the roles, functions, and problems of the vocational training, and to draw out the policy issues, and to introduce the government's reform plan.

Figure 1
Changes in Manpower Structure by Technological Development

	Prior to '65	'65 - '85	'85 - 2000	2000 -
Technology level	Primitive Stage	Import and revision of technology from the advanced countries	Independent development of technology	Export of Technology
Type of Industry	Handicraft Manufacturing	Labor intensive-industry	Technology-intensive industry	Science & information-intensive industry
Education Level by Manpower Spectrum	<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Scientist</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Engineer</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Skilled man</div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Scientist</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Engineer</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Technician</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Skilled Man</div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Scientist</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Engineer</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Technologist</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Technician</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Skilled Man</div> </div>	<div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Scientist</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Engineer</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Technologist & Technician</div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">Skilled Man</div> </div>
<i>graduate school</i>				
<i>college (4 Year)</i>				
<i>junior college</i>				
<i>vocational high school & VTI</i>				

• Source: Ministry of Labor (1993)

2. KOREA'S FIVE-YEAR PLAN FOR THE NEW ECONOMY (1993-1997)

2.1 KOREA'S ECONOMY : PAST AND PRESENT

Korea's rapid economic growth over the past few decades was propelled by a government-led development strategy under an authoritarian political regime. Unrelenting efforts to guide and control the economy, including the mobilisation of human and other resources in targeted sectors, were made by the government. As it expanded, the economy's structure grew increasingly complex and this, combined with the progression of political democratisation, rendered the government's strategy ineffective. Moreover, Korea's economic dynamism tapered off significantly during the late 1980s as the work ethic withered among workers and entrepreneurs. This negative trend resulted from the explosion of pent-up demand in all sectors of society, as well as the proliferation of the so-called "collective egoism" exercised by many interest groups, which was nurtured by Korea's rapid democratisation process.

Economic problems soon arose in the form of a deteriorating balance of payments and inflation. The current-account balance reverted to deficit beginning in 1990 and 1991. Furthermore, the GNP growth rate dropped to 4.7 per cent in 1992, showing only a 3.0 per cent growth rate during the second half of 1992, the lowest figure since the first quarter of 1980. Such statistics show cause for serious concern among policy makers and the general public alike, who fear that Korea's economy has lost the dynamism that once fuelled its rapid growth.

Meanwhile, changes in the domestic and international environment have created additional difficulties for the Korean economy. Currently, Korea seems to be trapped between certain developed countries, which are trying to maintain their economic superiority, and other developing countries, which are rapidly closing in on Korea. Moreover, Korea has sought the arduous task of simultaneously pursuing developed economy status, while preparing for future reunification.

2.2 NEW DIRECTION OF THE ECONOMIC POLICY

Korea must develop a new policy framework to sustain its economic development. To do so, democratic principles, such as voluntary participation and creative initiatives by the private sector, should replace government guidance and control as the economy's engine of growth. The fundamental purpose of the New Economy is twofold. First, strong work incentives must be evenly shared. Second, the simultaneous pursuit of economic development and democracy through voluntary participation and creative initiatives of the Korean people must be encouraged.

To this end, the new administration will implement institutional reforms and attempt to establish a new pattern of economic behaviour, led by a strong democratic leadership. Such reforms aim to encourage voluntary participation and creative initiatives of Korea's citizens in all economic activities. Reform, via various policy measures, will attempt to achieve three basic goals:

- (i) securing Korea's citizens in all economic activities. Reform, via various policy measures, will attempt to achieve three basic goals.
- (ii) expanding its foreign market and strengthening internationalisation, and
- (iii) improving the nation's standard of living.

The economic reforms aim to abolish unnecessary regulations and restrictions limiting economic activities and to fairly reward its citizens for their hard work. Institutional reform of the fiscal system, the financial sector and administrative regulations will be implemented to ensure fair competition, autonomy, and economic fairness. In addition, a national campaign will be launched to revamp professionalism and high ethical standards among the Korean people, encouraging them to voluntarily participate and actively exercise their creative abilities as economic agents.

2.3 MAJOR GOALS OF THE NEW ECONOMY

2.3.1 PROMOTION OF INDUSTRIAL STRUCTURAL ADJUSTMENT

- Expanding investments in R & D and new equipment in high-tech industries, rationalising industries undergoing structural adjustment.
- Developing industry-specific strategic technologies and encouraging knowledge-intensive service industries, such as design and engineering services, which will contribute to developing technology and knowledge intensive industries.
- Encouraging large conglomerates to specialise in a narrower range of businesses to become "most competitive" global enterprises.
- Reforming the industrial policy - making system; that is, close cooperative methods will be used between the private and government sectors to prepare blueprints and strategies for industrial development.

2.3.2 ESTABLISHMENT OF RULES FOR FAIR COMPETITION

Reducing the Concentration of Economic Power

- Lowering limits on the size of cross-guarantees on debt repayment and the number of cases of inter-firm equity investment in each of Korea's thirty largest conglomerates.
- Revising the criteria for limits to be designated as "large conglomerates" by considering the number of affiliated companies, the structure of ownership shares, as well as the total volume of assets.

Innovative Management Strategy to Strengthen Competitiveness

- Encouraging public stock offerings to disperse ownership and reduce the limit of nonvoting stock issues from a half to a quarter of the total issued stock.
- Eliminating the accounting practice of treating interest payments as pecuniary losses and strengthening regulations on provisional payments to improve the financial position of firms.
- Expanding the range of corporations required to draw up consolidated financial statements to increase transparency in business management.

2.3.3 PROMOTION OF TECHNOLOGY DEVELOPMENT

- Supporting the private sector's R & D efforts and expanding personnel and scientific information services to make technology more innovative.
- Making government-funded research institutes highly specialised and task-oriented, and supporting private firm's efforts to initiate joint-research with such institutes, universities, and other private firms for more efficient technological development.
- Increasing investments in R & D to 3 - 4 per cent of the GNP by 1998 and efficiently initiating government R & D projects.

2.3.4 DEVELOPMENT OF THE INFORMATION INDUSTRY

- Upgrading strategic information industries that include sub miniature personal computers, multimedia, next-generation switching systems, and technologies, which will help Korea's competitiveness in the near future.

- Accelerating computerisation in the public sector by constructing a second-stage national information network and promoting a local information network.
- Constructing an information network for trading and distribution services and supporting the computerisation of small and medium-sized firms.

2.3.5 DEVELOPMENT OF SMALL AND MEDIUM-SIZED FIRMS

- Fostering technical assistance programs to secure technological capabilities and expanding joint research projects among private firms, universities, and research institutes, while continuously pursuing structural adjustment programs.
 - Encouraging cooperation within the private sector to strengthen ties between large firms and small and medium-sized firms.
 - Assisting local small and medium-sized firms to take advantage of indigenous specialities, while enhancing the role of local governments.
 - Improving, in stages, regulations limiting fair competition, such as "business categories exclusively reserved for small and medium-sized firms", and integrating and simplifying supportive systems to prepare for market opening.

2.3.6 DEVELOPMENT OF THE AGRICULTURAL AND FISHERY SECTORS

- Changing traditional policies of the agricultural, forestry, and fishery sectors from output expansion or price supporting policies to restructuring policies to improve competitiveness of these sectors, and rearranging the priorities of fiscal investments to restructure rural areas.
 - Lowering production costs of rice through mass-production and mechanisation.
 - Encouraging farmers to specialise in raising livestock and to improve the quality of livestock products.
 - Developing special farming complexes for fruits, vegetables and flowers, along with the automation and modernisation of facilities.
 - Encouraging fish farming and the efficient use of forest land.
 - Educating the agricultural workforce and supporting R & D for discovery of innovative technology.
- Encouraging participation and creative initiatives of associations of producers in production and distribution areas.
 - Independently operating the central administrations of the National Agricultural, Fishery and Livestock Cooperative Federations by separating credit allocations.
 - Encouraging economic activities by the National Agriculture, Fishery and Livestock Cooperative Federations, such as production, sales, and processing of food products.
 - Strengthening government support so that local producers in farming areas head distribution of specific products.
 - Establishing the principle of fair trade by expanding distribution facilities in production areas, certifying product quality and shipping standardised products.
 - Establishing and utilising information networks in the agricultural, forestry, and fishery industries.

- Improving the overall living conditions and welfare of the agricultural and fishing sectors.
 - Improving the overall welfare of agricultural and fishing areas; that is, improving the living environment and enhancing the income base.
 - Enlarging non-farming income sources by making the most of indigenous advantages, marginal arable land resources.
 - Revitalising agricultural and fishing villages by making effective investments in the agricultural and fishing industries and reforming the farmland system.

2.3.7 REFORM OF VOCATIONAL EDUCATION AND LABOUR RELATIONS

- Expanding vocational high schools to secure a skilled labour force.
- Transforming public training centres into "skill-colleges" to supply skilled technicians and establishing "institutes of technology" to nurture professional engineers.
- Fostering productive labour relations by carefully considering industrial realities and employer/employee relations.
- Enhancing the welfare of employees by providing housing subsidies, adequate preventive measures from and compensation for injury resulting from industrial hazards.
- Introducing an employment insurance systems in 1995 to stabilise the turnout of the workforce and workers' standard of living.

2.3.8 EXPANSION OF SOC AND REFORM OF THE DISTRIBUTION SYSTEM

- Increasing financing for social overhead capital (SOC) through bond issues, private investments, readjustment of usage fees, and raising priorities in fiscal expenditures.
- Increasing the efficiency of infrastructure investment by dividing up uses of transportation, such as roads, railways, seaports and airports, and constructing a comprehensive transportation system.
- Improving distribution networks by constructing distribution centres, and accelerating computerisation by developing EDI (Electronic Data Interchange) national standards.
- Strengthening competitiveness by relaxing regulations in the distribution sector.

2.3.9 EFFICIENT USE OF ENERGY AND RESOURCES

- Increasing energy efficiency of economic and industrial structures by using efficient technology and substituting chemical energy, and making efforts to reduce the energy consumption rate below the GNP growth rate.
- Lowering entry barriers for energy-related industries and enhancing the market mechanism in determining energy prices.

2.4 VISION OF KOREA'S FUTURE ECONOMY

The New Economy can be achieved only if the Korean people are willing to voluntarily participate and take creative initiatives in economic activities. With successful implementation of the Five-Year Plan, the Korean economy will become:

- (i) a "Healthy Economy", with strong competitiveness
- (ii) a "Just Economy", in which efforts are always fairly rewarded, and
- (iii) a "Forward-looking Economy", that anticipates future global changes and prepares for future unification of Korea.

During the five year period of the new economic plan, along with newly advanced economic institutions and a new pattern of economic behaviour, all Koreans will share the burdens, as well as the fruits, of economic progress, thereby achieving:

- (i) a sustained average annual growth rate of 7 per cent
- (ii) a per capita GNP of US \$14 000 by 1998
- (iii) a balance of payments surplus by 1995, thereby becoming a new creditor nation and
- (iv) economic stability with an inflation rate of 3 per cent (consumer price index).

As Korea's economy begins to show sustained growth, not all will the quality of life for Koreans improve, but the foundation for Korean unification will be prepared as Korea's status in the international economy improves. Social stability will be assured with improvements in overall living conditions, including housing, environmental protection, transportation and social security. Furthermore, its improved status, that is, internalisation of the economy and sustained economic growth, will lead the Korean economy into the circle of advanced countries of the OECD. Finally, as its foundation for unification is solidified, Korea will make great strides in its South-North relations, moving all the more rapidly towards unification.

3. STATUS OF VOCATIONAL EDUCATION AND TRAINING IN KOREA

3.1 EDUCATION SYSTEM

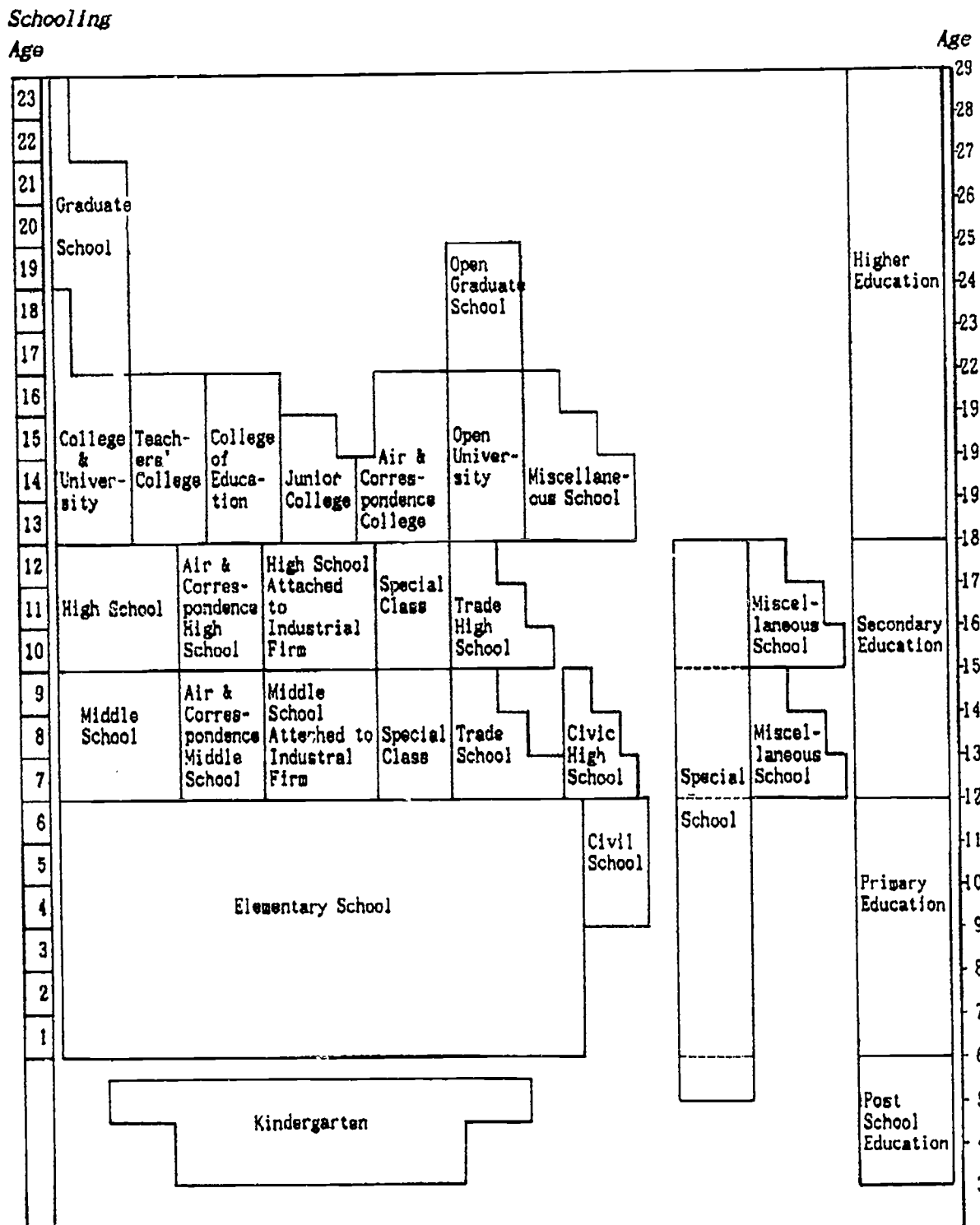
Educational system in Korea principally is a single track system, but shows a very complicated structure. As shown in Figure 2, vocational high schools belong to the main system, but they, in an actual sense, are more associated with the supplementary system including air and correspondence university, open university, and so on.

Until now, vocational high schools have played a role of the terminal education in terms of its function to educate and train skilled manpower. Schools such as civic school, trade school, attached school or class to company, vocational high school, air and correspondence university and open university principally function as vocational education institutions regardless of whether each of them belongs to the main system or not. These kinds of vocational education institution have been established and operated in order to meet the social-political demands as the supplementary part of the main system.

Thus it can be said that vocational education is planned mainly for supplementing the main system centred on general education.

However, as is the case with the educational system of many countries in Europe, vocational education should keep its own logic and system as an educational system for general population, which is compatible with general education. Nevertheless, vocational education in Korea is not established as a main track, but it is operated as a sporadically, temporary, or subsidiary system. Majority of students take it for granted that they enter college or university by taking courses of general education. Hence, the point is that our educational system itself even appears to orient students toward colleges or universities. On the contrary, vocational education institutions are planned and actually recognised as dead end schools which minority of students dropping out of the main track unwillingly enter.

Figure 2
School System in Korea (1993)



*Source : MOE, Statistical Yearbook of Education, 1994

Vocational high schools are operated as vocational education institutions with an idea of terminal education to admit the students who failed in entering general high schools. Two-year professional colleges and open universities are also vocational education institutions to admit those who failed in entering four-year colleges or universities. However, no formal connection between vocational education levels, e.g. from vocational high school to two-year professional college and from two-year professional college to open university, is established in the present vocational education system. This means that the present educational system fails to establish a continued track in the case of vocational education.

As mentioned above, vocational education institutions are not planned to maintain the consistency and connection between school levels, but operated as only supplementary to the main system centred on general education. Hence they not only tend to be avoided by people who want to pursue continuing education, but also fall down to institutions which are incapable of coping with the demand for manpower in order to facilitate the industrial development. This is because vocational education institutions including vocational high schools do not operate an open education system to meet the needs and conditions of learners within the whole vocational education system which enables workers to pursue continuing education.

In fact, vocational education institutions including vocational high schools make it impossible for workers to pursue continuing education in the sense that they do not keep any consistency and connection between vocational school levels. This is why most students take it for granted to enter college or university through general education and also look down upon vocational education. The problems of vocational education institutions can be also found in the fact that they fail to function as the open education system which makes it possible to flexibly cope with the needs of learners. They also do not provide learners with various types of programs in various teaching methods so as to satisfy the needs of learners. Similarly to discipline-centred schools, vocational education institutions show very traditional and inflexible style of administration, and thus they have trouble in satisfying the workers' demands for continuing education.

3.2 VOCATIONAL TRAINING SYSTEM

In Korea, vocational training system has been shaped and initiated mainly by the government as part of outward-looking economic development strategy. The development of vocational training in Korea can be characterised as 'government-led', compared with that of most European countries, where vocational training system has been developed from the traditions of apprenticeship in the private sector from medieval times.

During the course of designing the Second Five-Year Economic Development Plan, it became apparent that skill shortages would become a major bottleneck for the industrialisation. To meet the future demand of the manpower for the planned economic growth, the system of public vocational training was founded with the enactment of the Vocational Training Law in 1967.

In 1968, the Central Vocational Training Institute was established to train vocational training instructors with the support of the UNDP/ILO. Thereafter, the government built public vocational training centres with assistance from various international organisations and advanced countries through multilateral, bilateral agreement and international bank loan project. Most of these public vocational training centres were very well equipped with the training standards of advanced countries.

In the mid-1970s, the Korean government launched ambitious programs to develop heavy and chemical industries. As shortages for the skilled workers became an acute problem, the government found that public vocational training centres alone were not enough to meet the rising demands and that the participation of private enterprises in vocational training was necessitated.

With the enactment of the Basic Law for Vocational Training, the government began requiring private enterprises of certain industries with 300 (now 150) or more permanent workers to spend on training a sum in proportion to the number of workers (now, equal to a percentage of the wage bill). For the noncompliant firms, the government imposed training levies to be spent in promoting the vocational training as part of the Vocational Training Promotion Fund.

Since 1976, the framework of vocational training has been maintained with no major changes. Under the framework, vocational training has been classified into three different types : public vocational training, in-plant vocational training and authorised vocational training.

Public vocational training is conducted by Korea Manpower Agency (KOMA), central government or local autonomous bodies. In 1982, the Korea Vocational Training and Management Agency (now, KOMA) was established, incorporating the Central Vocational Training Institute, 24 public vocational training centres, a Industrial Masters' college, a Research Institute and a Technical Qualification Testing Agency. In 1991, KOMA had 35 vocational training institutes. The other public vocational training institutes have been run by the central government for prisoners, or by local autonomous bodies for farmers, women, etc.

In-plant vocational training is conducted by private firms covered by the training levy systems. In 1992, there are 3 417 establishments that are obliged to spend on vocational training a sum equal to a per centage (from 0.1 per cent to 0.9 per cent) of the wage bill. They belong to firms with 150 or more permanent workers, in mining, manufacturing, construction, utility, transportation, communications and warehousing and services. Amongst these 3 417 establishments, 551 are participating in training activities in 296 in-plant training centres.

Authorised vocational training refers to training conducted with the approval of the Ministry of Labour. In 1992, there are 10 authorised vocational training centres by social welfare corporations, 15 centres by non profit corporations and 67 centres by individuals.

The vocational training can be also classified by method.

The formal training is conducted in formal training facilities, the on-the-job training utilises production facilities of industry and the cooperative training is conducted jointly in the training institution and manufacturing line of industry. The cooperative training aiming to acquire theoretical knowledge from training institutes and practical experience from production facilities of industry is an ideal means of training to tackle with technological changes and to settle the harmonised training for the purpose of attaining new technology. Government made continuous study and placed high emphasis on the cooperative training system in order for the system to carry into effect.

Vocational training courses consist of four different patterns as follows: regular training, upgrading training, retraining and transfer training as shown in Figure 3. Regular training is designed to learn basic job performing capability needed for profession and duration of training is from one to three years.

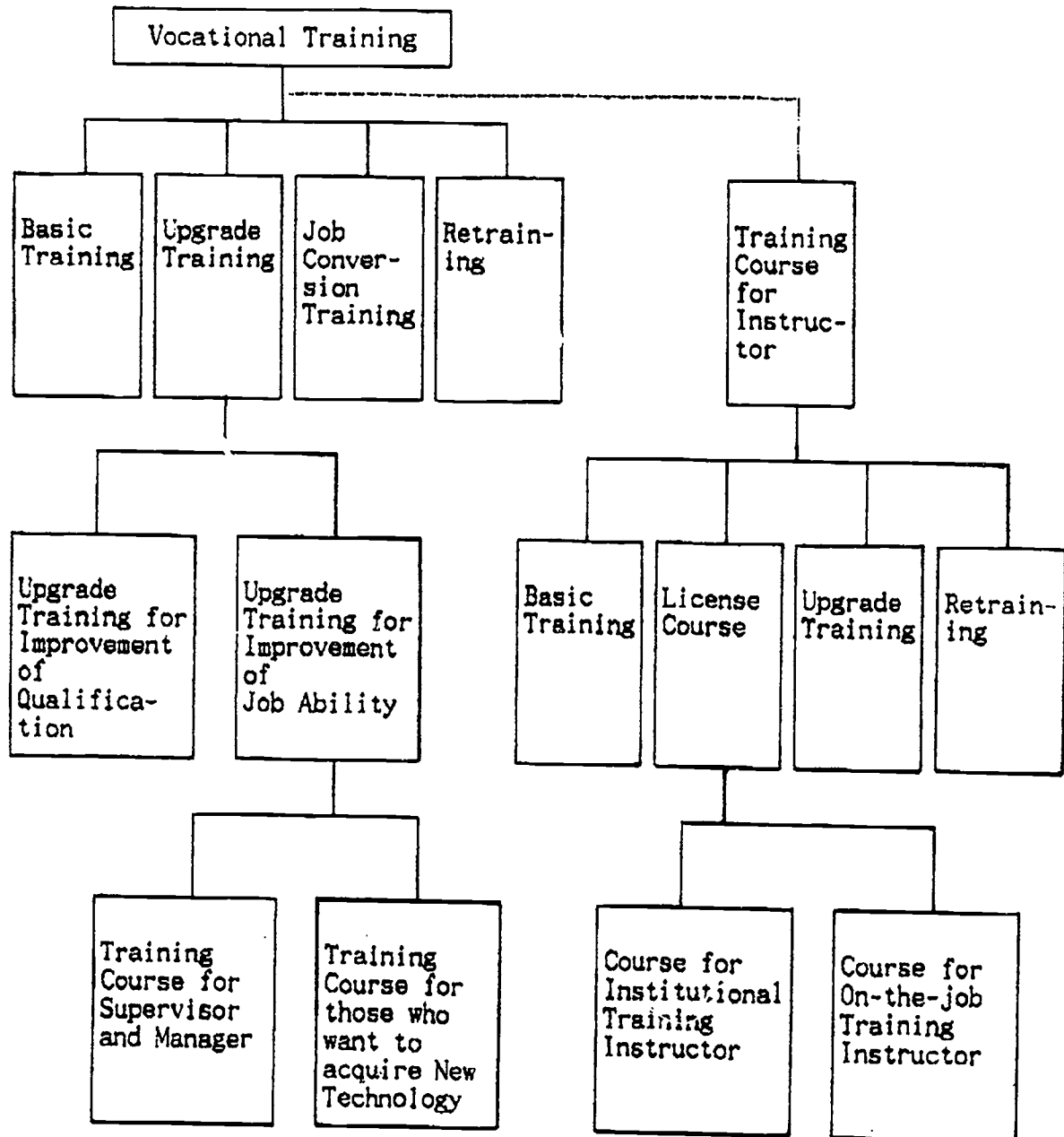
Upgrading training is conducted for those who completed regular training courses or who possess basic job performing capability. The training is provided to upgrade their skills and it is further divided into qualification acquisition upgrading training and job capability upgrading training. Qualification acquisition upgrading training is open to craftsman licensed in accordance with the National Technical Qualification Act and give them a higher level of skill knowledge to upgrade their qualification grade. The duration of course is more than four weeks.

Job capability upgrading training is designed to cover workers to acquire new skills and additional job performing capabilities. The duration of course is more than three days.

Through transfer training, participants are learning job performing capability needed for a new profession. The course is given to those who left a certain occupation or who wish to switch a job and the duration of course is more than four weeks.

Retraining is an additional supplementary course given to those who have more than one year practical experience with the same trade and the duration of course is more than one week.

Figure 3
Classification of Training Course



* Source: Ministry of Labor (1993)

4. CONTRIBUTION OF VOCATIONAL TRAINING TO THE FAST GROWING ECONOMY

For 25 years since 1967 when the Vocational Training Law was enacted, the Korean economy saw an extraordinary economic growth and structural change. Between 1967 and 1991, real per capita GNP in Korea increased more than tripled. This expansion was also accompanied by structural changes of the Korean labour market from a largely rural base to one in which manufacturing's share of total employment is 25 per cent, which is higher than that of the US. and Japan. This fast growing economy has set the most important part of the roles of vocational training in Korea.

The number of workers that have been trained in vocational training centres during 25 years between 1967 and 1991 are estimated to be 1.6 million workers, 30.5 per cent have been trained in public training centres, 54.2 per cent in in-plant training centres, and 15.3 per cent in authorised training centres.

In terms of the quality of vocational training, public training centres have been by far superior to in-plant training centres. In Korea, skill levels are classified by the government into four categories : Master Craftsman, Class I Craftsman, Class II Craftsman and Assistant Craftsman. From public training centres in 1979, 38 per cent got to be Class II Craftsman and 62 per cent became Assistant Craftsman. On the other hand, only 2 per cent were Class I Craftsman and 98 per cent were Assistant Craftsman from in-plant training centres at the same year. In 1991, from public training centres, 24 per cent were Class I Craftsman, 46 per cent were Class II Craftsman, and 30 per cent were Assistant 2 Craftsman, whereas, from in-plant training centres, only 5 per cent were Class II Craftsman and 95 per cent were Assistant Craftsman.

Training courses of public training centres have also been quite different from those of in-plant training centres. Public training centres have concentrated on machinery and electricity, where better quality of training in a longer training period is needed. On the other hand, in-plant training centres have given training in various fields, such as textiles, transportation and heavy equipment, construction and wood working, electronics and communication.

Among those who graduated from public training centres under KOMA between 1979 and 1991, 69 per cent have received training in the field of mechanical and 13 per cent in the field of electrical. More specifically, lathe, machine fitting, electric welding, electric apparatus, electronic equipment have been courses with most students in public training centres under KOMA in 1991. For the period from 1979 to 1991, training fields of in-plant training centres have been: textile for 21 per cent of students, machinery for 19 per cent, transportation and heavy equipment for 16 per cent, construction and wood working for 14 per cent, electronics and communication for 10 per cent.

Even in the same field, public training centres have provided the higher skill level training. In the field of textile, for example, most in-plant training centres have trained workers on spinning, weaving machine control, sewing, textile fabrics finishing for three or six months, while public training centres have provided one or two year courses for textile machine maintenance or dyeing. In the field of electronics, courses of public training centres have been mostly on electronic equipment and industrial electronics for one or two years, while in-plant training centres have had courses mainly on electronic equipment assembly and semiconductor assembly for three or six months.

The fact that the quality of public vocational training has been higher than that of in-plant vocational training confirms the strong roles of the government in Korean vocational training. On the other hand, the roles of enterprises in Korean vocational training have been passive and limited. Without actively participating in vocational training, most Korean enterprises relied on the manpower educated and trained by the government. In 1992, among 3 417 establishments covered by the training levy system, 551 (16 per cent) establishment, participated in training activities and only 289 (8.5 per cent) did not pay training levies. The ratio of actual participants to establishments subject to a training levy has steadily decreased since 1977.

One of the reasons why the majority of Korean enterprises chose to pay levy over actual training is because there were too many regulations by the government. To get exempt from training levy, enterprises had to follow numerous rules on training facilities, trainers, training texts, and curriculums. The governmental regulations went so far as very detailed standards on the size of class rooms, and sometimes outdated training equipment had to be installed against the needs of the enterprises because of the rigid regulations by the government. In addition, most enterprises participating in training could only get partial exemption of actual training costs because the training levy was charged very strictly according to the standard training costs fixed by the government.

Another reason for the low participation rate of the enterprises in vocational training was that most Korean enterprises did not recognise the need for in-plant training. Korean industries were concentrated on products which required basically low skills and most Korean enterprises showed comparative advantages in standardised, price sensitive products, rather than high skill and high value added products. Therefore, managers of Korean enterprises tended to treat vocational training as mere operating expenses and failed to incorporate training into the enterprises overall competitive strategy.

The strong leadership of the government and its strict regulations over enterprises in vocational training worked in some way especially during the 1970s. After the government declared in 1973 that Korean industries should be restructured toward heavy and chemical industries, it pursued strong industrial policies based on financial subsidies and tax incentives. In the mid 1970s, skilled workers trained directly by the government or under its strong regulations made positive contributions in newly rising industries.

However, as the Korean economy made very fast growth and underwent structural changes, the roles of vocational training needed to be changed. The ongoing industrial restructuring began with the political liberalisation in 1987. After the surge of labour disputes in 1987 and 1988, the annual nominal wage growth rates have been around 20 per cent, much higher than 8.7 per cent of 1982-86 average. Along with the soaring wage increases, labour shortages have also deepened as the size of the economy has grown. Rural migrants and under educated youths, who were once an abundant labour pool for the industry, cannot be a substantial source of labour any more.

Due to the wage hikes and labour shortages, the competitiveness of labour intensive industries in Korea has eroded very rapidly, and many Korean enterprises started to resort to labour saving ways of production and high skills in the workplace. This restructuring from a low skill economy necessitated changes in vocational training.

First of all, more active participation of enterprises in vocational training is required. The training levy has been increased from 0.17 per cent of the wage bill of firms with 300 or more workers in 1987 to 0.62 per cent of the wage bill of firms with 150 or more workers in 1992. From 1992, various restrictions over the in-plant training have been deregulated.

Along with deregulations, the government turned to provide proper infrastructure so that private enterprises make voluntary investments on vocational training. In 1992, Korea Institute of Technology and Education (KITE) was established to produce training instructors through four year courses and to carry out research on vocational training.

Another change in vocational training is that the importance of further training began to be recognised both by the government and private enterprises. It was not until 1986 that upgrade training or retraining was formally recognised as one type of in-plant training by the government. Still, public training centres rarely provide further training. However, the number of workers trained by upgrading or retraining courses in in-plant training centres has increased from 5 300 in 1986 to 56 400 in 1992. This reflects the rising demand for further vocational training of employees in the workshop by private enterprises. The government also removed some restrictions on the training levy over further training.

The demand for authorised vocational training has also increased since 1987. The number of trainees in authorised vocational training centres, especially run by individuals, have catered for the needs of both industry and youths with their marketable training courses on information processing, office automation, and services such as bread making, hair dressing and cooking.

5. CURRENT ISSUES

For the last 30 years, significant changes have taken place in the composition of the labour force in Korea. Above all, Korea has experienced the expansion of education opportunities, as fast as its economic growth. The advancement ratio of elementary school graduates has risen from 54 per cent in 1965 to 99.6 per cent in 1992. For the middle school graduates, the advancement ratio has increased from 59 per cent in 1965 to 96 per cent in 1992. Through this rapid expansion of secondary education, new entrants from elementary or middle schools to the labour force have almost disappeared in the labour market. Until the mid-1970s, the number had been more than 350 000.

This change in education also has strong implications over vocational training that major beneficiaries of vocational training have changed from those who could not advance to the middle school to those who received more than nine years of general education. Among new trainees in public training centres under KOMA, the graduates of the middle school or below turned out to be 66 per cent in 1983 and 13 per cent in 1993.

Along with the expansion of secondary education, those who neither advance to higher education nor be properly prepared for their future job career have increased. Korea has 6-3-3-4 education system same as the US and Japan. High schools are classified into two types : general high school and vocational high school. Vocational high schools, providing vocational education in the areas such as technical, commercial, and agricultural fields, are covering around 35 per cent of the total high school students. In 1992, the number of graduates from high schools who failed college entrance examination reached 200,000. Most of them spend more than one year in preparing for the next examination. However, many end up with entering the labour market without any proper vocational qualifications.

In 1991, to make up for this 'failure of education', the government started special one-year vocational training program provided at vocational training centres for 50,000 general high school senior students. In 1993, the number of general high school students of this special program amounts to 51 per cent of total trainees of public training centres.

The composition of the labour force by gender has also changed significantly in Korea. Especially as labour shortages have escalated from the mid-1980s, the labour force participation rates of women have rapidly increased from 42 per cent in 1985 to 47 per cent in 1991. However, women have represented only around 20 per cent of total trainees of vocational training centres. Although there are several authorised training centres especially for women run by social welfare or non-profit corporations, only about 5 per cent of trainees have been women in public training centres. Recently, confronted with the women's increased participation to the labour force and labour shortages, the government established the first public vocational training centre for women in 1991.

The vocational training policies especially designed for the underprivileged as a target group have not been very active in Korea. In public training centres, there have been 30 per cent quotas of training seats for the recipients of 'Livelihood Aid'. The recipients of 'Livelihood Aid' are designated by the Ministry of Health and Social Affairs to support the poor below certain living standards. In 1992, 2.4 million people received the aid. For the period from 1983 to 1993, 18 per cent of those trained in public vocational training centres under KOMA were the recipients.

For the handicapped, the opportunities of vocational training have been very few. The number of the handicapped who have taken vocational training in the public training centres during the period from 1985 to 1990 was only 242. These were only two authorised vocational training centres for the handicapped until the Ministry of Labour added one vocational training centre in 1991.

In 1993, various programs of vocational training for the under privileged groups that have been under different governmental bodies were incorporated into one unified program called 'Employment Promotion Training Program' under the Ministry of Labour. The government takes a certain number of people from the candidates of the underprivileged groups and put them in various training centres. The government support trainees with food expenses and training allowances, and subsidise training institutes such as authorised vocational training centres and special vocational schools for training expenses.

In 1993, 46,500 are planned to be trained under Employment Promotion Training Program. Out of 41,008 who began to receive vocational training in the first quarter of the year, there were 14,799 recipients of Livelihood Aid, 13,699 petty farmers, 3,140 unemployed, 1965 married women and the elderly, and 62 handicapped.

6. DIRECTION OF THE FUTURE POLICIES

6.1 HUMAN RESOURCES DEVELOPMENT IN THE NEW ECONOMIC PLAN

The present Korean economic situations said to be in the stage shifting from "production-cost oriented economic system" depending on the fluent labour and the relative low labour cost, to "technology oriented economic system". This shifting trend is not optimistic. Because Korean economy has begun to lose a good position to maintain high economic growth rate on the basis of enough manpower supply and also the technological development comparing with the competing countries (such as Hong Kong, Singapore, Taiwan, not to mention the Western countries). For example, according to the data from the Ministry of Labour (1993), supposing an index of technological development in the advanced countries 100, the index of technology in Korea is only 42.6

From 1962 to 1988, the annual economic growth rate in Korea was 8.8 per cent, and in 1986 the international payments changed from deficit condition to favourable balance, and in 1988 the favourable balance was recorded to 14.2 billion dollars. However, the economic growth rate decreased to 4.7 per cent in 1992, and the ratio of employment structure in manufacturing sector had decreased from 30 per cent in 1988 to 27.3 per cent in 1992, and the international payments changed to deficit balance again since 1990. This worse economic condition could be explained in two ways — external and internal factors. External factors were said to be technology competition between countries, strengthening of protectionism of the advanced country, invasion of Korea exports market from the developing countries etc. Internal factors were said to be weakness in key industry, drop of will to work, group selfishness, and uncertainty for future etc.

In order to overcome these internal and external difficulties, the New Economic Plan was developed by the government in 1993. The background of this New Economic Plan could be explained by comparing the past economic system with the future economic system which is projected under the basis on the successful completion of the economic plan.

Figure 4
Past and Future of Economic System in Korea

past economic system	future economic system
<p>Few varieties & mass production depending on machine system</p> <ul style="list-style-type: none"> - international competition coming from machine functions - simple assembling & manufacturing - unskilled workers, high turn-over rate <p>Focus on natural resources</p> <ul style="list-style-type: none"> - lack of capital, plentiful manpower with low wage - easy learning of technology by importing the machine 	<p>Many varieties & small production depending on technology</p> <ul style="list-style-type: none"> - international competition coming from manpower (techniques, skills) - developing technology continuously - skill development for workers to cope with new work environment <p>Focus on human resources</p> <ul style="list-style-type: none"> - plentiful capital, high wage, lack of manpower - competitive technology existing in human resources

As shown in the <Figure 4>, the future production system would be characterised small quantity but many items to meet different tastes of clients. To maintain this production system in the competitive international trades, continuous efforts regarding technology in terms of development and application to the workplace is requisite. Another future economic system might be an emphasis on human resources who control the technology development and application. The human resources includes all persons who participated in economic activities as well as the future potential workers. Therefore, the New Economic Plan should focus on the total participation of all sectors in government, school system as well as business and industry based on the human resource development in economic system.

After 1995, the increase rate of new labour force (age 15 to 24) will be stopped, and the ratio of women, old persons, and the educated will be increased. This manpower structure will produce lack of workers in production area. As a result, employment for women, old persons and the educated would be increased. Also, workers of small and medium size firms, youths and the handicapped are expected to actively participate in economic activities.

In addition to this projection on manpower structure, to establish the successful human resources development system, the following current problems should be carefully examined.

First, because of the theory oriented education preparing the entrance exam of colleges, the present manpower structure lacking in skilled workers and technicians has weakened industrial competitiveness in the world market.

- Out of total high school students, vocational high school students are 38 per cent (70 per cent in case of Germany and Taiwan). In particular, technical high school students are only 10 per cent resulting in lack of skilled workers. In 1992, shortage of workers in production area was 157 thousands.
- Technical and vocational education tends to emphasise the theory oriented learning not relating to the workplace.
- Two thirds out of general high school students (approximately 200 thousand per year) failed entrance examination of college, and they are rushing into the society without employment skills.

Second, 53 thousands of college graduates were unemployed in 1992.

- Since higher education institutions are greatly expanded, they produce an excessive number of graduates. At present the employment rate of college graduates remains no more than 50 per cent.

Third, business and industry are little concerned about the manpower development and cooperative education with school and vocational training institutes.

- In 1992, only 16 per cent of companies who had obligation of in-plant training, took participation in vocational training. And only 41 thousand trainees completed training courses.
- The term of most courses was 3-6 months and training cost was only 0.67 per cent out of wage, compared to 3 per cent level in the advanced countries like Germany and England.
- The work experience programs in vocational high school are not carried out systematically.
- Cooperative education system between school and industry are not well functioned in terms of exchange of persons and materials.

Fourth, learning environment for experiment and practice in technical high schools is poor, and the teachers' competencies to teach practice is low.

- The securing rate of facilities and tools for experiment and practice was 44.2 per cent in terms of regulation in 1993.
- Most vocational high school teachers have no practical working experience.

On the basis of this economic background mentioned so far, the policy directions regarding the HRD could be summarised by comparing the past HRD policies with the future HRD policies. <Figure 5>

Figure 5
Past and Future HRD Policies

Past HRD Policies	Future HRD Policies
<p>Depend on the economic policies</p> <ul style="list-style-type: none"> - Consider manpower as a means of industrial policies - Decentralized management of manpower * Waste of human resources resulted from unbalance of manpower supply and demand between industrial fields. 	<p>Consider manpower policies as a main stratiges for national development</p> <ul style="list-style-type: none"> - HRD influence the economic and industrial policies - Centralized management of manpower * Balance of manpower supply and demand in terms of quantity and quality.
<p>Policies based on the quantity of manpower demand</p> <ul style="list-style-type: none"> - Government's active participation in labor market - Focus on mono-skilled manpower - Emphasize on machine technology 	<p>Policies based on the quality of manpower supply</p> <ul style="list-style-type: none"> - Company's active participation in HRD - Focus on multi skilled manpower - Emphasize on quality, attitudes, and technology of human.
<p>Academic career and social position centered society</p> <ul style="list-style-type: none"> - Manpower management by academic career and social position - Favorable treatment on office and managerial jobs 	<p>Competencies and qualification centered society</p> <ul style="list-style-type: none"> - Manpower management by competencies and qualification - Favorable treatment on skilled workers
<p>Labor policies based on employee-employer relationship</p> <ul style="list-style-type: none"> - Competitive relationship between employee and employer 	<p>Labor policies based on the HRD</p> <ul style="list-style-type: none"> - Cooperative relationship

6.2 THE ROLES AND FUNCTIONS OF VOCATIONAL TRAINING SYSTEM

The functions of vocational training system could be explained in terms of manpower supply channels <Figure 6>. Technical power is supplied by two sources. One is school system under the Ministry of Education: and vocational training system under the Ministry of Labour. There are many similarities between the two systems in terms of content, learning methods, teaching materials etc. However, there is little cooperation between the two systems. For example, schools are interested in the practice (contents, methods, equipment, facilities etc.) of vocational training institutes who are interested in the theory of schools.

Vocational training system is supported by Vocational Training Promotion Fund most financed by vocational training levy collected by the "Basic Law for Vocational Training". In Korea, the employers with more than 150 employees of six industrial sectors have the obligation of in-plant training, or payment of training levy based on training ratio, which is no more than 20/1000 of payroll of total employees.

The Vocational training system has three types: public vocational training, in-plant training in business and industry, and authorised training in private sector, as presented in the Figure 7.

The vocational training by types, implementing agency, and training trades is also presented in the Figure 7. Regarding the craftsman training number of vocational training institute (VTI), trade and training target by year is shown in Figure 8 and Figure 9.

Figure 6
Manpower Supply Channels by Patterns

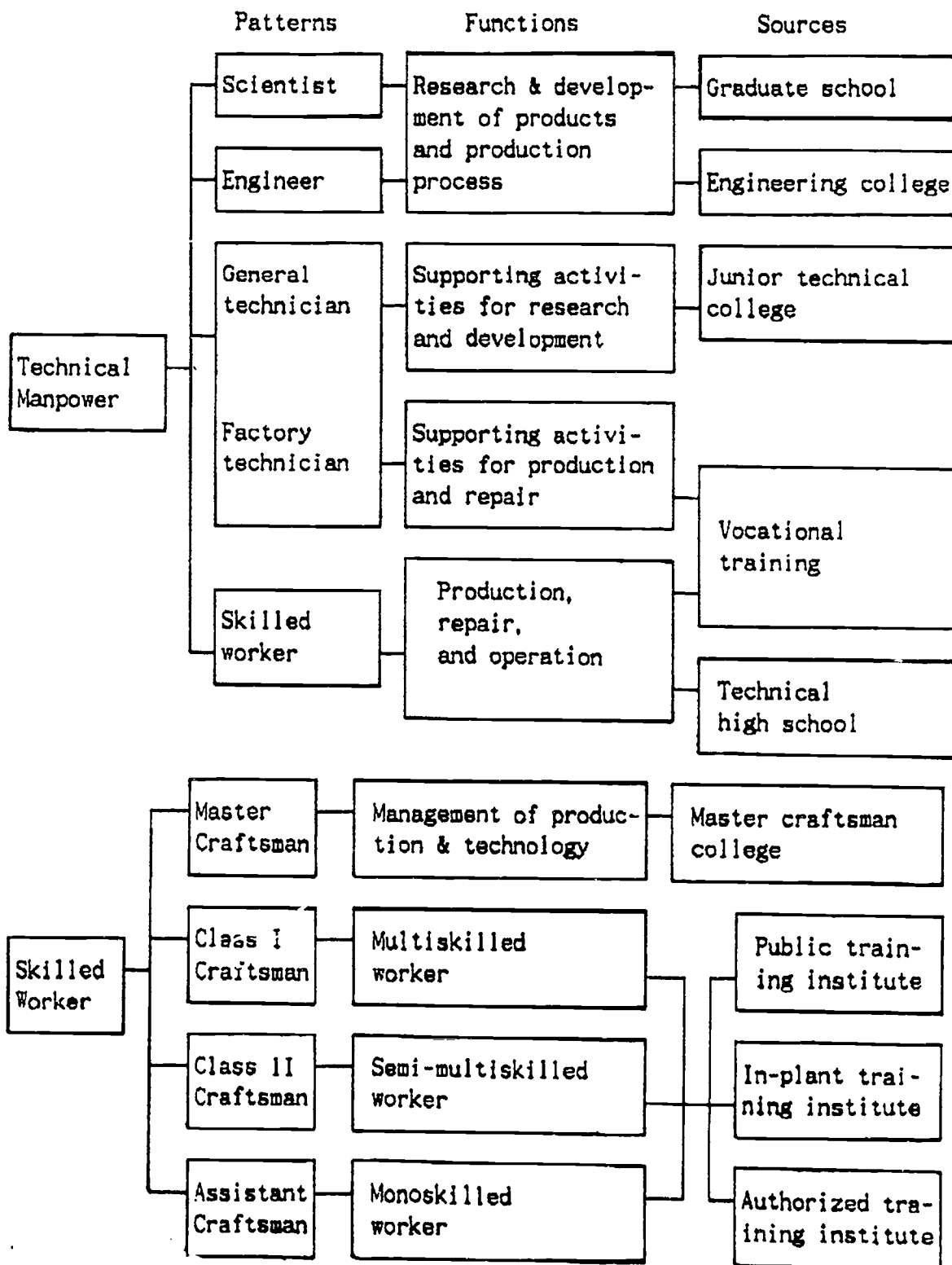


Figure 7
Classification of Vocational Training

Types	Implementing Agency	Training Trades
Public Vocational Training	Korea Manpower Agency	<ul style="list-style-type: none"> o. Trades which are commonly required by every industry and which can't be trained by in-plant training (Tool & Die Making, Machine work and Welding, etc.) o. Export-oriented trades (Gem cutting, Dyeing and Weaving, etc.) o. Trades for advanced and newly-demanded technology (CAM, etc.) o. Trades aiming at producing master craftsman
	Central Government	<ul style="list-style-type: none"> o. Trades aiming at training for self-development of prisoners and the incumbent (Bricklaying and Plastering, etc.)
	Local Autonomy	<ul style="list-style-type: none"> o. Trades concerned with farming (Repair of farming equipments, etc.) o. Trades necessary for increasing income of farmhouse (Knitting, Sewing and Electricity, etc.)
In-plant Training	Enterprise with 150 employees or more	<ul style="list-style-type: none"> o. Trades required directly by industries for the purpose of producing monoskilled and semimultiskilled workers (Lathe, Electronics and Architectural Carpentering, etc.)
Authorized Training	Non-profit organization	<ul style="list-style-type: none"> o. Trades which can't be produced by public and in-plant training (Cooking, Teletypewriting Communication, Wall papering, Information Processing and Women's Hairdressing, etc.)

•Source : Ministry of Labor (1993)

Figure 8
Number of VTIs and Trades for Craftsman Training

Classification	Year	'87		'88		'89		'90		'91		'92		'93	
		No. of VTI	No. of Trade	No. of VTI	No. of Trade	No. of VTI	No. of Trade	No. of VTI	No. of Trade	No. of VTI	No. of Trade	No. of VTI	No. of Trade	No. of VTI	No. of Trade
Total		280	-	283	-	283	-	309	-	396	-	406	-	451	-
Public	Subtotal	72	-	72	-	74	-	78	-	79	-	80	-	87	-
	KOMA	32	47	33	64	33	45	33	49	35	66	36	66	39	69
	Central Government	35	32	36	45	37	34	38	35	37	62	37	62	38	58
	Local Autonomies	4	19	3	19	4	20	7	38	7	37	7	37	9	37
	K.N.O.P.	1	1	-	-	-	-	-	-	-	-	-	-	-	-
In-Plant	Subtotal	130	-	132	-	110	-	122	-	211	-	220	-	232	-
	Independent	107	69	112	59	110	51	122	50	211	94	220	148		115
	Joint	23	19	20	16	10	8 (11)	26	(14)	-	-	-	-	-	-
	Entrust	(5)	7	(4)	7	5	4 (10)	15	(13)	50	(23)	(40)			-
Authorized	Subtotal	78	-	79	-	99	-	109	-	106	-	106	-	132(3)	-
	Social Welfare Corporation	8	13	7	15	8	11	9	15	10	15	10	15		12
	Non-Profit Body	18	18	19	34	24	26	27	18	26	28	28	38		25
	Individual	52	23	53	27	67	21	73	22	70	9	68	9		17

Note) The figures in the parentheses indicate the number of VTIs counted repeatedly

*Source : Ministry of Labor (1993)

Figure 9
Achievement of Craftsman Training by Year

(Unit : Person)

Year	Total	2nd-3rd '67-76	4th '77-81	5th '82-86	6th Five Year Plan					7 th			
					Sub-total	'87	'88	'89	'90	'91	'92	'93	
Total	1,672,628	411,599	495,739	273,151	313,275	46,059	49,248	56,763	67,702	93,503	178,864	184,386	
P U B L I C	Sub-total	498,705	117,611	120,117	121,044	113,802	22,593	20,745	20,073	14,441	25,950	26,131	26,558
	KOMA	231,948	12,291	56,417	66,474	78,648	14,580	14,025	14,235	17,343	18,465	18,116	18,759
	Central Government	148,699	48,949	34,239	34,947	25,482	6,767	5,648	4,380	4,254	4,433	5,082	4,991
	Local Autonomies	103,487	45,884	26,646	18,366	9,652	1,232	1,072	1,458	2,844	3,052	2,933	2,615
	K.N.O.p	14,573	10,487	2,815	1,257	14	14	-	-	-	-	-	-
IN-PLANT	916,582	225,575	337,388	114,773	116,389	14,208	18,168	15,019	25,690	43,304	122,457	122,151	
AUTHORIZED	257,341	68,413	38,234	37,334	83,084	9,258	10,335	21,671	17,571	24,249	30,276	35,677	

The vocational training in Korea has conducted the following roles:

1. develop the labour intensive industry
2. train and supply manpower demanded by business and industry
3. provide job opportunity with socially disadvantaged people
4. supplement shortcomings of formal education
5. train workers who should transfer the job due to the changes in structure of industries
6. train for introduction of technology
7. bridge the gap between schools and firms.

Despite the contribution in the early stage in the industrialisation by training and supplying manpower needed by industry, the vocational training in Korea has mainly met the social needs but not individual needs. In the coming economic system the HRD based on the workers' competencies and interests, reflecting individual needs, would be key strategy. Another problem in vocational training is too much stress on the training for craftsman level. As mentioned earlier, technicians and/or technologists are demanded increasingly in the future economic system and the target population of the past vocational training has been mainly jobless non-entrants for advanced schooling.

According to the survey investigating the perceptions regarding the roles and functions of vocational training institutes by types, it appeared that each type of vocational training had different roles and functions: the public vocational training should emphasise basic training, upgrading training, and retraining to change jobs, focusing on the national development in industry and social welfare, the authorised vocational training should emphasise retraining to change jobs and upgrading training, focusing on contributing social welfare and meeting individuals' needs, the in-plant training should emphasise updating training and retraining, focusing on increasing productivity and meeting individual's needs.

6.3 SOME STRATEGIES TO REFORM THE VOCATIONAL TRAINING SYSTEM

On the basis of the problems and issues, as mentioned previously, the following strategies were drawn to reform the vocational training system.

6.3.1 ESTABLISHMENT OF TECHNICIAN TRAINING SYSTEM

In order to cope with the future work environment characterised by computer network integrating the design, production, distribution, and sales area, industrial structure should be changed to develop the high- and multi-skilled workers. To do so, retraining to produce technicians connecting skilled workers with the managers is required.

<Figure 10> Workers Structure between Korean and Japanese Company

(Unit : %)

Workers	Korea (SamSung Co.)	Japan (Toshiba Co.)
Engineer	4.5	6
Technician	16.7	58
Skilled worker	65.8	36
Unskilled worker	13.0	0

To meet the manpower needs for technician level, vocational training system for technician should be established. To do so, the existing public vocational training institutes should be reorganised to offer various courses, such as master craftsman course, upgrade training course for workers, etc. As a part of New Economic Plan, industrial masters' college will be increased from two institutes in 1994 to sixteen institutes in 1997.

In the case of Japan, the number of vocational training college (public training) to train the technicians has been increased.

<Figure 11> Number of Vocational Training Colleges in Japan by Year

Year	1981	1983	1985	1987	1992
No. of colleges	5	9	12	14	26

6.3.2 INTRODUCTION OF CAREER EDUCATION SYSTEM

In order to introduce the career education system, the company should take an active role in the HRD. In other words, the workplace should be provided as a learning place in order for workers to develop the job competencies. To do so, the development of job competencies in the company should be connected with such school system as industrial masters' college and technical college. The Figure 12 presented career education of workers through life span.

Figure 12
Career Education Model of Workers

Before entering labor market	Entering into Labor market	Establishing & Maintaining job	After Retirement
Before 18 years	18-22 years	22-55 years	60 years
Career & vocational guidance	Job placement	Updating or upgrading training. Training for job transfer.	Promoting employment for the retired persons
Vocational education & training	Employment information	Unemployment insurance. Wage system based on competencies of workers.	Pension, social welfare.

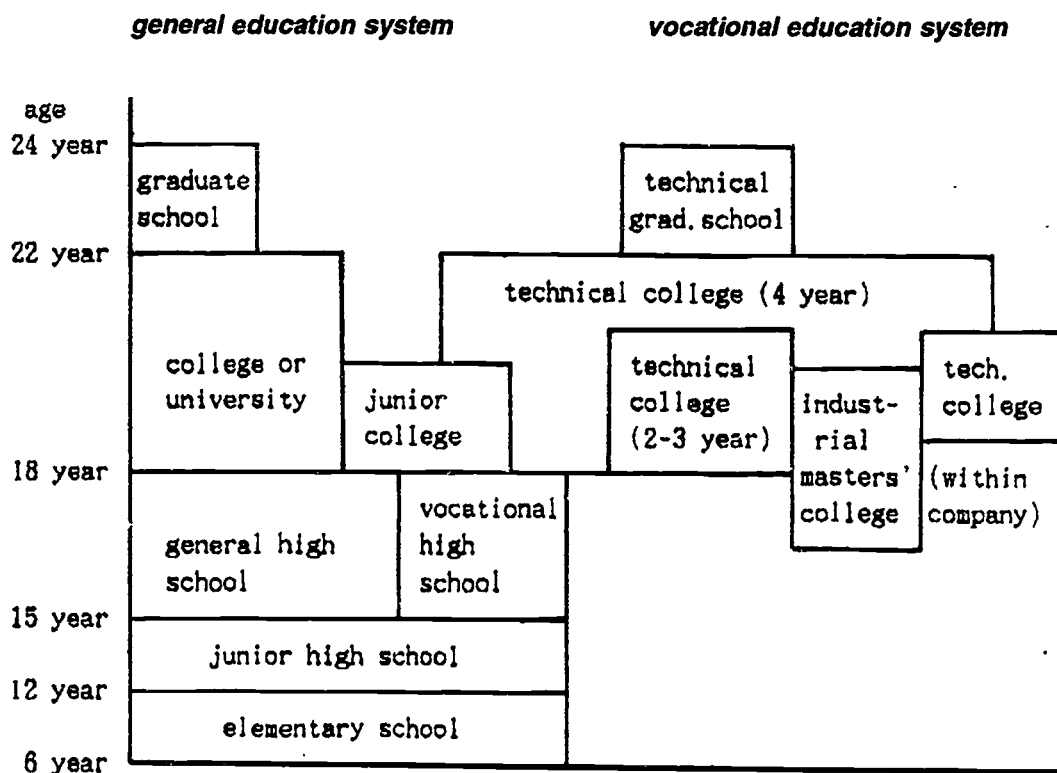
Another approach to introduce career education system could be found in the school system. The goal of vocational training focusing on skills for entry level employment so far should be changed to upgrade and/or update skills through the lifetime of workers. To do so, target population of vocational training should be expanded from the unemployed youths to all persons who want a job.

Various opportunities to improve job competencies should be provided. To do so, some career paths for school (or training institute) graduates should be prepared and the cooperative training system between business and industry, schools, and vocational training institutes should be strengthened in order for graduates to make their decisions flexibly. By establishing such vocational training institute as technical college (2–3 year course), business and industry could help workers develop their job skills to survive in the changing workplace.

As shown in Figure 13, some examples of career paths are as follows:

- vocational high school — junior college — technical college
- technical junior college (2–3 year) — technical college
- industrial masters' college — technical college (admission into a higher class)
- technical college within company (2 year) — technical college (admission into a higher class)

Figure 13
Career Development Model in School System



* Source: Ministry of Labour (1993)

6.3.3 INTRODUCTION OF MODULAR INSTRUCTION METHOD

Modular instruction might be an effective method because it gives workers and students freedom within training programs to choose and to develop at individual needs.

6.3.4 COOPERATION BETWEEN DIFFERENT GOVERNMENT SYSTEMS

To prevent inefficiency caused by different systems between vocational education and vocational training, these two systems should be interdependent. To do so, close cooperation between the Ministry of Labour and the Ministry of Education at the administrative level, should be established by integrating the laws relating to vocational education and training, and by supporting administrative services such as use of facilities, exchange of teachers, teaching materials, labour information between two systems.

6.3.5 ESTABLISHMENT OF ADVISORY COMMITTEES

To meet society's and students' needs in selecting vocational goals and content, it might be effective to organise the advisory committees at the department or institute level, which consist of students, educators, administrators, parents, and personnel from business and industry. To do so, further study on functions, roles, organisation, operation of advisory committee should be conducted.

6.4 INTRODUCTION OF DUAL SYSTEM IN TECHNICAL HIGH SCHOOL EDUCATION

Above all, technical high schools ought to be reorganised and enlarged in order to expand the quantity of skilled manpower and to raise the quality of it. At present, technical high school students occupy only 10 per cent among the whole high school students. The percentage needs to be gradually expanded and adjusted until it reaches at least 20 per cent among the whole high school students and more than 40 per cent among the whole vocational high school students. The problem in the quality deterioration of skilled manpower is focused on the lack of field adaptability. In order to fundamentally solve this problem, it is necessary to consider the institutional device for strengthening practical education at a job site. In this respect, the dual system of technical high school education — what is called '2+1 system' — which our government now plans to introduce can be regarded as a very appropriate direction for educational reform. The point of this system is that schools offer general education, theoretical education and basic practice of vocational subjects for two years, while industries provide common skill practice and production work experience at a job site for one year. At present, such a reorganisation of technical high school education for diversifying the programs can be considered one of the best alternatives for bringing up skilled manpower.

This reorganisation of the system is expected to contribute to expanding the quantity of skilled manpower and raising the quality of it in the following respects.

Firstly, it will be possible to admit 1/3 more students than before with the existing facilities of technical high schools because of the practical exercises carried out at job site for one year.

Secondly, enterprises can not only overcome the limitations of governmental investment capability but also contribute to heightening the quality of education through their responsible participation in education and share of the role.

Thirdly, it will be made possible to operate practical education, which is more appropriate for the regional specialities, the needs of students, and the demands of an industrial society, by diversifying educational programs such as daytime, evening, and seasonal programs.

Fourthly, the stable supply of the skilled manpower of quality will be made possible by enlarging the capacity of technical high schools and reinforcing work experience to cope with the demands in the industrial society. Furthermore, the decrease of general high schools can not only lessen the problem of jobless youths as nonentrants for advanced schooling, but also weaken the entrance exam competition for universities.

6.5 ESTABLISHMENT OF SCHOOL-INDUSTRY COOPERATION SYSTEM

Vocational education and training institutions ought to undertake the education and research activities to meet the demands of industries, and at the same time the industries should actively cooperate on these activities. Many advanced countries are developing industry as well as education through the school-industry cooperation. Also in the country, the legal and institutional basis for the cooperation ought to be established so that this cooperation can work effectively. On this basis, schools and industries should attempt not only to develop and operate education programs but also to carry them out in a cooperative way. Especially it is urgent to be considered how to activate work experience at a job site throughout the effective school-industry cooperation.