IMPLEMENTING KOREAN VOCATIONAL EDUCATION AND TRAINING EXPERIENCE INTO MONGOLIA

By

ZANGAD MUNKHTUYA

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of requirements

for the degree of

MASTER OF PUBLIC POLICY AND MANAGEMENT IN ECONOMIC DEVELOPMENT

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ABSTRACT

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By

ZANGAD MUNKHTUYA

In current economy of Mongolia, there have been several big changes related to the main strategy: leverage Mongolia's vast natural resources to boost socioeconomic growth. Within last 15 years, Mongolian FDI increased with extreme rapid and regarding to this huge inflow Mongolian labor market extended with almost same size. Particularly, it was very high demand for the skilled workers, who can work in specific fields such as a mining, construction and energy. However, the main problem occurred with the quality of local workers for these fields. In order to obtain socioeconomic growth, the economy should produce working places in which local citizens can work and society should provide with high skilled workers into these job places. Nevertheless, if the workers cannot fulfill the main requirements of job description, the employers will hire non-local workers with high skill and it is not what Mongolian government wants.

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1. Introduction

Mongolia has one of the world's largest resources of different minerals, including copper, fluorite, gold, iron ore, lead, molybdenum, oil, phosphates, tin, uranium and wolfram[1]. Mongolian government gives much consideration to the natural resource production in order to gain higher economic growth and to become developing country. In other words, Mongolian people believe that at the moment, this is the one only way to get the economic development. On October 6, 2009, Mongolian government has signed historical Agreements with Ivanhoe Mines Mongolia Inc. LLC, Ivanhoe Mines Ltd. and Rio Tinto International Holdings Limited[2]. The main purpose of the Agreements is to define and regulate relationships between the government and these companies in maintaining the stable taxes and operational environment during the certain period, selling products at the market prices by the investor, guaranteeing the investor's rights to spend its income on own discretion, the amount and terms of the investments, undertaking the mining activities with the minimum damage to the environment and human health, rehabilitation of the environment, having no negative effects on other industries and operations, developing Southern Gobi region both socially and economically, creating new jobs and business opportunities for other Mongolian companies and individuals, compensation of the damages to the property, basis for termination of the Agreements, rights and obligations of the Parties during the exploration, mining and processing within the Contract Area (Oyu- Tolgoi investment agreement, 2010-10-06).

The main question is whether these agreements alone will provide any economic growth and development for country. Some people think that Mongolia should rent natural resources to foreigners and live on the rent fees, while others think that Mongolia needs to build factories that will provide jobs for the Mongolian people and develop domestic production. However, now country has to come to the decision that combines both the ways and to create workforce

with skilled and well trained vocational workers. The increase of the foreign and domestic investments into Mongolian economy demands for highly skilled workers. Nevertheless, there are hundreds of people seeking employment but being without any profession or due to the poor knowledge they are being rejected by job offers. In other words, Mongolian education system produces low educated and unskilled workforce which is inadequate to the labor market. Then what government should do to intersect the increasing labor demand and poor, unsatisfied supply? It should create appropriate cooperative conditions for each stakeholder. Moreover, Mongolian government should establish and improve vocational school system by restructuring, organizing and hiring good administrative teams to produce well trained workers who are able to adapt to the new economic environment. Regarding to this specific goal, the next problems are how Mongolia will overcome the lack of skilled workers, what kind of policy implementation can deliver successful vocational education system, what and how it can implemented, why it is important, what are the main structure, policy of implementation and actual process of this procedure, why the procedure is important to Mongolia, what are the real challenges faced with the implementation and how those problems can be solved.

This situation is very similar to South Korean case. "when the construction boom in the Middle east called for large exodus of skilled workers in late 1970s, the special attention was paid to provide adequate supply of skill workers in these trades."[3] Also, not only for this reason, the Korean Vocational Education and Training development experience itself, is very successful and exclusive in a way that establishes basic principles, developing, implementing the policy and solving the faced problems. The thesis will review overall Korean "economic take-off period 1960-70"s government policy, which was directed to Vocational Education and Training and Mongolia's past and current situation of VET sector. Consequently, by comparing and case studying two countries experience, this paper will be the answer to those

uncertain questions by creating most suitable suggestions for policy making procedure to Mongolian vocational education and training system.

The thesis is divided into six sections: The Section One is the Introduction. The Section Two is about Mongolian case of VET[4] system, brief introduction of Mongolian vocational education and training system, its background and moreover, it presents the current situation, basic problems and main challenges (with the literature survey about Mongolian VET). The Section Three is the case study of Korean Vocational Education and Training. This section covers the most successful implementation period of Korean history of VET and includes its history, background and development of implementation policy. In addition, this section defines the main factors of success. The Section Four is the comparative case study of two countries cases and with Section Five lessons for Mongolia from Korean experience (the main research result with some calculation will examine the outcome of this thesis study) and in the results of comparative analysis comes the proposal of the "new model" of Mongolian VET system. The Section Six presents conclusion.

2. Mongolian vocational education system (vocational training, background, initial conditions)

2.1 The history and background

Table1. Education system in Mongolia

School ladder system (5-4-3-4 pattern)	
University (4 years)	Vocational college (1-1.5 years)
High school (3 years)	Vocational education and industrial tra ining centre (2-3 years)
Middle school (4 years)	
Primary school (5 years)	

Source: Ministry of Education, Culture and Science www.mesc.gov.mn

Mongolian vocational education has been established in 1922.[5] After The People's Revolution has thrown the Manchurian colonization, it was a new beginning about everything in New Modern Mongolian history. Furthermore, it has actually been almost 50 years since the domestic schools and centers have started the preparation of actual professional workers. According to the Ministry of Education and Science and The Culture Review, with the adoption of the first education law, the establishment of a continuous and united vocational education system consisting of vocational orientation and development of skills in general secondary schools, primary vocational and technical schools and on-the-job training has started in 1963. Beginning from the mid-1960's, when there has occurred an inevitable and important requirement to have own professional staff, but not only a number, professional workers began to be trained through vocational schools of the former Soviet Union and other East-European socialist countries. Also, relevant technical and agricultural vocational schools were founded throughout the country to prepare skilled workers for manufacturing, agriculture, transportation, railroads and construction sector and animal husbandry which have become the national economic sectors.[6] The structure of Mongolian vocational education and training system were just a copy of the Soviet Union's system for nearly 80

years. This system had both the good and bad sides. These vocational schools were the best ones and had its peak of development during the socialist regime. Even tough, the training school system has almost disappeared after the democratic revolution of 1991.

The current Vocational Education and Training centers have been established in 1991. Even tough, the government paid all the costs for the vocational education schools, there was no demand for enrolment and big success in this field. The most high school graduates want to enter universities to become lawyers or economists, or they want to do "naimaa"[7]- to do business to earn money. However, the situation has changed since 2008 when Mongolian go vernment has offered monthly stipend to new students. The enrolment has relatively increase d in those classes where stipend was given, and first and second stages of vocational training education were provided. Also, according to the Ministry's of Education report of 2008, lately there has been quite big demand for establishing such kind of schools and demand for the enr olment because the government began financing all school services as well as paying the stip ends (in 2008 Mongolian government has estimated the cost per student around 465- 495 tho usands tugrug[8] and stipend around 45-450 thousands tugrug, at that time 1usd= 1267.51 tugru g)[9].

On September 30,2010, The Ministry of Social Welfare and Labor has made an announcement that the predictive number of Mongolian active laborers in 2010 is reaching nearly 1,7 million (almost 61% of Mongolian population), which means that more than a half of all Mongolians are in their most productive age. The government officials also notify that Mongolian labor age population growth is leading before the actual population growth. This is known in the most developed countries as "population growth's window period"- the most pleasant time, because there is statistic that 67,7% of Mongolian population are between 15-64 years old and this is a huge resource of labour market.[10] Unfortunately, as mentioned above, in Mongolia there is mismatching the real labor market demand with the actual labor

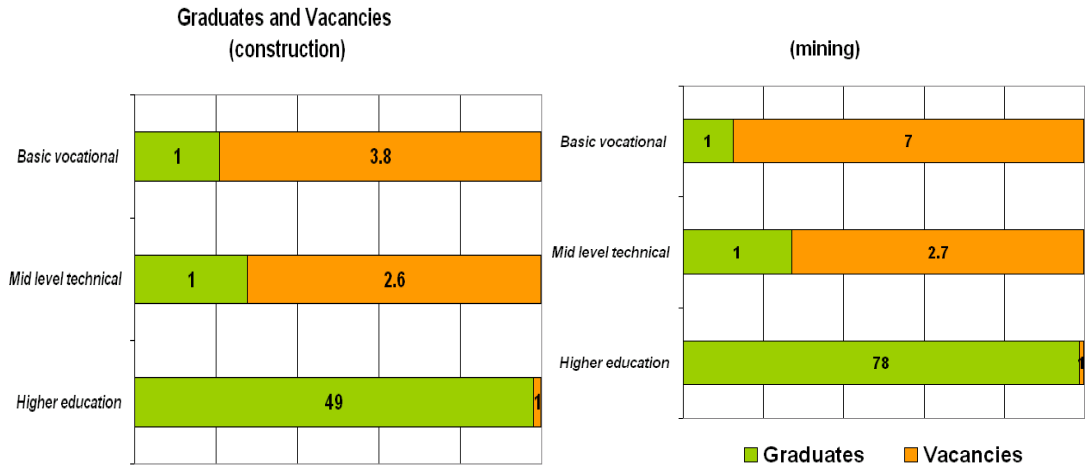
market supply. For example, according to the announcement, in 2010 there were 39 thousand of citizens seeking jobs and only 30 thousands of them had the chance to be recommended to those job places. The most researches related to the Vocational education area being done by domestic scholars, based on relationship between the labor market demand and its supply. Moreover, almost all researches have been done under the supervision of major international and/or domestic organizations and projects such as Asian Development Bank, GTZ, European- Training Fund, UNIVOC, KOICA, World Vision and The Millennium Challenge Account- Mongolia. (www.tvet.edu.mn) Among all these researches the most important one - "The master plan of Development of Mongolian Education System 2006-2015"- has been made by The Ministry of Education, culture and Science. The procedure of making this plan covers all major researchers of Mongolian educational system and our government believes that with this major plan the educational level will be upgraded to the advanced level in coming years (www. mecs.gov. mn) On other hand, from the researches by the non-governmental organization, the research from the Millennium Challenge Account- Mongolia " Labor Market Study in Support of technical and Vocational Education Project" is counted most qualitative and real one. Also there are numeral research materials, books and papers done by domestic and foreign specialists. For example: Weidman, John C., Regsurengiin Bat-Erdene, John L. Yeager, Javzan Sukhbaatar, Tsendjav Jargalmaa, and Suren Davaa. (1998) "Mongolian Higher Education in Transition: Planning and Responding under Conditions of Rapid Change." Tertium Comparationis 4, 2 and Jagchid, Sechin, and Paul Hyer. (1979) Mongolia's Culture and Society. Boulder, CO: Westview Press etc.

Even tough, there are numerical research materials, books and papers we are still facing the basic problems which we have faced at the beginning of our current system. The main advantage of my study offers certain role model for the development. Moreover, in the comparison of role model country and Mongolia, we will have specific results about our

disadvantages and future prospects in related sector. Therefore, I strongly believe that my research provides specific guide to the further researchers and policymakers and will contribute to overcome the current challenges. I especially believe that this study will contribute to the regulation of mismatch of current labor market demand and supply. Particularly, such comparison analysis with role model will contribute to the supply of proper work force to the recent economical and technical standards (demand) and will be the guideline to find out the formulation. It is all going to be done by implementing Korean Vocational Education Training experience on the supply side, i.e. making change in education system.

The first half of 2010`s statistical data shows that the total production of industrial sector has reached 1 trillion 174.5 billion tugrugs, comparing to the previous year's factory production growth increased by 15.5%.[11] In the field of exploration of oil, petroleum, gas and natural resource products, production has gained rapid growth in these days and relating to this growth in labor market emerging a new demand for new professions. Figure 1 shows the current demand for graduates of vocational and technical education programs is higher than the actual graduates from VET schools and for the higher education side it is reversed. This survey was done in 2004 by National Methodology Center of Mongolia, based on labor market quantitative survey. This figure explains that the growth of highly skilled workers has begun much earlier than today's changes.

Figure1. Current demand for graduates of Vocational and Technical education programs



Source: NMC Comparative Study 2004, based on labor market quantitative survey

Also, in last two years there were increasing demand for about 20 jobs, such as a minor, driver of heavy mechanism, operator, truck and construction engineer, operator for machinery, repairman, serviceman, factory and agricultural worker. This data confirmed by the recent research of "The Millennium challenge account Mongolia"[12] shows that among these highly demanded 20 (Table 2) jobs at least 8 of them (from actual requested job places around 7578 on labor market, shows that these 8 equal to around 2480 admitted job places) from mining production or construction sector are ragging to 33% of all working places. Therefore, according to forecast that in agricultural sector 22.5 %, trade sector 9.5%, hostel sector 7.8% growth will occur in labor demand. In other words, the labour market demand and supply are both increasing, however the unemployment rate does not decrease because of participation share of working force[13] is still at the level of 66%. Otherwise, labour force and job places quantities are both increasing but cannot find the way to fulfil each other`s demand.

Table2. Trainees of Vocational Education

Name of profession	Trainees	By classes:			Senior	Here of:	
		1st grade	2nd grade	3d grade		With vocational certification	With vocational education certification
All trainees	44681	19754	9135	15666	15353	6180	9173
Here by next 20 professions:	32849	13677	11895	7208	10586	3686	6900
Construction vocation, plasterwork	6226	2570	2283	1373	2011	689	1322
Manufacturing food, bakery, technology	4281	1760	1643	878	1466	549	917
Computer operator, professional	3911	1674	1373	864	1212	406	806
Automobile repairer, operation, diagnostics	3814	1599	1249	966	1348	421	927
Construction plumber, repairer, welder	2486	1048	842	596	820	283	537
Barber, beauty specialist	2032	745	785	502	816	323	493
Sewer, tailor	1752	736	617	399	551	159	392
Construction and household woodworker, electrical appliance repairer	1498	602	641	255	340	113	227
Agriculturist, driver	935	450	340	145	327	182	145
Construction electrician torch wedding, assembly worker	880	459	308	113	211	85	126
Electric torch wedding	808	302	337	169	169	2	167
Bakery, production food, flour and bread	603	269	163	127	170	115	55
Construction steel and iron concrete design, installation, operation, brick layer and assembler	573	257	183	133	133	-	133
Retailing	520	195	219	106	158	28	130
Woodworker	464	166	211	87	118	31	87
Soft furnishing stitcher and tailor	431	159	137	135	165	48	117
Tourist guide-environment protector	426	139	162	119	128	37	91
Driver for heavy machinery, repairer and operation	418	291	103	-	130	106	24
An accountant –ITC specialist	401	168	134	99	147	52	95
Secretary, interpreter	390	89	165	136	166	57	109

Comment: Among the students studied in vocational education organizations 73.5% or 32849 trainees trained by these 20 professions..
Reference: Ministry of Education, VET centre-Vocational education-1, 2009-2010"

2.2 The current Vocational Education and Training System

Today, there are 35 vocational training centres, 13 colleges, 9 universities, 5 institutes and 1 high school that provide with vocational training programs.[14] Among these schools, there are 23 vocational education and training centers (VET), 8 colleges, 3 institutes, 2 high school and 8 universities owned by government and 13 VETs, 5 colleges, 2 institutes owned by private sector. Three of VETs have foreign investments. (Table 3)

Table3. Number of current Vocational education and industrial training centre and other related organizations in Mongolia, 2010

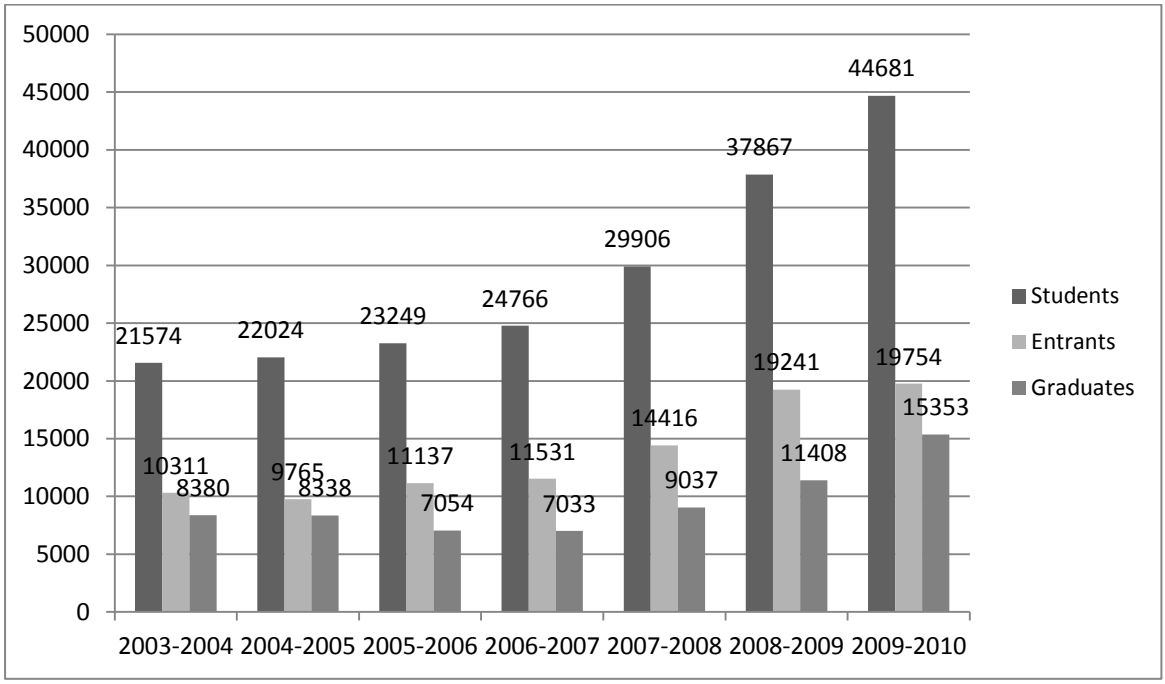
Type of School	**State owned**	**Private owned**	**Thereof: schools with foreign investment**	**Thereof: located in capital city**
Vocational education and industrial training centers	24	13	3	12
Colleges	8	5	-	9
Institutes	3	2	-	5
Universities	8	-	-	3
High Schools	1	-	-	-
TOTAL	43	20	3	29

Source:Ministry of Education, Culture and Science, 2010. www.mecs.mn

These schools train approximately 46000 students on 100 vocational training subjects.[15] Recent research and social economic direction show that number of organization that provides high education is decreasing but the number of VET schools is increasing.[16] The ratio between students of universities and all VET schools in 2009/2010 is 78.7/21.3 and it confirms the abovementioned direction. From 2004 the rate of VET school's students among all students has been gradually increasing. However, the rate of new students among all high schools graduators in 2009-2010 is only 30 percent. Moreover, it is obvious that most of new students of VET schools have entered the schools because they left without any school or to get the monthly stipend and spend time there thinking about any chance to get to

universities. In other words, VET schools became "the transit station" for unsuccessful students.

Figure2. The students, entrants and graduates from Mongolian Vocational Education and Training sector.



Source: Ministry of Education, Culture and Science, Higher and Vocational Education Department.

In the "National Statistical Office of Mongolia 2010"-s monthly bulletin stated that the gross domestic product (at 2005 constant prices) reached 2646.5 bln. tug in the first 3 quarters of 2010, showed 156.6 bln. tug or 6.3 percent increase from the same period of the previous year. The increase was mainly due to the increases in value added by industrial, construction and service sectors, and taxes on products. In the first 9 months of 2010, the total industrial output increased by 175.2 bln.tog or 15.0 percent to 1341.1 bln.tog (at 2005 constant prices) compared to the same period of the previous year. The increase in the industrial output was mainly due to 35.1 percent to 2.3 times increase in main mining and quarrying products such as fluoro spar concentrate, coal, crude oil, iron ore; and 7.5 percent to 2.5 times increase in industrial products such as sawn wood, metal sleeper, lime, proton exchange fuel, copper 99%, soft drinks, felt, alcohol, solid concrete, wine, cement, yogurt,

beer, flour, metal foundries, milk, and steel casting etc. Such economic and social favourable conditions lead to the growth in job places required from employer. (Table 4)

Table4. Mongolian Employment /by sector/

/by percentage %/

	Classification	**2007-2008**	**2008-2009**
	All	**899,802**	**933,858**
A	Agriculture and fishery	40.6%	40.0%
G	Wholesale and retail trade, engine, private and household goods repairer	10.5%	12.1%
P	Education	7.9%	7.4%
H	Transportation , warehouse service	6.0%	6.4%
O	Government administration, defence and social required service	5.7%	5.9%
C	Production	6.5%	5.8%
F	Construction	3.6%	4.7%
Q	Health and social welfare	3.5%	3.7%
B	Mining	3.0%	2.4%
I	Foodstuffs	2.4%	2.1%
S	Other services	2.1%	1.7%
K	Financial and insurance broking	1.4%	1.5%
D	Electricity, gas, heat,ventilation supply	1.6%	1.3%
J	Telecommunication media	1.3%	1.2%
N	Administration, service operation	0.8%	1.0%
M	Science of special professional and operative operation	1.2%	0.8%
E	Water supply, irrigation system, recycling, cleaning	0.5%	0.7%
R	Art and Entertainment	0.8%	0.7%
U	Higher organization	0.2%	0.3%
T	Home service	0.3%	0.2%
L	Procedure related to asset	0.1%	0.0%
All		100.0%	100.0%

Comment: Result of National Statistical Organization “Research of working force”
Reference: “The Millennium challenge account Mongolia” -Vocational education research “The research of labour market” Part2a.

To provide such growth Mongolia needs to restructure the vocational education organizations, and also make the structure (current education plan, program and training

content) more flexible to labor market demand change. Also not only the education side, the government should pay attention to private sector which provides working places by highly advanced developing PPP (public and private partnership).

2.3 The basic problems and main challenges

Nowadays, we are facing the shortage of skilled workers in Mongolia. Mongolia may lose job opportunities in major projects like "Oyu-Tolgoi"[17]. The Mongolian government will provide demanded workers for this project through a certain specific way. More specifically, there is a certain way to fulfill the duty of agreement. Furthermore, not only because of this project, there are many other reasons to restructure our VET system, as nowadays many people believe that Mongolian economic will get developed by our nation's huge resource of natural minerals. In other words, to match the criteria of highly advanced technology, Mongolia does need good educational system in the vocational training field. Therefore, Mongolia must get out of the former Soviet Union's educational system and observe more developed and advanced one. Being a part of Asia, Mongolia has a very special and unique style of living. And it would be a great opportunity to create its own system.

Before looking at the problems, we must look to the current image, the strengths and opportunities. From the view point of experts in this field, particularly, from Higher and Vocational Education Department of Ministry of Education, Culture and Science of Mongolia has determined next advantages[18]:

Table5. The Strengths and opportunities of current Mongolian Vocational education and Training system

№	Advantages
1	Almost 20 years of experiences gained and lessons learned from attempt of establishing modern Vocational education and Training system *(right after 90s collapse of socialist regime)*
2	Increased Government support (funding and investment) and donors' concern
3	From one side public attitude and pressure, from the other side increasing private sector demand

4	Expansion of diverse providers of vocational training
5	Growth in enrollment and positive change in eligible audience of vocational education
6	Necessary demand on highly skilled workforce
7	Overall economic recovery and increased investment both domestic and foreign
8	Emergence of the trade associations keen to collaborate.

Source: Higher and Vocational Education Department of Ministry of Education, Culture and Science of Mongolia, www.mesc.gov.mn

Moreover, there are foreign assistance and support activities in this field, provided by numerical amounts of different projects[19]. However, all researches and even higher authority admitted that the Mongolian VET system has next common weaknesses and challenges (defined by The Higher and Vocational Education Department of Ministry of Education, Culture and Science of Mongolia and etc): First, unreliable resource of information about the sector's demand and supply, untrustworthy accreditation and valuation (low capacity to define the demand in numerical and content forms), second, no motivation or incentives for cooperation among private and public sectors (lack of partnership skills and incentives for collaborative efforts), third, out-of-date and technologically outmoded instruments for studying (tear and shortage of equipment, highly depreciated facility and fiscal resources), fourth, the lack of highly educated and skilled teaching and training human resources and incentives for working in this field (competence and motivation of teaching staff), fifth, appropriate curriculum and structure (Instructional methodology and organization), last but not least, among all society, there is still very strong preference for higher education over secondary education (carry-over perception about reputation of vocational education in addition).

Furthermore, because of domestic migration, the labour market data and survey are very unstable. Most of the domestic migrants directly become unemployed and none of them will go to labour stock and actively search the job. For this reason and also because of many other

reasons, not only labour market data, over all Mongolian registration system’s quality is bad and trustworthy. Besides, because of weak mechanism of monitoring or supervising the actualization of Labour Law, the employers do not sign labour agreement with employees. It leads to paying less salary or even no paying for bonus of hour`s salary and makes children’s work cheap labour. .

3. The Korean vocational education system (vocational training, background, initial conditions)

3.1 The history: the beginning stage of the VET development

Table 6. Education system in Korea

•School Ladder System (6-3-3-4 pattern)	
University (4 years)	Vocational college (2-3 years)
High school (3 years)	Vocational high school (3 years)
Middle school (3 years)	
Primary school (6 years)	

Source: Yung Dug Lee. 1979. *A study on Educational Reforms and Innovations in the Republic of Korea*

After the Liberation from Japanese colonialism in 1945, the Korean Education Council was established and it was the period when the current school ladder system was adopted in accordance with the 6-3-3-4 pattern.[20] In October 1949 the Education law was promulgated and moreover, during this period as described the Foundation-building period, "in order to set the layer ground for Korean economic development, after formulation of Five-year Vocational Education plan (1958-1962), the vocational education began to receive noticeable recognition." Moreover, after the First-Five Year Economic Development Plan, Korea irrevocably decided to go to modernization through industrial development.

According to the literature review, in the beginning of 1960`s, in Korea the vocational education was only on range of light industry producing not high skilled but more like manual workers. With the first five-year Vocational education plan, the public training centers have been established and the primary and secondary education was expanded. After announcing the export oriented outward looking economic development plan, it is spontaneously created the demand for medium and high skilled workers. Following this demand the number of vocational education organizations increased, especially the vocational colleges. There even were 11 specially chosen role colleges. Together with this expansion and changes, the role of vocational high school and colleges divided into 2 directions: the

vocational high school concentrated in development of craftsmen and the vocational colleges concentrated in development of technicians. In Table 7 shows the major supply sources of skilled workers during "take-off" period, which was the root of its prosperity.

Table7. Number of recipients of Vocational training by Type of Training Institute

	1967-1971	**1972-1976**	**1977-1981**
Technical high school	71,749	134,718	257,152
Public Vocational training	36,317	812,94	120,117
Private vocational Training	62,546	231,442	375,622
(In-Plant Training)	(48,225)	(117,350)	(337,388)
TOTAL	170,612	447,454	752,891

Source: Jae Won Kim (1986), p.44

Subsequently, after outward-looking, export oriented policy president Park declared the Heavy Chemical Industry promotion plan, and according this plan the new direction of vocational education had occurred. In order to fulfill the development plan, new vocational school and new departments within the school were established. By the reason being that time the vocational high schools played very important role in development of HCI plan, as well as vocational colleges, the amount of financial support for the expansion of vocational education during that period was increased very much, using certain percentage of time being money aid as well as some loan programs such as *ICA, IDA, ADB* and World Bank. Table 8 explains how Korea met the increasing demand for skilled workers and technicians in the 1970s. By expanding further technical high schools almost double times and students number quadrupled in the same time.

Table8. Number of technical High Schools and Graduates

	1970	**1981**	**1985**
Number of schools	59	100	102
Number of Graduates	14,035	59,147	63,613

Source: Soo Kon Kim (1987), p.42

Finally, from the 1980`s, in my opinion, after Park's presidency, the strong motivation for an enrollment and participation to the expansion of vocational education has decreased, especially the social perspective and interest had reduced. Moreover, the public need for

human resource management has changed from the simple workers to more advanced multiplicity side and the graduation from vocational schools no longer was fulfilling the actual demand. The graduates from vocational colleges were being hired more than those from the vocational high schools. So, the growth of vocational colleges boomed. (Table 9)

Table 9 .Vocational High School Employment and Entering rate to Higher Education

Years	**Employment rate % (№ of employees/ graduates)**	**Entering rate % (№ of entering to tertiary ed/graduates)**
1970	50.2	9.6
1980	51.1	11.4
1990	76.6	8.3
2000	51.4	42.0
2006	25.9	68.6

Source: Chong Jae, Lee. The Korean Experience with Technical and Vocational Education. 2007

Furthermore, in 1990`s the New Vocational Education System Building Plan brought breaking plan, the vocational education system depending from social demand. Also the national commission for Education Reform and the MOE &HRD announced the "reform plan for the vocational education system: version 2020: vocational education for all". The vocational education for all systems includes the participation of all stakeholders: government, public and private sectors. The plan consists of involvement of all age level people including not only school aged people but also adults for the education program and participation of all stages of government bodies, using their ability in order to exchange the possible human resource for education.

Table 10 shows the development stages of Korean economic as well as human resource.

Table 10.Overview of economic development and HRD

	1960s	1970s	1980s	1990s	2000s
Development stages (sources of competition)	Imitation or factor- driven stage (cheap labor)				
		Internalization or investment-driven stage (manufacturing capability)			
			Generation or innovation-driven stage (innovative capability)		

Direction of major industrial policy	Expand export-oriented light industries	Expand export-oriented heavy industries	Expand of technology-intensive industries	Promotion of high-technology innovation, development of information infrastructure, strengthening of market-oriented technological innovation, acceleration of import liberalization	Transition to knowledge-based economy. Industrial strength based on restructuring, continued investment, advancement into new markets, upgrading towards higher industrial value chains
SciTech policy and role of government	Scientific institution-building -MOST/KIST -S&T Promotion Act -five-year economic plan includes S&T	Scientific infrastructure-setting -Daedeok science park -R&D promotion act	R&D and private lab promotion -National R&D -Promoting Industrial R&D	Leading role in strategic areas -promoting cooperative R&D -policy coordination	New challenges. Head of MOST is made deputy prime minister. OSTI is created to coordinate across departments, promoting indigenous innovation (IPR emphasis)→MEST (Edu+SciTech) in 2008
Macro-economic Policy framework	Preparation legal and institutional bases to support industrialization	Maximization of growth and increase In government's market intervention	Stabilization of macro economy and Enhancement of private autonomy and competition	Liberalization of trade and FDI, financial markets reform and economy restructuring	Encouragement of FDI, Promotion of transparency, FTA with US and others
Human resources	Decrease illiteracy	Increase in vocational training	Expansion of higher education system	Development of; -highly skilled HR in strategic fields -lifelong learning system	Literacy rates: 98% (2002) HR innovation, increasing; -market influence -productivity -international
Education policy	Plan education for economic development -improve teaching quality -develop medium-skilled HR		Increase in the number of college graduates with engineering major -develop highly skilled HR in strategic fields -increase research funds in R&D - enhance lifelong learning and non-traditional education -government-led, partial market approach		Improve quality of education and R&D Regional education

(KRIVET, Vocational Education in S.Korea, Hwang Gyu-Hee, 2010)

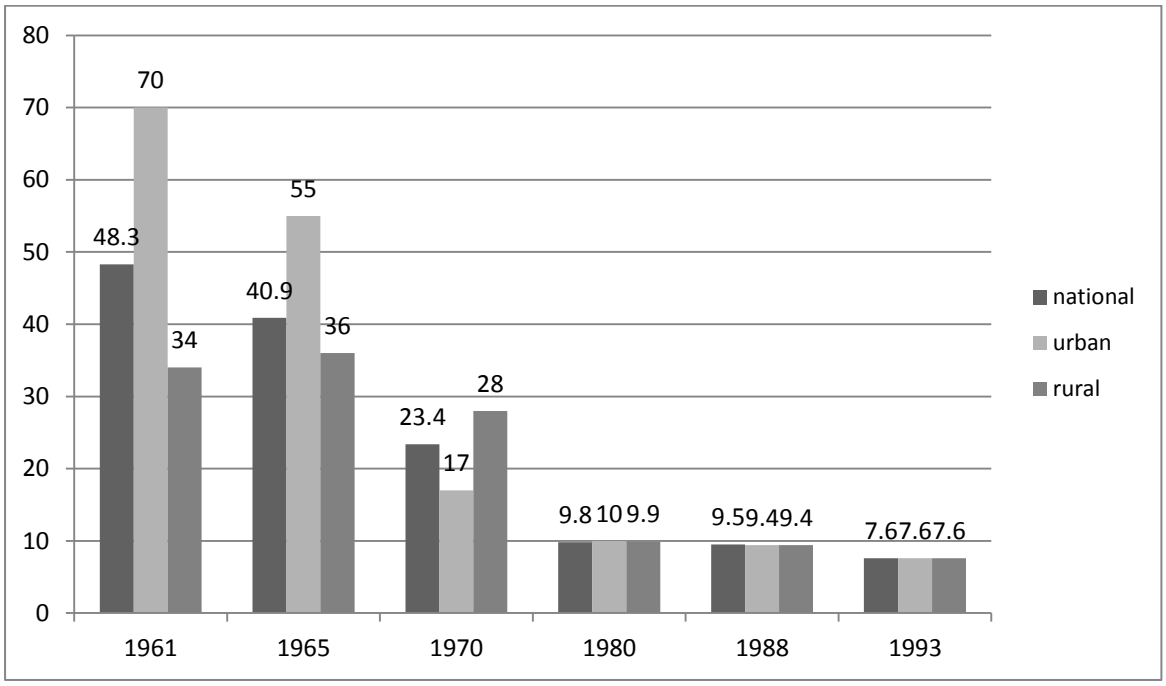
3.2 The main criteria and evaluation

Particularly, the reason of concentrating on the VET policy during Export Promotion Policy and Heavy Chemical Industrialization of Korea, is that the period from 1960s and 1980s is well known to the public as "take-off period" in Korean economy.[21] During these periods for Korea, almost all fundamental, important principles of social and economical policies were established under the leadership of President Park Jung-Hee. Thus, it is very important to stress out the importance of leader effect on every policy that has been implemented during those days. According to Mr. O Won-chul, who worked for Pres. Park eighteen years, states that, whenever President implemented project he took following steps:

1. Establishment of basic principles
2. Development of basic policy
3. Development of policy measures
4. Implementation of these policy measures.

In addition, he was also very active in several other respects as well as participation in regular meetings; inspection of central and local government departments at the beginning of every year; establishment of the personal policy; making important decision as the President.[22] Also, according to O Won-chul, President Park encouraged the government and the public by constantly reminding them that "Anything is possible. WE can do it."….. As export increased, the effects spread throughout the entire industrial structure: employment rapidly increased; living standards improved; the Korean industrial revolution had begun. His strategy contributed to heightening the confidence and courage of the public in a spiritual sense as well." In Chart 3, steeply declining absolute poverty from 48% in 1961 to less than 10% entering 1980s shows the tremendous result of Pres. Park`s government operation.

Figure3. Absolute poverty (%): 1961-1993



Sources: Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

Moreover, we must clarify that at that time, an engineer is person who graduated from engineering college and technician is person who graduated from technical high school and have 3 years of job experience. Korean main reason of focusing on promoting technical schools is almost same with Mongolian, i.e. in technicians. During the 1950s South Korea heavily depended on foreign aid, but the Aid did remarkable contribution to country's education sector. For example, according to UNKRA and FOA/ICA aid program Korea has received specific amount of aid in job training, vocational school facilities and technical assistance. As of 1965 in Korea, the total number of engineers and technicians were merely 641, respectively.[23] Furthermore, we can see the outstanding result of Korean vocational training experience from social and economic indicators such as an employees and GDP growth shown in Tables 11, 12. According to researches, Korea made a success in vocational education field from 1970`s with 5 key strategies to promote Heavy Chemical Industry's[24]. "To promote and secure engineers and skilled workers, the education and training systems would be overhauled. A skills licensing system would be introduced, and every Korean

would be encouraged to possess at least one skill. Five strategic research institutes in the fields of shipbuilding, machinery, petrochemicals, electronics, and marine science would be established to support the technological aspects of the HCI plan."[25] A Statement by a UN Educational Scientific Cultural Organization (UNESCO) Mission in 1970s stated that "The remarkable and rapid economic growth that has occurred in Korea over the last decade has been based to a large degree on human resources, and education has assisted in the production of a literate and industrious people". Many said that "Developing machinery industry in Korea is like blooming a rose in the desert"[26]. Despite the difficulties Korean government established technical high-schools, which trains their student's practical technique, that can be directly applied to workplaces, after graduation. The practical training equipment was imported from Japan and financed by Japan's ODA[27]. Moreover, the government success was in "the stick and carrot approach"- they gave incentives to students to study and work hard to get the job. For example, students were provided full scholarship including books and clothing, and dormitory expenses. Also, after graduation, they would be commissioned as sergeants (specialized in mechanical techniques) in the Army. In addition to promote mechanical technical schools, Korean government also supported general technical schools with focus on training technicians who advance to Middle East, starting in 1976.[28] Furthermore, from government supported for research fund and teaching materials for designated 11 technical high schools as a model schools to educate technicians. The curriculum consisted of general education and special technique training.

Table 11. Major Economic indicators of Korea

	Population (1000 persons)	**Employees(1000 persons)**	**GDP (billion won)**	**Per capita GDP ($)**	**Exports (billion $)**
1945	25120				
1960	24989		243	80	
1970	31435	9617	2764	257.6	0.84
1980	37407	13683	38775	1705.6	17.5

1990	43390	18085	186691	6077.4	65
2000	45985	21156	578665	11129.6	172.3
2005	47279	22856	806622	16656.4	284.4

Source: National Statistical Office www.nso.go.kr

In order word, the Korean vocational education system was set up under strong leadership effect and government role during the "take-off" period. Again the Table 11 and 12 shows the evidence of the successful outcome of implementation of various policies in order to achieve the targeted results of development plan.

Table12. Social, economic index of the Economic Growth Period

			Industrial Origin of GDP (%)		
	City population rate to total	Per capita GNP (%)	Agriculture	Mining & Manufactoring	Services
1961	28.0 (1960)	82	48.8	12.3	38.9
1970	41.1	254	50.4	14.3	35.3
1980	57.2	1645	34	22.5	43.4
1990	84	6147	17.9	27.6	54.5
2000	90	10841	12.2	17.5	70.3
2005	90.8	16291	7.9	18.6	73.4

Source: National StatisticalOffice www.nso.go.kr

3.3 The basic factors to successful policy implementation

As mentioned in part 3.1, the vocational education and training system was established under strong role of leadership and government. Particularly, the method whenever President Park implemented project: establishment of basic principle, development of basic policy, development of policy measures, implementation of these policy measures and from the vision of researcher his personal ability to control and manage the situation. After Korean government promoted technical high school education with top priority, targeting "producing 50 thousands technicians every year nationwide"[29], it was clear that without skilled and highly qualified workers all big plans would disappear in mirage.

The first action to promote vocational training was taken by enacting vocational training law in 1967, whereby Central Vocational training institute was established in 1968 with the financial support of UNDP. Subsequently, another 14 public institutes were set up, with the loan funds of foreign countries and there presently are a total of 15 institutes enrolling 7080 would-be skilled workers.[30] Besides the public vocational training institutes, there are 443 in-plant training programs enrolling a total of 41808 trainees.[31] In the meantime, the vocational training law has been revised twice to increase efficiency in lending timely support response to the expansion of vocational training programs (strong legal and policy structure).

Also, the main factors, for example growth of enrolment and advancement for higher level (shown in Table 13) of high school positively increased especially from 1970s. Particularly, in the field of vocational education, the technical high schools established by government, provides education directly on the field-training and after graduation directly applied to workplaces. Most of established technical college's technology was fully facilitated by government with Japanese high advanced technology. That time Japanese technology was world's number 1, and it gave a huge advantage for Koreans in terms of saving time (good financial support).

Table13. Enrolment rates (ER) and Advancement rates (AR)

	High school (3 years)		
	ER	AR- Academic	AR- Vocational
1953	12.4	-	-
1955	17.8	-	-
1960	19.9		-
1965	27	-	-
1970	20.3	40.2	9.6
1975	41	41.5	8.8
1980	48.8	39.2	11.4
1985	64.2	53.8	13.3
1990	79.4	47.2	8.3
1995	82.9	72.8	19.2

2000	89.4	83.9	42
2005	92.7	88.8	67.6

Source: data before 1970 are from McGinn et al. (1980), Education and Development in Korea, and data since 1970 are from KEDI, Education Statistics Database. Notes: ER= % of students enrolled out of corresponding s chool aged children, AR= % of students who advance to the next level schools. 1. 1956- 57, 2. 1959- 60, 3.196 4- 65.

Note: Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

Moreover, not everyone who wanted to enter the technical colleges had chance to get there. Admission for students was relatively demanding. Only the best of bests who graduated from high school entered with the recommendation by the principles of middle school nationwide. The basic success was the graduates from the vocational colleges were highly qualified and skilled so the quality was high enough to fulfill the demand of the market. The entrée and graduation from vocational school guaranteed to the students job with good salary and some significant prestige. In other word, "the carrot" for the hard study was visible and achievable. In Table 14 we can see such high growth in the increased change of number of enrolled students.

Table14. Enrollment, by school level and types (1965~94)

Year	**Elementary school**	**Middle school**	**High School: Academic**	**Vocational**	**Junior College and University**
	Number of students (thousands)				
1965	4,941	751	254	**172**	135
1970	5,749	1,319	315	**275**	192
1975	5,599	2,027	648	**475**	280
1980	5,658	2,472	933	**764**	579
1985	4,857	2,782	1,267	**886**	1,192
1990	4,869	2,276	1,473	**811**	1,380
1994	4,099	2,509	1,209	**852**	1,657

Source: Educational Indicators in Korea, KEDI, 1994

Table 15 shows the root example of vocational training program in such growth.(real quality).

Table15. Types of Vocational Training Program are as follows.

Types	**Target audience**	**Duration**	**Qualification**
Basic training	Primary school graduates aged from 14-25	3 months- 3 years	Grade 2. Craftsman or assistant craftsman
In-service training	Assistant craftsman and those above the level	1-4 weeks	Above assistant craftsman
Training for quality	Assistant craftsman and	1-3 months	Grade 2 Craftsman

upgrading	those above the level		
Training for transfer of jobs skill	Craftsman in similar	1-3 months	Above assistant craftsman

Source: Yung Dug Lee. 1979. *A Study on Educational Reforms and Innovations in the Republic of Korea.* Korean Educational Development Institute.

From the administrative level, the government supported in the vocational education training field various ways. For example, the Bureau of Vocational training was created, consisting from 5 divisions- Training Planning, Training Performance Criteria, technical Cooperation, Skill Certification and Technical Deliberation.[32] Outside the Bureau, there is a consultative body placed under Assistant Director General, which provides technical support to the Bureau etc. Moreover, organizations engaged to vocational education and training activities and their duties were clearly classified such, as in organization level 1) government and public agencies, 2) in-plant training, 3) voluntary organizations. In this category each part should fulfill their duty in order to promote vocational education and training policy (well structure for policy and supervision for its realization).

Private sector involvement in the field of developing the vocational education and training was very large. To promote mechanical technical school, with the support from the government, Korean companies began to advance into Middle East. Note that, this Korean experience of VET can be very important for Mongolian current situation as a real example. For Korean workers and orders for them in 1975, in overseas construction field it has reached 768860 thousands $ and the number of workers 5951 from the companies such as Hyundai, Dong Ah, Sam Hwan and Dae Rim.[33] Targeting for specific field study in designated as a role model 11 high school to educate demanded technicians for Middle East gave motivation to enroll and graduate them. Finally, from Korean experience we can describe that by policy of implementation (strong bureaucratic system, accepted leadership, strict control and diligence of the executers) and with supporting conditions (close relation with private sector, but government was independent both from business and narrow political intentions, other outer and internal conditions) lead this incredible result (fair cooperation with all sectors).

4. The Comparative case study: Mongolia vs Korea

The comparison analysis covers overall both countries vocational education system and policy (see the Appendix, Table 16). However comparing Mongolian indicators, especially absolute statistical data directly to Korean is not possible. We can't come into some conclusion because two countries development status and size differences are huge. Therefore, we can make them transfer into comparable indicators. Particularly, it would be appropriate if we come out with indicator that based on some fundamental base, such as the specific data in per thousands persons. Moreover, comparison indicators divided into several groups which will represent each group's condition.

4.1 Basic indicators

VET introduced ~Mongolia has established the current system on base of former socialist structure, trying to create developed system over 2 decades. However, Korean system has been constantly developed since 60s, over 50 years of experience, current policies all concentrated on advancement, not in establishment stage. In this term, Korea has much higher advancement for being role model to other countries. However, for the beginning stage both countries had their differences: Mongolia had its strong support from Soviet Union and Korea was in more low stage, externally- there were nobody big like Soviet Union, to support the development stage.

Legislation- Like the establishment stage, the current legislation also has difference of timing. Also, if Mongolia will restructure its system, the basic change- amendment on law is necessary. As we stretched out before, after the Liberation from Japanese colonial in October 1949 the Education law was promulgated and moreover during this period as described the Foundation-building period, "in order to set the layer ground for Korean economic development, after formulation of Five-year Vocational Education plan (1958-1962), the

vocational education began to receive noticeable recognition. ”As for Mongolia we have to enact own Vocational Education and Training Law, with the purpose of to regulate matters relating to Vocational Education and Training activities. In the new law, we should exactly and clearly define the financial sources and its relationship with the stake holders. Hereby, we can protect the future of VET, transformation from mineral resource potential based to sustainable development.

VET system~ The main difference is for Mongolia, the function and responsibility of related government authority is NOT certainly defined. Both MOE and MOL can operate vocational education and training. In this case, we should look in to detail from Korean experience, more specifically, the allocation of responsibility and liability. Also, from classroom based study, we need to transit to in-plant based study. Furthermore, Government supports the system that should be provided to train the poor to provide vocational skills with high demands on the labor market, to allow them study at the vocational and production centers and/or in short-term trainings based on private companies and enterprises. For instance, it is necessary to improve broader participation of the poor in providing labor force supplies needed in mining, infrastructure and energy sectors that are providing the key cornerstones of the development of our country. Moreover, despite the regulation of VET under which ministry, all authorities must have divisions such as coordination, standard, planning etc.

VET finance~ During the period from 2010 to 2015 – the high growth and restructuring phase, Mongolia is developing major mineral deposits within the mining sector that will subsequently increase general treasury revenues and allow expand investment opportunities. Within this phase, Mongolia would strengthen the key foundations which will support knowledge-based economy to be realized in 2021 onwards. Recent Mongolian financing situation is more complicated. MOE provides the main finance to Vocational education and

industrial training centers but there are several more sources which also provide the financing operation. Like, through Labor and care services fund (fund is under MOL) which provides money to vocational education centers also to vocational training centers. Central government budget calculates money to MOE by per student variable cost, and from the fund money goes for service. It is complicated to monitor such financing activity. We should create fund combining all these financial sources and distribute by several methods with one authority and monitoring. This fund will prevent us from poorly planned investment and untargeted social transfer etc.

Stakeholders~ The track of education is gradual for technicians and vocational professions by Korean system structure, from high school till university. Mongolia should establish more vocational high schools in order to make such path. Current vocational education and industrial training centers are more like special school, if we develop high schools into vocational schools, students will decide their path from the early stage of education, not by accidentally. Also, as vocational education requires a large amount of investment, the government should make adequate allocation of resources for vocational education. In order word, government should play leading role to the picture and having private sector by supporting role. Moreover, in order to supervise the outcome from VET government must strongly support the activity of "Labour Market" organization, with the nationwide database (IT database).

4.2 Descriptive indicators of VET

Cumulative years of education at the end of the program~ In terms of cumulative years of study, to get specific quality, Koreans spending little bit more time than Mongolians. It is not just a little bit more time, at that time from the early stage of their life, especially children from Korean rural area, they already started enroll to vocational education high schools. In Mongolian case, unfortunately we still seeing vocational education as second plan,

escape area.

Typical starting age~ The early stage of education is very important to Mongolian and from Korean experience, we need to apply the specialized high school structure. At the moment only 1 or 2 high schools are specialized in vocational education however, according to Korean success we should have more high schools, which involved in their curriculum vocational education.

Theoretical and typical length of the program~ Also in the terms of length of program the Korean model proposing to spend relatively more time on each program. Mongolian government must spend time and money on research, more detailed analysis by specialized researchers.

Curriculum of education~ Mongolia needs a creation of school based knowledge and in-plant/service based training. Mongolia need certain additional section in general education program, related to vocational education from the middle, maybe even from the elementary level of school. Not necessary hard training, skill giving curriculum. It can be directing curriculum. Now as Mongolian main major sector is mining sector and it will be like this for the at least next 2 decades, so they should add more accurate curriculum on the preparation of this sector. We must examine which vocational and technical skills are to be provided in schools and which in the training institutions and enterprise- based organisations.

Location/ infrastructure of VET schools~ Mongolia has disadvantage in a way that in wide territory schools are sparsely located and its bad in terms of high transaction cost, weak supervision and low communication. However, Korean experience does not provide certain specific example for such case, so we need to come out with unique style of dealing with this problem. In order to prevent unnecessary costs, Mongolia should develop regional development, targeting on unique quality, on difference and on economically efficient sectors. In this way, we can solve the scarcity of professional workers on that area.

Accreditation system~ The Korean National Technical Qualification System (NTQS), where the government recognizes each individual citizen's technological capabilities, is divided into two categories, namely: Qualification System and License System. License is permission for those with certain degree of capabilities to work on specific jobs. National Technical Qualification is to enhance the qualified persons' capabilities and social status by officially assessing and recognizing individuals' capabilities of techniques/skills or degree of mastery and letting them use it for taking jobs. This is the most important systematic structure for successful implementation of supervising the whole system.

Specified Vocational training for targeted groups~ like in case of Korea, one of the advantages and the role example is that, in the early stage of industrialization for the female workers, with the government approval the private companies developed special designated evening classes for their education.

4.3 General statistical indicators

VET schools students (%) ~The two countries participation in VET, relatively low that other educational organizations. The main reason is public appreciation of higher education over vocational in both society.

Vocational high school~ The Vocational high schools aim at educating skilled workers equipped with sound vocational awareness and professional knowledge to cope with the rapid changes in an information-oriented industrial society. For Mongolia, need to establish a high school attached to industry firms and Special classes by the request of industrial firms.

JR or regular Technical colleges~ junior colleges are two or three year post-secondary program and the purpose to produce mid-level technicians who can contribute to national development through teaching and researching technical knowledge in every field of society and cultivating the talents of students. In Mongolia there are no junior technical colleges. Instead of junior technical colleges, there is technology school with terraced program and

provides education service same with colleges.

Polytechnic/ industrial university~ The number of schools which provides polytechnic/ industrial profession education are almost same in both countries. If we'll see from per thousands persons view the Mongolian index would be greater than Koreans and it is shows that, Mongolia has all kinds of potential capability to educate skilled engineers. However this doesn't make any sense if we won't provide the produced engineers number. Especially, engineer or technicians number per thousands persons is very important. In order words, the quality of those schools in terms of production of skilled and educated work force. About Mongolian situation, we can come into conclusion that from quantity of school number need to transfer to quality of those schools. Otherwise, the next questions arising- should we establish more new schools or improve all the conditions and efficiency of current existing schools.

Table16. An example calculation of two countries

	Mongolia	**Korea**
Total Population	2 700 000	48 747 000
VET College number	13	146
VET College students number	14269	760929
Polytechnic/University`s number	14	18
Polytechnic/university`s students number	4698	329506
From above indicators we can calculate next quality indexes: (per 1000 persons)		
VET College number	5.3	15.6
University`s number	1.7	6.7
Per 1 college student number	1097	5211
Per 1 university student number	335	18305

Source: All statistics from each countries Statistical bulletin of 2010 and others calculated by author.

We can see from above analysis that over all Koreans are better than Mongolians 3 times. It means in Korea, every 15 people from per 1000 persons getting the vocational and technic al education and same time in Mongolia it is only 5 people from per 1000 persons. Moreover, among Koreans from per 1000 persons 8 of them becoming engineers and at same time for Mongolia it`s not even 2 persons. Furthermore, we can see that Korea can provide its market

demand by their VET schools and Mongolia in order to get in same level with Korea, we hav e to increase students number by 3 times. In order words, Korean people`s vocational and tec hnical education level 3 times higher than Mongolian.

What does this huge gap tells us? As mentioned above do we have to establish more sc hools or improve existing schools? Like, if we see the students number for per school that in Korea, approximately in one university around 18000 students studying and this number for Mongolia is only 335. The quality and quantity of universities which provides vocational edu cation is also a big matter of discuss for Mongolia. Thinking about university or polytechnic with 335 students, there is no science development at all, no library, also without education a nd training space, facility, building etc. From this picture we can see that in terms of higher v ocational education Mongolia is far left behind and products such educational organization ar e obviously won`t satisfy current market demand. From all these problems, Mongolians shoul d establish university or polytechnic scheme (higher education) in a brand new way accordin g to Korean system. The main advantage of Korean system is that system developed by itself for a long time and re-established and updated time to time according to environment change and adapted it. It is from the accreditation till ownership.

Same conclusion we can make regarding the colleges, so that colleges should established through combining school based and in-plant/service training based curriculum, with all facili ties. School base, basic knowledge providing education should run under administration and r egulation of MECS[34] and the training services under MOL. The reason separating the basic st ructure is educating young aged people especially, newly graduated students getting educatio n with same program together with adults is unsuitable in all way. Therefore, it would be suit able if adults getting the vocational education from the organization which provides in-plant/s ervice based education and training under MOL authority. Also, among the new entrees worki ng people are only 1.8% (347 persons) and unemployed people are 6% (1156).[35] Furthermore,

in the labor market unofficially registered unemployed people equal to over 140000, so gove rnment should solve the problem for these citizens through providing an opportunity to get fir stly, educated by newly organized vocational centers or colleges and afterwards get into labor market. Because of not trained and well educated situation, all these unemployed and job see king people becoming incapable for new working places. As for the fresh graduates from hig h school or middle school, the school based education through organizations under MECS is convenient.

Enrolment in Vocational Education as a proportion of total enrolments in secondary education (per cent)~ from this indicator we can see that, almost more that 70% of the enrol lments in secondary education are in general education and in Mongolia vocational education accounts for less than ten percent. As for Korea, it has developed the vocational education so fast that its enrolment forming more than 20 % of the enrolments in secondary education (Ja ndhyala B G Tilak, *Vocational Education and Training in Asia*, 2002).

4.4 Indicators about financing and investment

In case of Mongolia, there should be one financing source with multiple distribution methods. For example, establishing special funds like ”the Technical and Vocational education Fund” etc. The reason of such need is that present time the financing of vocational education training is not well structured and the supervision, the monitoring is in low level. Recent years, Mongolian government distributing cash to the every citizen of Mongolia under the name “Nation grace”, the money from mining sector revenue, production revenue from projects such as Oyu-Tolgoi. Instead of, blowing away in the wind such big amount of money, Mongolian government should gather this money and create funds such as mentioned above. Moreover, new structured and established schools should done not only by government, the actual procedure of construction of school faculty and reparation services should provided by Public–private partnership (PPP). Particularly, in current situation when Mongolian

government signed investment contract with foreign investors in terms of "...developing Southern Gobi region both socially and economically, creating new jobs and business opportunities for Mongolian companies and individuals,...."[36], through PPP government can organize establishment of in- service/plant based training sectors, furthermore, high schools and colleges with the involvement of world class private company.. For an example, school building financed and constructed by a private or public developer and then leased to the public or other private provider. The private developer then acts as landlord, providing housekeeping and other non-educational services while the school itself provides education services.

5. Lessons from Korean experience and a new proposal

5.1 Lessons from Korean experience

First, experience of attracting and selecting the students into vocational education and training schools. Like: The incentives for unemployed people and young children to enroll to the VET schools, such as full scholarship including books and clothing, and dormitory expenses. In Korean case, after graduation, they would be commissioned as sergeants (specialized in mechanical techniques) in the Army. In the case of 1976, 126 out of 400 incoming freshmen were valedictorians, 256 were top 5% students, and only 23 were top 10%. The students began to get license for precision machine technician, and to win the medalists in Vocational Olympic. In addition to promote mechanical technical school, Korean government also supported general technical school with a focus on training technicians who advance to Middle East, starting in 1976 (Kim Joon-kyung, *Korean Economic Development class*. Spring 2010). The actual benefits to the students who wanted to advance to the Middle East was clear, extra hours of practical training, license of technician, field study, additional subsidy, exemption from compulsory military service and most important guarantee of employment after graduation, the Middle East.

Second, in order to educate coming increase of students, government supported for research fund and teaching materials providing to the VET schools, specially, for those school which was designated on special training. The fundamental utilization was highly supported and provided by government. In case of Mongolia, we have an advantage that those especially focusing educated workers won`t go abroad they will work in own country for foreign company, which promises along with good working condition with high salary, the domestic development and individual income increase . Around 3000 working place will be needed in recent years and over all for big project`s 9000 working place will be needed.

Furthermore, we must remember always that today`s Korean industrialization success is

inseparable with policy that have been processed and implemented through one roof and 3 decades of constant improvement and implementation. Moreover, high involvement of private sector, the strong legal and policy structure, well structure for policy and supervision for its realization real quality good financial support (fair cooperation with all sectors) played a huge role on this tremendous success. For example, government implemented the obligatory demand for the private companies- the investment for public vocational and training programmes.

Furthermore, from the Korean Experience we can strongly see that the provision of vocational education must be directly related to those points at which some development is already apparent and where demand for skills is beginning to be manifested. Plans for VET should be preceded by detailed manpower analyses and forecasts and also a balance has to be struck between size of general education and vocational education. Furthermore, vocational education need not necessarily be purely vocational and technical. We must examine which vocational and technical skills are to be provided in schools and which in the training institutions and enterprise- based organisations.

Finally, as vocational education is relatively high costed than other, the government should make adequate allocation of resources for vocational education. Thus we must remember that the Vocational education should not promote inequalities within the educational system, also requires effectively linking of vocational education with higher education, so that vocational education is not perceived as dead-end, with no opportunities to go for higher education.

5.2 Limitation of Korean experience

The history shows that along with its tremendous success, Korean government had its bad sides relating to the Vocational education and training policy. Like, for the role model country, the actual leadership effect, particularly military government power won`t work nowadays.

Therefore, the actual implementation of experience would be without strong bureaucratic system, accepted leadership and without strict control. Also, from Korean experience we can that the high proportion of Private Institute eventually will lead to high tuition payment and low quality of education. Again government has to take "dominant" role in promoting VET. Social, cultural, historical, economic, technical and political parameters are very important for VET (besides curriculum questions). Hence formulation of sound and effective policies and plans of VET requires and inter-disciplinary development approach, treating VET as an integral part of overall education planning.

Moreover, we must not forget that we are talking two different timing periods. When Korean government first implemented its policy, the major amount of financial support already was there. Specifically, we are here talking about aid money, Japanese ODA etc. Large amount of these financial funding was designated to develop and support of government policy of VET. There was no restriction or protest from both private and public sector. We must seriously to take into our consideration, now this kind of policy measures would not go so far. In addition, before implementing any policy/any measures regarding to VET, we must carefully discuss about financing and funding policy, clearly determine to stakeholders responsibility and role by law or any other legal document in order to prevent failure.

5.3 The proposal of the "new model"

As stated in introduction, Mongolian government should establish and improve vocational school system by restructuring, organizing and hiring good administrative teams to produce and train skilled, well trained workers adapting to the changes in economic environment movements. In order to gain such big change we need to:

First, attract public attention into VET system and policy as much as possible. By ensure that vocational education is not a dead end - allowing well performing students in the vocational

education track to proceed onto higher education will ensure that the vocational stream is not seen as an option of last resort by prospective students. By establishing restructured and promoted schools (basing on Korean style, particularly vocational high school and school attached to industry), by expanding service type and offering more advanced rich curriculum, by supporting students from government, by increasing consumption and capacity usage. For more certain example, Mongolia should establish the Nation wide information online networking, concluding with all information about employer and employee or people who are looking for job. Also this integrated database system should provide with all labor market information to the Schools and training centers as well. With such activity we will have 24/7 production of information exchange.

Secondly, improve the quality of supply matching the market supply. By strengthening the general education component of vocational education programs -providing sound basic knowledge in demanded sectors, preparing students to work in various occupations, teaching students to be problem solvers and encouraging them to continue learning. By developing the teachers skills and capacity, by providing high technology instruments and study materials for schools, by supplying or providing an opportunity to train the students on advanced, modern training field, by increasing the study instruments to all level schools, by improving relationship between training and production and by establishing new modified system of accreditation.

Finally, we need to reform the management of VET system. By ensure private sector participation in management of vocational education institutions and in curriculum design. By updating legal system, making demanded amendment on specific laws, in order to coordinate the relationship of administration and financial management of VET system. By increasing foreign direct investment and developing cooperation between role countries. By allowing greater cost-sharing – i.e. moving from a system which is exclusively financed by

the government to a system which is increasingly financed by the private sector –who would be willing to do so if it sees the system producing relevant graduates - and the students paying user fees. Students are unlikely to contribute if they do not see accrual of labor market benefits from vocational education.

6. Conclusion

Among the role countries which have great experience with vocational training educational system, the Korean experience is very impressive and more suitable for Mongolia. Not only in VET system, Korea is itself the role model of rapid, successful economic growth and social development in the world – one of the Asian tigers. The liberation from Japanese colonial was a turning point for Korea in all ways (this period is also similar to Mongolian situation when Mongolia achieved its independence after colonial regime of Manchur). Moreover, there is another similar situation to South Korean case is that, current problem facing Mongolia same with the period when Korea from light industry structure transferred to industry based structure, "when the construction boom in the Middle east called for large exodus of skilled workers in the later part of 1970s, special attention was paid to provide adequate supply of skill workers in these trades."[37] Korean experience with vocational education and training is distinctive with two reasons: the high share of private involvement in both provision and finance at all stages of development and – compared to most other developing countries- a rare willingness of government hard-nosily to evaluate its policies, and to discontinue those that are revealed to be ineffective. These features make Korea's VET system and policies are invaluable "model" for other countries to study: not to blindly emulate Korea; but to learn what strategies are effective at various stages of institutional and economic development and under differing labor market conditions. Korea`s experience with vocational and technical education and training offers specific lessons with regard to the sequencing of government policies, difficulty of encouraging private sector participation, and the limits of government involvement. (VET reforms in Korea: Constraints and innovations Indermit S.Gill / Ihm, Chon-Sun)

Not only implementing the whole structure of vocational training school, it will be more efficient if Mongolians come out with a new structure which is well adapted in the

Mongolian society. It is clear that to successfully implement the new idea project, Mongolian government will face some situations in which they have to change some legal and administrative regulations. New challenges and perspectives will emerge for human research and development at individual and institutional level. In individual level developing core competence and job-related capabilities, HRD through life-long learning, upgrade qualification & certification and career-path development. From institutional level developing relevance, quality, competitiveness of the program, market control model: autonomy and market evaluation and use public support in the voucher form. Particularly, we should also consider about upgrade and transform vocational high schools into "Diversified-specialized Elite Vocational Schools", strengthening functional relationship among general high schools, vocational high schools and Jr. Technical colleges and develop "Private technical institutes" and On the job training Centers in corporations as specialized technical institute. Moreover we must provide an institutional framework for enhancing industry participation in VET. Finally, most important we shall never allow to backing up from what we have started and what we have achieved already under any circumstances.

APPENDIX

Appendix: Comparing the Vocational Education and Training system and policy of Mongolia and Korea

Table A. The Comparison of Mongolian and Korean Vocational Education and Training System

Indicators	Mongolia	Korea
Basics indicators		
VET introduced	Current system since- 1991	1960
Legislation	1. Law of Vocational Education and Training, 2009 2. Law of Education, 2008	1. Enactment of Vocational Training Law 1967..... 2. The Lifelong Education Law, 1999 under the Social Education Promotion Law 3. Education Law, 1995
VET system	1.Vocational Education and Training (VET) - Ministry of Education, Culture and Science - Mostly Youth(16-24) but no limitation - School-based 2.Vocational Training(VT) - Ministry of Labor, provides licenses through its agency for special training courses to companies and training centers	1.Vocational Education(VE) - Ministry of Education and HRD - Youth(16-24) - School-based 2.Vocational Training(VT) - Ministry of Labor - Adult(19-65) - Work-based
VET finance	1. ~ VE: Fully funded and supported by Government by MOE and EEF. Open for other sources: foreign aid, investment, donation etc. 2. ~ VT: MOL and Employment Encouragement Fund, company based training centres from companies and school based from their schools.	1. ~VE: MOE & HRD, 16 municipal and provincial offices of Education- 60% of Budget from Private Sources (parents, school foundations); 2. ~ Vocational training finance- MOL; 2/3 of Budget from Private Source – Education Investment Fund. Mainly Input-based Finance; Bonus Payment based on VT Institutes & Program Evaluation.
Stakeholders	1. -Vocational Education and Industrial training centers -Regular High Schools with special program 2. -Technical Colleges (2-3 years) 3. -Universities/ Institutes 4. -Public and private Job-training centers under Ministry of Labor	1. -Vocational-Technical High Schools 2. -Jr Technical Colleges (2-3 years) 3. -Universities 4.-Open Technical Colleges for Employed 5. -Public Job-training centers under Ministry of Labor 6.-Private Technical training industries (Nurse-aid, etc)
Descriptive indicators		
Main diplomas , credentials or certifications	1. Vocational education and industrial centres- Certification/ license 2. Technical college- Certification/ diploma *3.* Polytechnic/ industrial university- Certification, bachelor`s degree	1. Vocational high school- Certification 2. Jr/technical college- Certification 3. Polytechnic/ industrial university- Certification,

		bachelor`s degree
Cumulative years of education at the end of the programme	*1.* Vocational education and industrial centres – 11-12.5 2. Technical college- 13-14 *3.* Polytechnic/ industrial university- 16	1. Vocational high school- 12 2. Jr/technical college- 14-15 3. Polytechnic/ industrial university- 16
Typical starting age	1. Vocational education and industrial centres - 17-18 2. Technical college-17-18 *3.* Polytechnic/ industrial university-17-18	1. Vocational high school- 14-15 2. Jr/technical college-17-18 3. Polytechnic/ industrial university-17-18
Theoretical and typical length of the programme	1. Vocational education and industrial centres – 1-2.5 2. Technical college-2-3 *3.* Polytechnic/ industrial university-4-5	1. Vocational high school- 3 2. Jr/technical college-2-3 3. Polytechnic/ industrial university-4
Curriculum of education	1.	1. Mostly consists from general education and special technique training. In the special technique, theory and practical training combined.
Location/ infrastructure of VET schools 1. Urban area 2. Rural area	1. Urban area (1 metropolitan city)- 9 Vocational education and industrial centres, 9 colleges, 5 institutes, 4 university`s branches 2. Rural area (21 provinces)- 26 Vocational education and industrial centres, 4 colleges, 5 university`s branches, 2 high schools with Vocational education program.	1. Urban area (7 metropolitan cities)-195 Vocational high schools, 42 Jr colleges and 4 industrial and polytechnic universities. 2. Rural area (8 provinces 1 special province) - rest.
Accreditation system	1. ~The Mongolian National Council for Education Accreditation (former the National Council for Higher Education Accreditation) is an organization, which provides accreditation at both institutional and educational program levels countrywide.	1. ~The National Technical Qualification System (NTQS), where the government recognizes each individual citizen's technological capabilities, are divided into two categories, namely: Qualification System and License System.
Specified Vocational training for targeted groups	Vocational training by covered area : 1. Western area(5 provinces) 2. Mountainous area(6 provinces) 3. Central area(7 provinces) 4. Eastern area (3 provinces)	1. Vocational training support for the aged 2. Vocational training for low-incomers 3. Vocational Training Providers for the Disabled
General statistics		
Total population in person	2700000	48747000
Employed (out of labour force, in thousands person)	1. 1071.5 (51.8% of economically active population): 2. 1041.7 (97.2% of labour force; 50.4% of e.a.p)	1. 24836(70.8%): 2. 24005 (96.6% of labour force, 68.4% of e.a.p)
Unemployment(in thousands person)	38.9	831

Number of students all in (in person)	731520	11623759
VET schools students (%)	44681: 6.1%	1512104: 13%
Student- teacher Ratio	19	16
Vocational high school	1. High schools with Vocational education program- public owned 2 2. Vocational education and industrial training centre – 35 (public 23, private 12, within centers with foreign investment 4)	1. Vocational-Technical High Schools -691(national 5, public 408, private 289) 2. High schools attached to industry firms 3- 3. Special classes by the request of industrial firms 9-
JR or regular Technical colleges	1. Technical Colleges (1.5 years) –13 (public 8, private 5)	1. Jr Technical Colleges (2-3 years) –146 (national 7, public 8, private 147)
Polytechnic/ industrial university	1. Institutes – 5(public 3, private 2) 2. Universities - 9(public 8, private 1)	1. Universities -18(national 8, private 10)
Number of VET high schools and centres per thousands students	Students number- 25283 Per thousands person= 9.3 school or per 1 school=722 students	Students number- 480826 Per thousands person= 9.8 school or Per 1 school=695.8 students
Number of VET college and universities per thousands students	1. College Students number- 14269, school number- 13 2. Students number- 4698, Institutes/ universities – 14, Per 1000 person= 5.3/1.7 Per 1 school= 1098/335	1. College Students number- 760929, school number- 146 2. Universities -18, Entrants -329506 Per 1000 person= 15.6/6.7 Per 1 school= 5212/18306
Per thousands students in all level of VET: 1. -Number of teachers 2. -Government finance	1. Teachers – 1140 VEITC 2. Teachers -568 college 3. Teachers -41/248 institute/universities Per 1000 person=	1. Teachers -36077VEHS 2. Teachers -12451college
Indicators about entrees		
Entrees for VET system annually	1. Entrants – 11558 2. Entrants -5761	1. Entrants -163137 2. Entrants -242525

1. -to VET high schools/ centres 2. -to VET college and universities	-Per 1000 person=4.2 -per 1000 person=2.1	-per 1000 person= 3.3 -per 1000 person= 4.9 Open Technical Colleges for Employed 1. Entrants -329506
Enrolment in Vocational Education as a proportion of total enrolments in secondary education (per cent)	1. 5.8 (change from previous decade -1.8; change from previous 2 decades -5.2)	1. 20.4(change from previous decade -0.2; change from previous 2 decades 6.1)
Indicators about graduates		
Number of graduates from VET system (per thousands persons): - from VET high schools/ centres -from VET college and universities	1. graduates –9149 2. graduates –4460 per 1 centres=261.4 per 1 school=165.2 Entrants and graduates- 499/342; 1685/1252	1. graduates - 151410 2. graduates -199421 per 1 high school=219 per 1 school=1215
Indicators about financing and investment		
Advantage Social Economic Academic	Experiences gained and lessons learned since the start of transition Public attitude and private sector demand Demand on highly skilled workforce Increased Government support (funding and investment) and donors' concern Economic recovery and increased investment both domestic and foreign Emergence of trade associations keen to collaborate Expansion of diverse providers of vocational training Growth in enrollment	According to ADB (1991, pp.53-55), Korea is "a leading example "of how governments can promote an extensive school- based VET In Korea general skills, broad attitudes and discipline are more valued than vocational skills per se in labor market. Moreover, schools emphasizes moral education land discipline High schools attached to industry firms Special classes by the request of industrial firms Policy implementation (Strong bureaucratic system, accepted leadership, strict control and diligence of the executers) Supporting conditions (Close relation with private sector, but government was independent both from business and narrow political intentions, other outer and internal conditions) Prominent role of polythechnic institutions, vocational

		schools, institutes of technical education and technical colleges figure in the educational system.
Problem Social Economic Academic	Carry-over perception about reputation of vocational education Social factor- VET conceived as a system of education for poor and for not eligible for admission into higher education Mismatches between the skills of graduates and the requirements of the labor market The high cost of VET Low capacity to define the demand in numerical and content forms Lack of partnership skills and incentives for collaborative efforts Tear and shortage of equipment, facility and fiscal resources Competence and motivation of teaching staff Instructional methodology and organization	Dominant role of government in provision of school-based VET Difficulty of ensuring reasonable standards and quality in private institutions Structural Vulnerability of V.E. Funding High Proportion of Private Institutes Lack of School-Industry Partnership Little Incentive for Industry Only Audit for Budget Management. In Korea secondary technical education costs more than ten times the general secondary education, per student (Middleton and Demsky, 1989, p. 65) Lack of Autonomy in Voc. High Schools Low Discretion in Curriculum Design and Implementation No Systematic Evaluation on Investment

END NOTES

[1] http://countrystudies.us/mongolia/52.htm)

[2] "Rio Tinto" is Canadian mining company.

[3] Funkoo Park. 1996. *Vocational and technical education policy*

[4] Vocational education and training

[5] (http://www.mecs.gov.mn)

[6] (http://www.apacc4hrd.org/conf_workshop/apacc04/CR/MO/)

[7] "naimaa" is name given by citizens to business, which is buying cheap products from China and sell it in Mongolia on black market or selling some rare products secretly in Russia.

[8] Mongolian currency.1USD=1315tugrug

[9] (http://www.mecs.gov.mn)

[10] All statistical data from nso.mn by membership

[11] All statistical data from nso.mn by membership

[12] "The Millennium challenge account Mongolia" website www.mca.mn

[13] Participation share of working force= actual working population/actual working force

[14] (http://www.mecs.gov.mn)

[15] (http://www.mecs.gov.mn)

[16] All data in this page from "The Millennium challenge account Mongolia" website www.mca.mn

[17] About this project mentioned in Introduction part

[18] Ministry of Education, Higher and Vocational Education Department-Policy framework for TEVT

[19] Ministry of Education, Higher and Vocational Education Department-Policy framework for TEVT: ADB: EHR (TEVT) Sector Review and Master Plan 1993-1994

GTZ: Support to Vocational Education Project 2000-2002

ETF(*European-training fund*): National Observatory 1997-2003

UNEVOC National Observatory 1999 -

GTZ: Competence Centers (SME 1998-2007): wood 2000-, construction 1999-, printing 2000-, wool 2003-

ADB/NDF(Nordic Development fund): Social Sector Development Program 2002-2007

ADB: JFPR MON 9085 Non-formal Skills Training for Unemployed Youth and Adults, 2006-2008

ADB: TEDP 2007-2010.

[20] Yung Dug Lee. 1979. *A study on Educational Reforms and Innovations in the Republic of Korea*

[21] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[22] O Won-chol. 2009. *The Korea Story: President Park Jung-hee`s leadership and the Korean Industrial Revolution.* Wisdom Tree Publishing. 18.

[23] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[24] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[25] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[26] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[27] Official development assistance

[28] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[29] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[30] Yung Dug Lee. 1979. *A Study on Educational Reforms and Innovations in the Republic of Korea.* Korean Educational Development Institute.

[31] Yung Dug Lee. 1979. *A Study on Educational Reforms and Innovations in the Republic of Korea.* Korean Educational Development Institute.

[32] Yung Dug Lee. 1979. *A Study on Educational Reforms and Innovations in the Republic of Korea.* Korean Educational Development Institute.

[33] Kim Joon-kyung. 2010. *Building the Institutional Basis and Economic development in Korea, lecture*. KDI school of Public Policy and Management

[34] MECS- Ministry of education, culture and science

[35] MECS of Mongolia, www.mecs.mn

[36] Oyu- Tolgoi investment agreement, 2010-10-06

[37] Funkoo Park. 1996. *Vocational and technical education policy*

REFERENCES:

O Won-chol. 2009. *The Korea Story: President Park Jung-hee`s leadership and the Korean Industrial Revolution.* Wisdom Tree Publishing.

Vocational Training in Korea. 1986. Ministry of Labour Republic of Korea.

Yung Dug Lee. 1979. *A Study on Educational Reforms and Innovations in the Republic of Korea.* Korean Educational Development Institute.

Korean Education and foreign Assistance Programs. 1965. *Report on Seminar on Korea Education with the Participation of Foreign Agencies in Korea.* Central Education Research Institute.

Korea statistical Yearbook. 2009. Statistics Korea.

Kim Joon Kyung. 2010. *Korean economic development lecture, Spring 2010.* KDI school of Public Policy and Management.

Chong Jae Lee. 2007. *The Korean experience with technical and vocational education.* Seoul National University.

Hwang Gyu-hee. 2010. *Vocational Education in S.Korea.* KRIVET.

Kim Mee-souk. *Vocational Education and Training Policy in Korea.* KRIVET.

Paik Sung-joon. *Vocational Education and Training Finance in Korea.* KRIVET.

Dr. Young Real Choi. *Vocational Education and Training, VET, for the Youth -Sustainable Economic Growth and Youth Employment: Prospect in Korea.* Case study- Korea. KRIVET.

Małgorzata Kuczera, Viktória Kis. 2009. Greg Wurzburg. *Learning for Jobs OECD Reviews of Vocational Education and Training Korea.* OECD.

Park Funkoo. 1996. *Vocational and Technical education Policy.* Korea Labour Institute.

Ihm Chon Sun. 1998. *VET Reform in Korea.* Sejong University.

Indermit S.Gill, Ihm Chon-sun. 1996. *Vocational Education and Training Reforms In Korea: Constraints and Innovations.* World Bank and Sejong University.

Directorate for Education, Education and Training Policy Division- Vocational Education

and Training in Korea Strengths, Challenges and Recommendations. 2009.

Investment Agreement between the government of Mongolia and Ivanhoe Mines Mongolia INC LLC and Ivanhoe Mines LTD and Rio Tinto International Holdings limited. 2009. www.OT.mn

Master plan for developing Mongolian educational system from 2006- 2015. 2007. www.mecs.gov.mn

The Millennium challenge account Mongolia -Vocational education research "The research of labour market". 2010. Millennium challenge account Mongolia. www.mca.mn.