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National Assessment on Gender and Science, Technology and Innovation: Republic of Korea

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Introduction

In the knowledge society, opportunities should be given to women so that they can benefit from its advantages equally with men and so that their countries may gain the greatest benefit from their participation. Current global trends lead us to acknowledge the rise of women's status in the Science, Technology and Innovation (STI) field, which is one of the core issues in the knowledge society in many countries. Considering that Korea is a male-dominated society, we should not disregard the issue of sexual discrimination or gender equality in STI. That is why it is crucial for the society to prepare and provide good countermeasures to combat discrimination and inequalities. In Korea, proper policies are well established, and several institutes are working to improve women's status in diverse fields including STI. Still, it is necessary to have a correct understanding of gender equality since Korean society as a whole has a low level of awareness on this issue. There are certain gaps between the law and social cognition and due to pro-active measures such as quotas for women, male backlash against the policies often emerges.

As a part of the Gender Equality and the Knowledge Society (GEKS) framework, this paper will assess women's participation of Korea in STI. This project aims to offer a valuable and necessary starting point to measure the participation of women in STI in various global markets and benchmark status and progress by examining statistical results of women's participation in each aspect of the knowledge society. It will be an important contribution to help chart the policies, factors, and actors in national STI systems. The ultimate purpose of this report is to assume that all members of society will benefit when women are fully engaged in and actively contribute to the knowledge society. This report is based on the belief that women's participation will affect every aspect of their lives and determine their life opportunities. In this context, discrimination against women and the problems emanating therefrom will be measured in each sector to provide a basis for proposing amicable solutions.

The GEKS framework includes mostly quantitative assessments of women's participation in the knowledge society, especially focused on STI. This quantitative data consists of national sex-disaggregated data according to the framework outline. In the first part, women's potential to participate in the knowledge society will be discussed. The second part of the report shows the indicators of women's participation as outcomes. Through defining the parameters of women in knowledge society, the suggested and prioritized indicators are effectively monitored. Current data have been collected where available for time series of up to 10 years.

Part I sets out the quantitative assessments in each of the following categories: health, social, economic status, access, agency, opportunities and capability. In health and social status, there are few differences between women and men. We also see that government-led policies have promoted gender equality by helping women attain education and training, There has been gradual progress over the past decade in women's economic status, but a large gap remains between women's and men's in this area. Economic inequality is connected to access to resources as well as women's agency. The new almost continuous

introduction by government machineries of new and multifarious gender policies and laws providing for gender equality is evidence of its serious consideration of gender issues.

Part 2 assesses the extent to which the new opportunities have brought about gender equality. Despite a lack of societal awareness, women have made significant and continuing advances in the contemporary Korean labor market. However the market still tends to depend upon male workers for most positions. Though there is evidence that female employers are inclined to hire more women than male employers, overall society retains a propensity to hire many more male than female workers. However, the female-male ratio in decision making has increased continually over the past several decades.

Within the STI system, we can see a distinct difference in women's situation between science and engineering. Compared to the small share of women researchers in sectors such as computer and information technology (IT), at no more than 10-20%, the numbers of women in natural sciences is much greater.

Under the protection of diverse laws and policies, there has been considerable development and rapid advance in gender equality over the past ten years. After the new millennium, female participation in STI system has made continual gradual progress, yet the share of women in professional fields remains substantially lower than that of men and is well below the average for member countries of the OECD. In private enterprises where the laws and policies do not apply, women's progress has been slow. In this area countermeasures for stabilizing women's access to knowledge society are needed, and government needs to be aware of the magnitude of this issue. The Korean government should also search for substantial measures and schemes to address the traditional male-oriented atmosphere of the Korean society.

On the whole we lay great hope that the equalized educational opportunities that have been made available will continue to fuel the increase in women's participation in the knowledge society and lead to major improvements in women's status in Korea.

Part 1

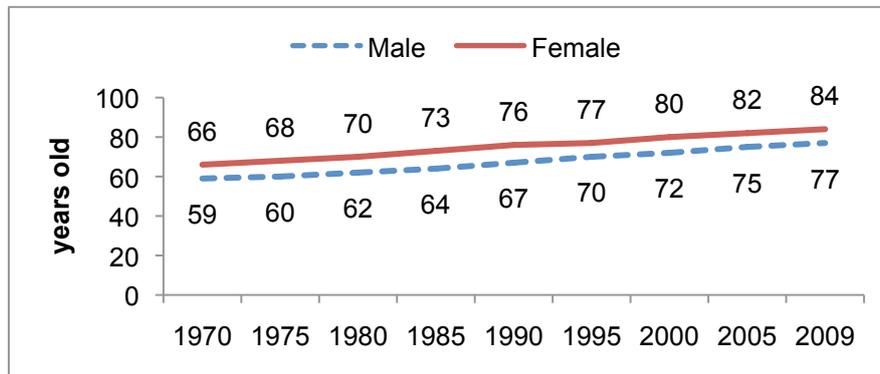
Knowledge Society Inputs: Women's Potential for Participation

1. Health Status

1.1 Female Healthy Life Expectancy

Over the last four decades, life expectancy in Korea has increased significantly due to improvements in medical care and nutrition. There was an 18-year increase in life expectancy for both women and men between 1970 and 2000 -- from 66 to 84 years for women, and from 59 to 77 years for men. Following the dramatic growth in older population with increased life expectancy, Korean society has become an aged society, with more than 14% of citizens aged 65 years or over as of 2010. Population ageing leads to huge increases in spending on social welfare and health care. By 2007 in Korea, the Health-Adjusted Life Expectancy (HALE) was nine years for women and eight years for men lower than life expectancy. The key issue in increasing life expectancy is not just the number of years, but a healthy life extension. Extending healthy life span is now one of the most important issues facing Korean society.

<Figure 1> Rise of Life Expectancy



Source: Statistics Korea, Vital Statistics (<http://www.kosis.kr>).

<Table 1> Comparison between Life Expectancy (LE) & Healthy Life Expectancy (HALE)¹(years)

	Life expectancy		Healthy life expectancy	
	2003	2007	2002	2007
Average	77	79	68	71
Female	80	82	71	74
Male	73	76	65	68

Source: WHO, *The World Health Statistics* 2005, 2009.

1.2 Malaria Patients by Sex

The number of vivax malaria cases is on the increase, with more than 1,000 cases being reported every year. Malaria transmission appears to be extending, with a spike in notifications in 2006-2007. Climate change associated with global warming could be part of the reason for this phenomenon. Experts expect that the risk of malaria could become even larger as climate changes continue. This requires continuous surveillance and prevention of malaria.

<Table 2> Notified Malaria Patients by Sex

* number of females per 100 males

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	2,556	1,799	1,171	864	1,369	2,051	2,227	1,052	1,345	1,772
Female	366	312	223	155	243	380	393	151	162	296
Male	2,190	1,487	948	709	1,126	1,671	1,834	901	1,183	1,476
(F/M)*	16.7	21.0	23.5	21.9	21.6	22.7	21.4	16.8	13.7	20.1

Source: Korea Centers for Disease Control & Prevention, Disease Web Statistics System.

(<http://www.cdc.go.kr/kcdchome/jsp/observation/stat>)

In 2007 when there was a spike in reported cases of malaria, many cases broke out among soldiers. Soldiers and ex-soldiers who were discharged after service accounted for 20% and 21% of cases respectively, while civilians comprised 59%. The incidence in women is relatively low due to the fact that most soldiers are male. Of total cases of malaria in 2010, 296 cases appeared in women in contrast to 1476 cases in men.

¹ International comparison of healthy life expectancy shows no significant difference between Korea and the OECD average. Korea's ranking is well above the world average.

<Table> Health-Adjusted Life Expectancy (HALE) at Birth (2007)

Unit: years

	Male	Female	Both
Korea	68	74	71
OECD	69.4	73.5	71.5
World average	58.6	61.6	60

Source: World Health Organization Statistical Information System (WHOSIS)

1.3 Notified Tuberculosis Patients by Sex

The number of reported tuberculosis patients has decreased owing to a great deal of effort in TB prevention, but the decline has not been continuous. In relation to gender, more men are afflicted with TB than women. However, the female to male sex ratio has been continuously increasing, reaching two-thirds in 2009 at the same time as the incidence of tuberculosis has decreased.

<Table 3> Notified Tuberculosis Patients by Sex

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	46,082	43,040	40,500	41,735	46,969	46,284	45,597	44,174	47,302
Female	16,280	15,359	14,832	15,286	17,709	17,744	17,635	17,215	18,783
Male	29,802	27,681	25,668	26,449	29,260	28,540	27,962	26,959	28,519
(F/M)%	54.6	55.5	57.8	57.8	60.5	62.2	63.1	63.9	65.9

Source: Korea Centers for Disease Control & Prevention, *Annual Report on the Notified Tuberculosis Patients in Korea*, each year.

In 1996, there were 77 new tuberculosis cases per 100,000 people, but this figure decreased to 73 per 100,000 in 2005. The incidence rate of tuberculosis is seven times higher in Korea than in other OECD countries.

<Table 4> New Tuberculosis Cases per 100,000 persons (1996~2009)

Year	Tuberculosis	Year	Tuberculosis
1996	77	2006	73
1999	75	2007	72
2002	67	2008	70
2005	73	2009	74
OECD Recent Average ^{a)}			
2007	11		

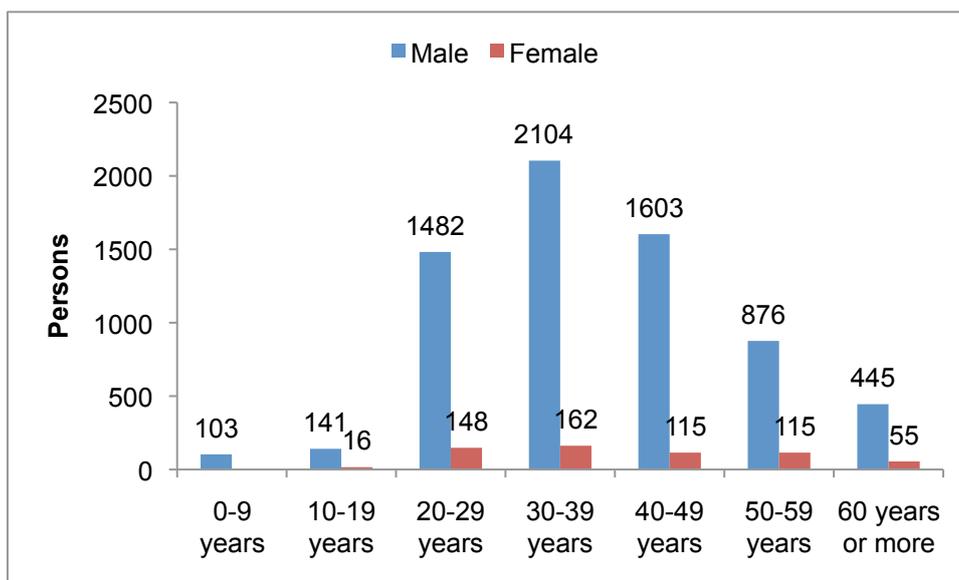
Note: a) The OECD recent averages are based on the latest data from: Australia (2006), Belgium (2006), Canada (2006), Greece (2005), Italy (2006), Japan (2005), Korea (2005), and United States (2006).
Source: Korea Institute for Health and Social Affairs, *Korea's Health and Welfare Trends 2010*.
Raw data: Korea Centers for Disease Control & Prevention, Disease Web Statistics System/ OECD, *OECD Health Data 2009*, 2009.

1.4 Prevalence of Rates of HIV/AIDS

As of June 2010, there were 7,268 cumulative reported cases of HIV. Of these, 1,292 people died, and 5,976 remained alive. In terms of gender, men are infected approximately 11 times more often than women: men comprised 91.6% (6,661 people), and women 8.4% (607 people) of HIV/AIDS sufferers.

22.4% (1,630 people) of HIV-infected people were in their 20s, 31.2% (2,266) were in their 30s, and 23.6% (1,718) were in their 40s. While the number of those under the age of 20 is on the rise, the number of those above the age of 40 is in decline. Men generally outnumber women in all age groups, and men in their 40s in particular show a greater incidence of HIV than women (14 times more).

<Figure 2> Cumulative Number of People Infected with HIV by Sex and Age Groups



Source: Korean Alliance of Defeat AIDS (<http://www.aids.or.kr>).

Among cases where the mode of transmission is known, almost all were infected through sexual intercourse, making up 99% (5,845 people). Of this group, heterosexual intercourse accounted for 59.8% (3,528 people), while homosexual intercourse comprised 39.3% (2,317 people). Since 2007, no vertical transmission (between parent and child) cases have been reported. Also, since 2006, there has been no case of HIV transmission resulting from contaminated blood.

<Table 5> Prevalence HIV/AIDS among Women 15+ years

	2009 Estimates	2011 Estimates
Korea	2900	1600

Source: UNAIDS, *Global Report 2011*.

1.5 Physical Integrity (FGM)

Korea has no custom of female genital mutilation.

2. Social Status

2.1 Equity/Discrimination in Social Institution

The System for Gender Equality and the Elimination of Discrimination against Women in Korea has been basically in conformity with the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). According to the seventh periodic report of the Republic of Korea under CEDAW covering the years between 2006 and 2009, Korea pursued strategies for more effective implementation of the laws and policies on realizing gender equality. Korean laws on gender equality include the *Basic Women's Development Act* and *Act on Gender Equality in Employment and Support for Work-Family Reconciliation*. The *Basic Women's Development Act* was enacted to promote the full development of women and facilitate the equality of men and women in all aspects, by defining areas of obligation for the state and self-governing bodies to realize the constitutional guarantee of gender equality. The Ministry of Gender Equality & Family established the *Basic Plan on Women's Policy* to implement the objectives of the law which comprises the expansion of women's participation in politics and the policy-making process; expansion of women's participation in public office; realization of equal employment opportunities; measures to prevent sexual harassment in the workplace; reinforcement of maternal protection; realization of equality in the family, school, and social education; advancement of women's welfare; reconciliation between work and family; establishment of equal family relations; and the elimination of sexual discrimination in mass media.

The *Act on Gender Equality in Employment and Support for Work-Family* was enacted in 1987 to ensure equal opportunity and treatment for men and women in employment, protect maternity and improve working women's status and welfare by developing women's vocational capabilities. This law includes the prohibition of discrimination in training, placement, promotion, retirement and dismissal; provides maternity leave and childcare facilities; and establishes a committee for equal employment. In its 1999 revision, clauses were introduced on sexual harassment in the workplace and on indirect discrimination.

The *National Action Plan for the Promotion and Protection of Human Rights* is a comprehensive plan for human rights policies made by the National Committee of Policies of Human Rights. In this plan, women are considered one of the minority and socially vulnerable groups that include the disabled, non-regular workers, migrant workers, women, children, adolescents, the elderly, sexual minorities, and people living with AIDS, Hansen's diseases, etc. This plan aims especially at prevention of domestic and sexual violence against women, maternity protection, assistance for reconciliation of work and family life, prevention of the sex trade and victim protection.

Legislation for gender equality and elimination of discrimination against women passed after 2006 includes the following:

- The *Act on Family Relations Registration* (2007) establishes a new personal identification registration system replacing the traditional system that became obsolete when the male family headship system was abolished.
- The *Act on Prohibition of Discrimination against the Disabled and Restoration of Rights* (2007)

prohibits discrimination against disabled women in all spheres including childbirth, childrearing, and housework.

- The *Act on Mandating Electronic Positioning Devices on Certain Criminals* (2007)
- The *Support for Multicultural Families Act* (2008) is intended to establish a support system for multicultural families, consisting of parents of different ethnicities and their children, to sustain stable family lives and become integrated into society.
- The *Marriage Brokerage Control Act* (2007) focuses on preventing violations of human rights in the process of international mate selection and curtailing problems caused by the lack of information.
- *Act on Promotion of Family-Friendly Social Environments* (2007)
- *Act on Promotion of Women's Economic Activities* (2008)
- The *National Finances Act* (2006) establishes gender-based budgets by a clause that mandates that the government assess the differential effects of the budget on men and women and to adjust the budget based on the findings. As of 2010 the act also mandates the government to submit gender-responsive budgets and accounts.
-

<Table 6> GEM and GDI (2007)

	Unit: %		
	Korea	OECD	World
Gender Empowerment Measure (GEM)	0.55	0.74	0.59
Gender-related Development Index (GDI)	0.93	0.93	0.73

Source: UNDP Human Development Report.

2.2 Sex Ratio at Birth

<Table 7> Sex Ratio at Birth in Korea

	* number of males per 100 females									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total Birth	554,895	492,111	490,543	472,761	435,031	448,153	493,189	465,892	444,849	469,900
M/W*	109.1	110.0	108.7	108.2	107.8	107.5	106.2	106.4	106.4	106.7

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

The sex ratio at birth in Korea was close to 110 in 2001, but there has been a gradual decrease, to 106.7 in 2010. The result appears to be influenced by the decline in the average number of births.² However, the sex ratio at birth in 2009 for the third child was 114, far exceeding the normal sex ratio. This seems to reflect the traditional preference for sons, which is manifested prenatally through sex-selective abortions.

² As the average number of total birth decreases, the percentage of male per female births is showing a similar decline as well. These results also could have been influenced by the number of children per each family. In 1970, the Total Fertility Rate (TFR) of Korea was 4.53, but it decreased in 2010 to 1.15.

<Table 8> Sex Ratio at Birth (Korea, OECD, and World record) (2011)

Unit: the relative ratio of males to females

Korea	OECD	World
1.069	1.055	1.070

Source: Central Intelligence Agency, *The CIA World Factbook 2011*.

2.3 Domestic Violence

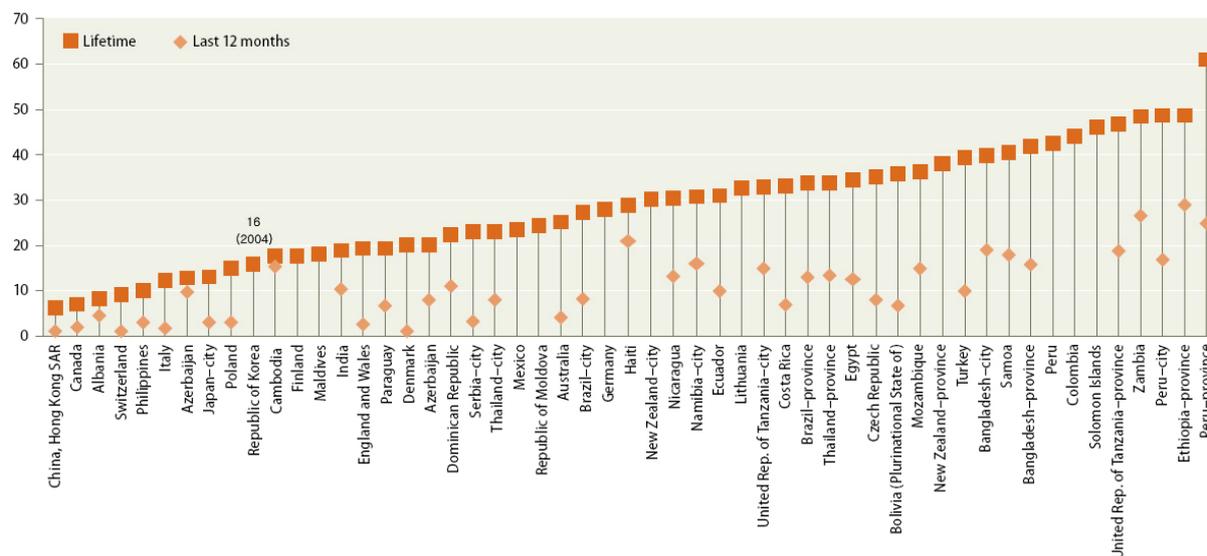
<Table 9> Follow-up Legal Action against Domestic Violence Assaulters

	2002	2003	2004	2005	2006	2007	2008	2009
The number of cases	15,271	18,932	17,294	15,498	13,531	12,807	13,341	12,154

Source: Ministry of Justice, *Justice Statistics on Women*

The estimated number of domestic violence offenders in 2009 was 12,154, based on the number of cases reported to police. Records kept by service organizations for victims of domestic violence show that domestic violence is much more widespread than the cases reported to authorities. Nearly 98,000 persons visited domestic violence counseling centers in 2007. Of the total counseling cases of 295,000 reported that year, those reporting domestic violence numbered 135,000. Thus, almost half of users of counseling centers came there for issues related to domestic violence. Besides counseling centers there are some 70 shelters for victims nationwide, which counted 5000 users in 2008 (Ministry of Gender Equality, *2008 Annual Report*, p.136).

<Figure 3> Proportion of Women Experiencing Intimate Partner Physical Violence (1995-2006), %



Note: The aggregate of the proportion is made up of those who experienced physical violence at least once in their lifetime and in the last 12 months.

Source: UN, *The World's Women, 2010*.

2.4 Sexual Violence

<Table 10> Follow-up Legal Action against Sexual Violence Assaulters

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Number of cases	8,389	7,984	8,471	9,232	9,294	13,237	12,358	16,919	18,158

Source: Ministry of Justice, *Justice Statistics on Women*.

Violence against women is now indicated through statistical data in many countries. In Korea, the number of sexual violence offenders has been increasing every year, reaching 18,158 cases in 2009, which is more than double the 8,389 reported in 2001.

2.5 Time Use

<Table 11> Time Use, M/F

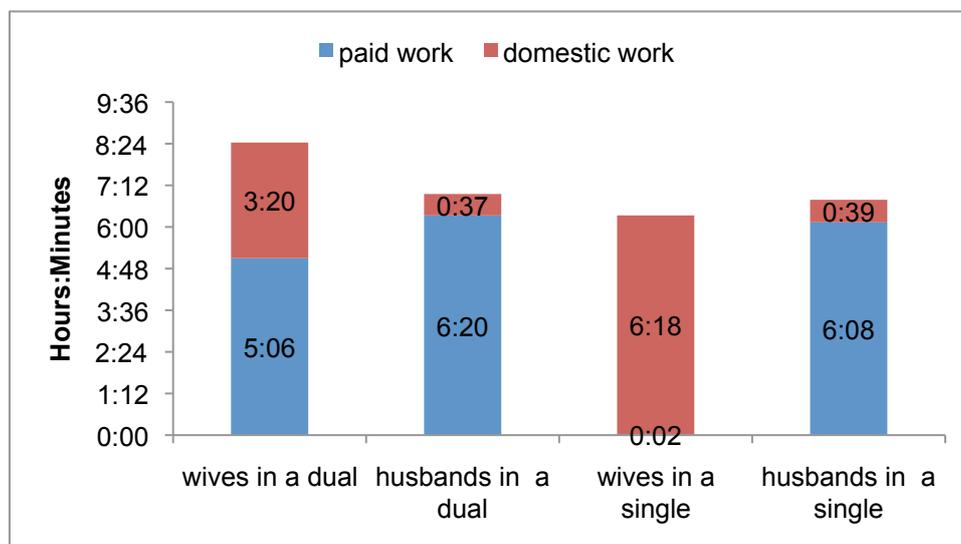
Unit: hours and minutes

	1999		2004		2009	
	Female	Male	Female	Male	Female	Male
Total	24:00	24:00	24:00	24:00	24:00	24:00
Personal Care Activities	10:17	10:19	10:33	10:35	10:53	10:53
Employment	3:18	5:42	2:58	5:09	2:48	4:52
Study	0:10	0:14	0:09	0:12	0:10	0:12
Household Care	3:09	0:23	2:52	0:25	2:48	0:30
Family Care	0:49	0:09	0:48	0:11	0:47	0:11
Voluntary Work and Community Participation	0:03	0:04	0:03	0:05	0:03	0:02
Social life/Recreation and Leisure	4:42	5:10	4:53	5:18	4:39	5:04
Travel	1:22	1:50	1:30	1:56	1:35	2:00
Others	0:10	0:07	0:15	0:10	0:19	0:16

Source: Korean Women Development Institute, Gender Statistics Information System (<http://gsis.kwdi.re.kr>). Raw data: Statistics Korea, Time Use Survey (1999, 2004, 2009).

The time Korean women spend on household affairs is much more than that of men: the daily time gap between a man and woman in time spent on household affairs is 2 hours and 54 minutes. According to the 2009 Time Use Survey by Statistics Korea, a Korean woman aged 20 years or older spends 3 hours and 30 minutes daily on household labor: 2 hours 48 minutes on household care and 47 minutes on family care while men spend only 41 minutes in total, 30 of which are spent on household care and 11 on family care. The gap decreased somewhat as compared to 10 years earlier: in 1999, a woman spent total 3 hours and 38 minutes, on household affairs and a man, 32 minutes, making a difference of 3 hours and 6 minutes.

<Figure 4> Time Spent on Household Affairs and Market Labor by Type of Income Earning



Source: Statistics Korea, Time Use Survey (1999, 2004, 2009)

Men in dual-earner families are actually doing slightly less housework than in households where they are the single earner (37 vs. 39 minutes). In dual-earner families, women are working substantially longer hours in total than men (21%).

<Table 12> Gender, Work, and Time Allocation¹⁾

Unit: minutes per day; %

	Burden of Work			Time Allocation (%)			
	Total Work of Time (minutes per day)			Times Spent by Female		Times Spent by Male	
	Female	Male	Female work time (%of male)	Market activities	Non-market activities	Market activities	Non-market activities
Korea	431	373	116	45	55	88	12
OECD ²⁾	423	403	106	37	64	69	31

Note: 1) The data is released in 2005 and the aggregation is made in 1999.

2) The average of OECD nations is from selected countries.

Source: UNDP, 2005 Human Development Report.

3. Economic Status

3.1 Women as % of Economically Active Population

<Table 13> Women as % of Economically Active Population, '000

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	22,134	22,471	22,921	22,957	23,417	23,743	23,978	24,216	24,347	24,394	24,749
Male	13,034	13,172	13,435	13,539	13,727	13,883	13,978	14,124	14,208	14,319	10,256
Female	9,101	9,299	9,486	9,418	9,690	9,860	10,001	10,092	10,139	10,076	14,493
F (%)	41.1	41.4	41.4	41.0	41.4	41.5	41.7	41.7	41.6	41.3	41.4

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

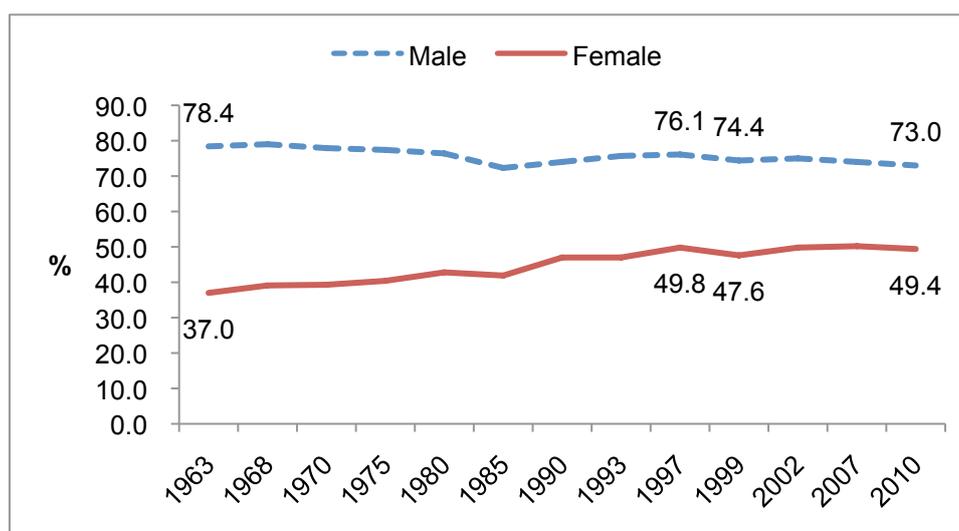
In the economically active population in 2009, the number of females was calculated at 10,076,000 (males were 14,319,000), accounting for 41.3% of the total labor force. Over the last 10 years, the percentage of economically active women has remained relatively unchanged at about 41%.

<Table 14> Labor Force Participation (Number & Rate)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Female	9,100 (48.8)	9,299 (49.3)	9,485 (49.8)	9,417 (49)	9,689 (49.9)	9,860 (50.1)	10,000 (50.3)	10,093 (50.2)	10,140 (50)	10,076 (49.2)	10,256 (49.5)
Male	13,033 (74.4)	13,172 (74.3)	13,434 (75)	13,538 (74.7)	13,727 (75)	13,882 (74.6)	13,978 (74.1)	14,124 (74)	14,209 (73.5)	14,319 (73.1)	14,493 (73)

Source: International Labour Organization, *Key Indicators of the Labour Market*.

< f> Economically Active Population Rates by Sex



Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

The gap between male and female labor force participation has narrowed in the past five decades. There was a wide disparity of 41.4% (male 78.4%, female 37.0%) in labor force participation in 1963; by 2010 it had fallen to 23.6% (male 73.0%, female 49.4%). Before and after the financial crisis of 1997-98, men's labor

force participation rate rapidly decreased from 76.1% in 1997 to 74.4% in 1999. For women, the trend also declined from 49.8% to 47.6%. The proportion of the female population participating in economic activity has now nearly recovered to the level before the economic crisis, in comparison with a falling off in male participation.

<Table 15> Labor Force Participation and Unemployment Rate Population with Bachelor's Degree by Sex, %

Category	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Male Participation	88.8	89.2	89.7	89.8	89.4	89.4	89.0	89.0	88.5	88.6	89.0
Female Participation	60.9	61.5	62.1	61.7	62.7	63.1	64.4	64.4	64.0	63.0	63.2
Male Unemployment	4.3	4.1	3.6	3.4	3.1	3.2	3.2	3.3	2.9	3.4	3.4
Female Unemployment	4.2	3.9	3.7	4.2	4.1	3.8	3.7	3.2	3.2	3.5	4.0

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

A problem in labor force participation of Korean women is that the proportion of economically active women with a university level of education is markedly lower than in other OECD countries. The rate of women participating in economic activity has risen slowly from 60.9% in 2000 to 63.2% in 2010 but pales in comparison to that of men. In the same period nearly 90% of men with a university degree participated in the labor force. The unemployment rate of women with a university level of education was 4.2% in 2000, which was 0.1% lower than that of men. Over the course of the decade, the women's unemployment gap with men has increased, indicating that female university graduates were having a harder time than their male counterparts in finding work.

3.2 Earned Income Ratios

<Table 16> Gender Gap in Average Monthly Wage

Unit: 1,000 \, %

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Female	1245	1331	1446	1550	1673	1783	1839	1949	1952
Male	1969	2120	2303	2455	2630	2790	2919	3082	3072
Wage Gap	63.2	62.8	62.8	63.2	63.6	63.9	63.0	63.3	63.5

Note: 1) Average Monthly Wage=Monthly Wage+Annual Wage/12

2) Wage gap=Female Monthly Wage/ Male Monthly Wage*100

Source: Ministry of Labor, *Survey Report on Labor Conditions by Employment Type* (for each year).

<Table 17> Estimated Earned Income by Sex and F/M Ratio (2007) (Korea)

Unit: PPP US\$, %

Female	Male	Female / Male
US\$16,931	US\$32,668	0.52

Source: UNDP *Human Development Report 2009*.

Reliable sources of data on wage levels exist, but there are no accurate sources of data related to self-employment earnings. As far as the gender wage gap is concerned, the average monthly wage of women is ₩1,952,000, compared with ₩3,072,000 in men. The wage level of female workers, hence, is still only 65% of male workers average monthly wage. During the past decades, there has been a slight increase with fluctuation in wage levels: The level increased from 63.2% in 2001 to 63.9% in 2006, and then decreased.

Despite the fact that the share of female employees has been increasing, as seen in Table 18, it is difficult to see that this shift reflects the labor market as a whole. As this figure was based on regular workers, it does not include irregular workers, in which the percentage of women is high.

3.3 Females by Category of Workers

<Table 18> Female Employees by Status of Employment

Unit: 1,000 persons, %

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	8,991	9,225	9,108	9,364	9,526	9,706	9,826	9,874	9,772	9,914
Employers (%)	3,382 (37.6)	3,368 (36.5)	3,138 (34.5)	3,127 (33.4)	3,135 (32.9)	3,134 (32.2)	3,070 (31.2)	3,006 (30.4)	2,816 (28.8)	2,683 (27.1)
Own account workers (%)	1,753 (19.5)	1,786 (19.4)	1,618 (17.8)	1,740 (18.6)	1,807 (19.0)	1,828 (18.8)	1,821 (18.5)	1,776 (18.0)	1,652 (16.9)	1,601 (16.1)
Unpaid family workers (%)	1,629 (18.1)	1,582 (17.1)	1,519 (16.7)	1,387 (14.8)	1,329 (14.0)	1,306 (13.5)	1,249 (12.7)	1,230 (12.5)	1,164 (11.9)	1,083 (10.9)
Employees (%)	5,609 (62.4)	5,857 (63.5)	5,970 (65.5)	6,237 (66.6)	6,391 (67.1)	6,573 (67.7)	6,756 (68.8)	6,868 (69.6)	6,955 (71.2)	7,230 (72.9)
Regular employees (%)	1,861 (20.7)	1,968 (21.3)	2,109 (23.2)	2,289 (24.4)	2,439 (25.6)	2,616 (27.0)	2,816 (28.7)	2,954 (29.9)	3,051 (31.2)	3,421 (34.5)
Temporary employees (%)	2,589 (28.8)	2,682 (29.1)	2,826 (31.0)	2,869 (30.6)	2,874 (30.2)	2,909 (30.0)	2,940 (29.9)	2,935 (29.7)	2,991 (30.6)	2,973 (30.0)
Daily workers (%)	1,159 (12.9)	1,207 (13.1)	1,036 (11.4)	1,079 (11.5)	1,079 (11.3)	1,048 (10.8)	1,000 (10.2)	979 (9.9)	913 (9.3)	837 (8.4)

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

In 2010, among 9,914,000 female employees, the number of employers is 2,683,000, and the number of employees is 7,230,000 (comprising 27% and 73% respectively). Regular employees accounted for a 34.5%

share of the total employees, and temporary employees comprised a high proportion of 30% as well. The percentage of daily workers is on the decrease.

During the last ten years, the share of employers decreased by 10% from 37.6% to 27%, which contrasted with the growing pattern in proportion of employees. The percentage of women working as unpaid family workers decreased from 18.1% to 10.9%. Given the fact that the women employed in agriculture as unpaid family workers was high in Korea, this reflects a decrease in unpaid family workers as well as in the population employed in agriculture.

<Table 19> Non-Regular Workers

Unit: 1,000 persons, %

		2003	2004	2005	2006	2007	2008	2009	2010
Total	Wage & salary employees	14,149	14,584	14,968	15,351	15,882	16,104	16,479	17,048
	Regular employees	9,542	9,190	9,486	9,894	10,180	10,658	10,725	11,362
	Non-regular employees	4,606	5,394	5,483	5,457	5,703	5,445	5,754	5,685
	Non-regular employees (%)	32.6	37.0	36.6	35.5	35.9	33.8	34.9	33.3
Female	Wage & salary employees	5,866	6,096	6,286	6,442	6,647	6,737	6,964	7,265
	Regular employees	3,546	3,434	3,539	3,691	3,851	3,991	3,891	4,228
	Non-regular employees	2,320	2,662	2,747	2,752	2,796	2,746	3,073	3,037
	Non-regular employees (%)	39.5	43.7	43.7	42.7	42.1	40.8	44.1	41.8
Male	Wage & salary employees	8,283	8,489	8,682	8,909	9,235	9,366	9,515	9,783
	Regular employees	5,996	5,756	5,947	6,204	6,328	6,667	6,833	7,134
	Non-regular employees	2,286	2,732	2,736	2,705	2,907	2,699	2,681	2,649
	Non-regular employees (%)	27.6	32.2	31.5	30.4	31.5	28.8	28.2	27.1
Non-regular female employees (%) (Female non-regular/Total non-regular)		50.4	49.4	50.1	50.4	49.0	50.4	53.4	53.4

Note: Figure as of August annually.

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

To grasp the size and the work status of employees, the Korea National Statistical Office conducts an additional survey to *The Economically Active Population Survey* twice a year. A very striking characteristic that emerges is the high share among women working as non-regular workers as well as the large proportion of women among non-regular workers a whole. The percentage of non-regular employees among female employees grew by 3.3% between 2003 and 2010 (from 39.5% to 41.8%). The proportion of women in the total of non-regular workers rose by 3.0% in the same years (from 50.4% to 53.4%). These irregular workers are

subjected to low wages and unstable employment, which leads to further worsening the working conditions of female employees.

3.4 Share of Women in Poorest Quintile

The individual share of women in the poorest quintile could not be collected because income data in Korea is aggregated on basis of the household as a whole. The number of female-headed households is increasing, however, so data on their income allows analysis of the frequency of their poverty. Consistent with the increase of female-headed households (i.e. unmarried women, lone-parent households, and older females living alone), the poverty rates for women are gradually increasing. In terms of gross income, the percentage of women earning below 50% of the median income increased consistently from 2003 to 2006 (23.3% to 24.5%).

<Table 20> Share of Women in Recipients of National Basic Livelihood Security Benefit

	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total	1,345,526	1,275,625	1,292,690	1,337,714	1,425,684	1,449,832	1,463,140	1,444,010	1,482,719
Female	778,501	742,458	751,457	775,640	821,428	833,311	840,740	826,995	844,658
F %	57.9	58.2	58.1	58.0	57.6	57.5	57.5	57.3	57.0

Source: Ministry of Health, Welfare and Family Affairs, *Yearbook of Health, Welfare and Statistics*, each year.

A basic livelihood security benefit is provided under the National Basic Living Security Act. The purpose of the Act is to support the livelihood of low-income families whose income is less than the minimum cost of living and promote their self-support. The scheme provides seven types of allowances including livelihood, residence, medical, educational, delivery, funeral, and self-support benefits. As of 2008, about 3% of the total population received basic livelihood benefits. The beneficiaries of the national basic livelihood security serves as a proxy for population living below the poverty line. The share of women beneficiaries of these benefits has remained at the level of 57-58% over the decade.

4. Access to Resources

4.1 Ownership Rights to Land, Houses and Other Property

There are no legal provisions that block women from owning land, houses or other property. Although legal rights are equal, customarily household property tends to be registered in the name of men as the head of household, and it is not common for women to have ownership over the land and houses in their names. Reflecting the recent expanded awareness of gender equality as well as tax benefits conferred on couples adopting joint tenancy, there has been a constant rise in cases of property held jointly by spouses.

4.2 Women's Access to Credit, Loans, Venture Capital

Generally, in Korea, loan applicants are assessed on the basis of their occupations and property. If women have an occupation, they will be accessed based on their job's level of security, income level, and social reputation and other factors. This means in practice that women could have less access to credit and loans than men since many women have a high level of financial insecurity. It is difficult for women without jobs to access credit and loans. Even though they have rights to property held jointly property, women are generally required to get loans on based on the security of their husband's property, thus requiring his approval.

► Policy for supporting women-owned enterprises:

The *Act on Support of Women-owned Enterprise* was promulgated in 1999. The Small Medium Business Administration (SMBA) establishes a *Basic Plan to Promote the Activities of Women Entrepreneurs* each year. In 2010, the *Plan for Supporting Business Startup for Women of Low-Income Households* went into effect providing two years of support for women households to get a personal loan up to 30 million won per person that can be used as a security deposit to rent business premises. Under this plan, the government is required to allocate a certain percentage of its budget to support women-owned enterprises and gives preferential treatment to women-owned enterprises that participate in support programs for small and medium businesses. Additional credit is given to women's businesses in fields such as technology assurance, venture, market expansion, consulting, and information technology.

4.3 Percent of Women Using Internet and Cell Phones

<Table 21> Percent of Women Using Internet and Mobile Phones

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Use of mobile phone	Female	–	–	–	–	66.4	71.8	73.7	78.1	80.7	85.2
	Male	–	–	–	–	78.6	81.4	81.3	83.8	85.3	88.5
Use of Internet	Female	44.6	52.4	57.5	62.0	66.3	67.6	70.3	71.5	71.9	72.4
	Male	58.7	63.5	70.7	74.4	77.4	79.3	80.8	81.6	82.4	83.2

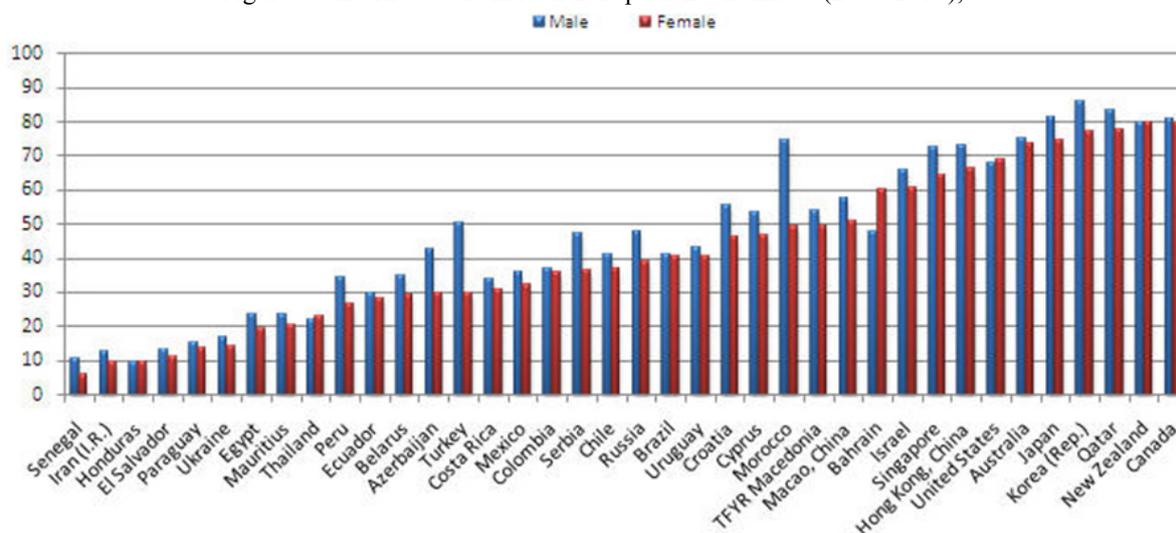
Source: Korea Communications Commission, Korea Internet & Security Agency, *Survey on the Internet Usage*, each year.

There has been dramatic growth in the number of mobile phone users, on the part of both men (88.5%) and women (85.2%) by 2010 as compared to 2005. The percentage of women who are mobile phone users has expanded especially rapidly: from 7.8% to 3.2% over the same five-year period. In a survey of people using smartphones, there were more female smartphone subscribers (52.9%) than men during the last six months. As of 2010, 72.4% of women and 83.2% of men used the Internet, attesting to the fact that gender disparity still persists in the Internet users. In 2001, Internet use rate of women increased to 44.6% and that of men to 58.7%.

The difference in Internet use rate by gender was 14.1% in 2001, which had decreased by 10.8% in 2010. The 2011 report by LG Uplus (a Korean wireless company) on the usage pattern of subscribers to the

multimedia wifi service shows that men were faster to accept and adopt a high-end mobile phone than women (men 69%, women 31%). Regarding age, the users in their 20s were 50% greater than those in their 30s in women, whereas, in men, the proportion for users in their 30s was 10% higher than that those in their 20s.

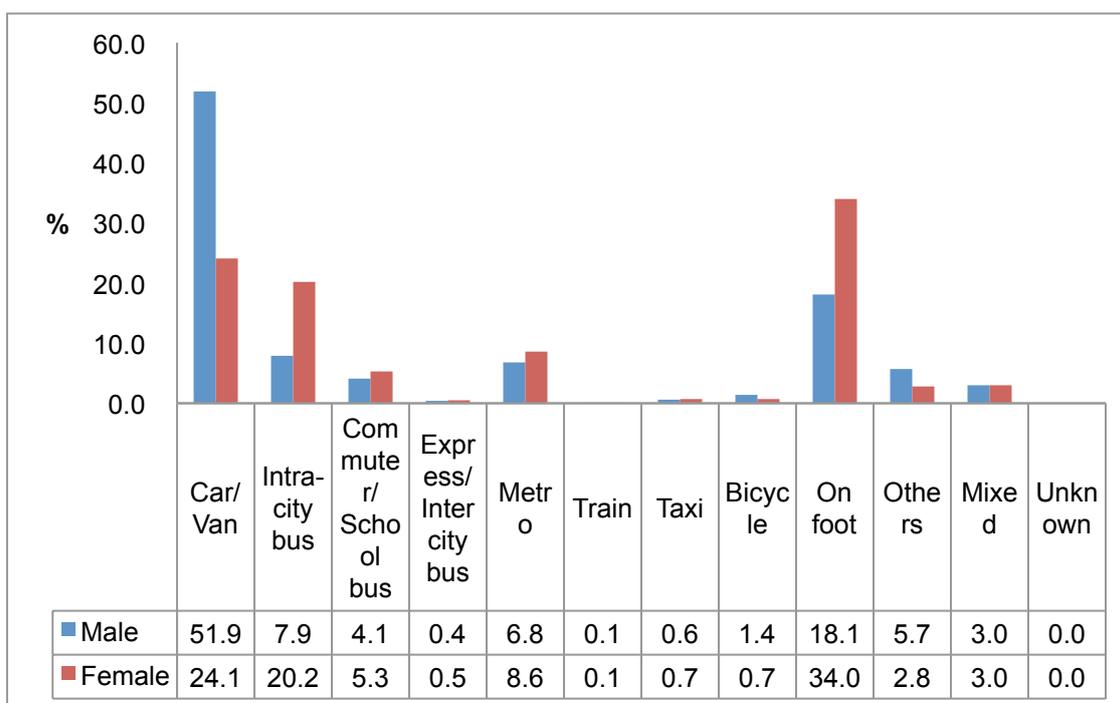
<Figure 6> Internet Users in Non-European Economies¹⁾ (2008-2010), %



Note: 1) Data used is the latest available year from 2008-2010 of people of 15-74 years of age.
Source: ITU World Telecommunications ICT Indicators Database, 2011.

4.4 Use by Women of Railroads and Other Transportation Infrastructure

<Figure 7> Means of Commuting, Population Aged 15 Years or Older by Sex (2005)



Source: Korea Women's Development Institute, Gender Statistics Information System (<http://gsis.kwdi.re.kr>).
Raw data: Statistics Korea (2005), Census commuting Survey.

One in three female workers in 2005 commuted on foot, as compared with one in two male workers commuting by car or van. Women employees aged 15 years or older made 34% of their journeys on foot, 24.1% by car or van, and 20.2% by intra-city bus in 2005. More than half of male employees preferred car or van for their journeys, 18.1% went on foot, and only 7.9% of male journeys were by intra-city bus.

5. Women's Agency

5.1 Share of Women in Parliament

<Table 22> Percentage of Female Members of National Assembly

	2000	2004	2008
Total members of national assembly	273	299	299
Female members (F%)	16 (5.9)	39 (13.0)	41 (13.7)
Female members of district representatives (F%)	5 (2.2)	10 (4.1)	14 (5.7)
Female members of proportional representatives (F%)	11 (23.9)	29 (51.8)	27 (50.0)

Source: Korea Women's Development Institute, Gender Statistics Information System (<http://gsis.kwdi.re.kr>).

The National Assembly has only one chamber. The number of female representatives in Korea is still low relative to other developed countries. In order to compensate for the barriers that prevent women from gaining representative positions, the Political Party Law was revised in 2004 to require 50% quotas in proportional representation. Upon the implementation of this law, there was a striking increase in the share of female members of the national assembly, to 13% of the seats in 2004 as compared with 5.5% in 2000. With gender quotas in proportional representation as a momentum, 5.7% of district representatives were women, which was a significant growth in comparison to 2.2% in 2000.

5.2 Shares of Women Ministers and Sub-Ministers

<Table 23> Shares of Women Ministers and Sub-Ministers (July 2011)

Number of ministries	Number of ministers	Number of female ministers (%)	Number of sub-ministers	Number of female sub-ministers (%)
17	17	3 (17.6%)	23	0 (0%)

Source: Each ministry

Very few women get to the position of ministers. Only three out of 17 cabinet members are women (17.6%). There were no women among sub-ministers in cabinet. Legislative gender quotas are applied to the position of ministers, whereas not to sub-ministers. This phenomenon of underrepresentation in sub-ministerial posts is related to the low share of women in decision-making positions in the civil service, providing a small candidate pool for such posts.

5.3 Women in Senior Positions in Political Parties, Trade Unions, Employers Associations, Professional Organization, NGOs and Community-Based Associations

<Table 24> Women in High-Ranking Positions in Political Parties

		The Government Party		The First Nongovernment Party	
		Members of the party affairs committee	Chairmen of a district party chapter	Members of the party affairs committee	Chairmen of a district party chapter
2001	Total	98	227	63	227
	Female	5	3	5	3
	F %	5.1	1.3	7.9	1.3
2002	Total	98	227	63	227
	Female	9	3	5	3
	F %	9.2	1.3	7.9	1.3
2004	Total	76	-	51	-
	Female	16	-	10	-
	F %	21.1	-	19.6	-
2006	Total	81	288	74	243
	Female	21	7	10	7
	F %	25.9	2.4	13.5	2.9
2008	Total	39 ¹⁾	234	66 ²⁾	236
	Female	4	17	8	20
	F %	10.3	7.3	12.1	8.5
2010	Total	62 ¹⁾	245	54 ²⁾	230
	Female	6	14	6	22
	F %	9.6	5.7	11.1	9.6

Note: 1) Party executives; 2) The party executive committee.

Source: Korean Women's Development Institute, *Gender Statistics in Korea 2010*

Women are also underrepresented in party affairs committees in both the Government party and Nongovernment party, occupying 9.6% and 11.1% of such posts respectively in 2010.

<Table 25> Female Share of Parliament and Ministerial Positions (2009)

	Seats in Parliament	Ministerial Positions
F %	14	5

Source: UNDP, *Human Development Report 2009*.

5.4 Contraceptive Use

<Table 26> Prevalence of Contraceptive Practice among Married Couples Aged 15-44 by Method, %

Contraceptive Method	2000	2003	2006	2009
Total	79.3	84.5	79.6	80.0
Sterilization	18.3	15.6	11.3	5.9
Vasectomy	13.0	15.7	19.7	16.8
Intrauterine Device	13.7	16.1	15.0	12.8
Oral Pills	2.1	2.0	1.1	2.0
Condom	16.5	8.5	19.2	24.3
Others	15.7	26.6	13.3	18.2

Source: Korea Institute for Health and Social Affairs, *The 2009 national survey on fertility, family health and welfare in Korea*, 2009.

The prevalence of contraceptive use as of 2009 reached roughly 80% among married couples aged 15-44. For methods of contraception used by women only, sterilization accounted for 5.9%; intrauterine devices, 12.8%; and oral pills, 2%. Vasectomy (16.8%) and condoms (24.3%) are the methods most commonly used by men. Over the period between 2000 and 2009 there was a significant decline (12.4%) in the proportion of users relying on sterilization. Users relying on intrauterine devices decreased, while users of male condoms rose by 8.2 % points. In overall, decreases were noticeable in the proportion of females using contraception as compared to males.

<Table 27> Contraceptive Prevalence Rate (%) (2000+)

Korea	80				
Norway	88.4	Greece	76.2	Netherlands	69
Portugal	86.8	Canada	74	Spain	65.7
United Kingdom	84	Turkey	73	Ireland	64.8
United States	78.6	Mexico	70.9	Chile	64.2
France	76.6	Australia	70.8	Japan	54.3

Note: Based on latest available data since 2000.

Source: WHO Statistical Information System (WHOSIS).

6. Opportunity and Capability

6.1 Men's/Women's Adult Literacy Rates

<Table 28> Adult Literacy Rates, M/F

	1999	2000	2001	2002
Female	96.2	96.4	96.6	96.6
Male	99.1	99.1	99.2	99.2

Sources: UNDP, *Human Development Report 2002~2004*.

The adult literacy rates reached 96.6% for women and 99.2% for men as of 2002. Since then, literacy rates are no longer estimated by the government. The Education Law enacted in 1949 established compulsory education. Since 1952, Korea has provided six-years of free education for all children in primary school. Thus every citizen born after 1950 has at least an elementary educational background.

6.2 Net Primary, Secondary and Tertiary Enrolments

<Table 29> Gross School Enrollment Ratio, %

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Elementary school	Female	97.8	98.0	98.8	98.2	98.9	98.9	99.3	99.2	98.0	98.6
	Male	97.1	97.3	98.4	98.0	98.7	98.7	99.2	98.9	97.8	98.6
Middle school	Female	96.3	94.9	93.6	93.0	95.0	96.6	96.1	93.1	96.0	97.6
	Male	95.1	94.7	92.6	91.7	94.2	95.7	95.9	93.3	96.4	97.7
High school	Female	89.7	87.9	88.9	89.0	91.0	90.6	91.7	90.5	92.9	92.7
	Male	89.7	88.5	89.6	89.7	91.0	90.0	90.9	89.6	92.1	92.1
Higher education	Female	48.5	50.4	52.1	55.3	58.3	60.5	63.4	65.0	65.6	66.2
	Male	57.5	58.3	59.5	59.0	61.8	66.3	68.6	69.3	69.3	68.5

Source: Ministry of Education, Science and Technology Korean Education Development Institute, *Statistical Yearbook of Education*, each year.

No differences exist between the primary educational attainment of men and women owing to compulsory education. Fully two-thirds of women were enrolled in higher education in 2010, which was 2.3% lower than the rate for men. However, the gender disparity has markedly narrowed since 2001.

<Table 30> Average Years of Education by Age (2005)

	Total	Female	Male
Average years	11.2	10.5	12
Aged 6-19	4.2	4.3	4
Aged 20-29	13.8	13.9	13.6
Aged 30-39	13.6	13.3	13.8
Aged 40-49	12.3	11.7	12.9
50 years or older	8.2	6.7	10

Source: Korea Women's Development Institute, Gender Statistics Information System (<http://gsis.kwdi.re.kr>).

According to the age group, the average years in education falls from a peak in the twenties. For the cohort of the teens and twenties, women have a higher average years of schooling than men, whereas for the

cohort 30 years or older, men's average years in school are higher. For those aged 50 years and older, women spent 3.3 fewer years in school than men on average. ³

6.3 Availability of On-the-Job, Staff, Specialized Training for Women and Men

<Table 31> Distribution of Vocational Trainees (2010)

Total	Female (no.)	Male (no.)	F %
4,208,258	1,404,028	2,791,219	33.4

Source: Korea Employment Information Service, Unpublished data.

The Ministry of Labor runs several vocational training programs: the co-ed programs include one for the currently employed and another for those without jobs. The women-only programs include one for housewives – short-term adaptation training – and the other for unemployed female household heads. In 2010, the total number of people who participated in the vocational training programs for employees was 4.2 million. Among those participants, women were 1.4 million and men were 2.8 million. Women's share in these programs was only one-third in 2010, which is a low level considering that women comprised 42.6% of the total number of paid employees. On the other hand, women made up 59.3% of those in vocational training programs for the unemployed in 2009. (Source: The Ministry of Labor (2010), *2010 Women and Employment*, p.78).

The Ministry of Labor also runs the Short-term Training Program for Housewives. For housewives who have the desire and ability for work but no opportunity, this program supports their participation in economic activities. In 2009, some 4,500 participants were trained for 1-4 weeks in this program.

The Ministry of Gender Equality is planning to promote diverse programs of vocational training and employment assistance for women, including supporting programs for reemployment of housewives, employment in social service sectors, employment of young women local communities, and employment in professional occupations. The total number of women participants in those programs was about 6,600 in 2009. Some 4,000 women took part in the Career-interrupted Women Supporting Program and another 2500 in the Designed Program to Support Employment for Young Women in the Local Communities were.

³ As a relevant data to school enrollment ratio and average educating years, we note additional data on the relative ratio of female enrollment.

<Table> The Relative Ratio of Female's Enrollment of Primary, Second and Tertiary Level to Male

Unit: %

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Primary level	98.5	97.7	97.2	96.7	96.6	96.6	97.1	97.6	98.1	98.3
Second level	99.1	99.0	98.4	98.3	98.0	97.8	96.9	96.4	96.3	96.3
Tertiary level	59.9	61.1	62.3	62.9	63.9	64.6	65.9	67.3	68.6	69.7

Source: World Bank, *World Development Indicators & Global Development Finance*.

7. Enabling Policy Environment

7.1 Inclusion of Gender Issues in the National Knowledge Society Policies on Science and Technology, ICT, Labor and Education

The government promulgated the *Act on Fostering and Supporting Women in Scientists and Technicians* in 2002 to promote female participation and increase women's representation in the fields of engineering, science and technology, which were traditionally dominated by men. Based on the Act, the 1st *Basic Plan for Fostering and Supporting Women Scientists and Engineering* (2004-2008) was implemented. The achievements were multiple. First, the ratio of women to graduates with S&E doctoral degree rose from 16.3% in 2004 to 19.5% in 2008. Second, the share of women among those employed in S&T at public institutes increased in the same period from 20% to 24.6%. Third, there was an increase in the proportion of women participating in the government science and technology committee from 27.8% to 33.7%. Fourth, the economic participation rate of females holding degrees in S&E reached 64.9%, as compared with 62.6% in 2009. Fifth, women employed in S&T R&D increased from 12% to 14.9%. Sixth, of all faculty members at S&E universities, the share of females increased in both science (from 15.4% to 16.1%) and engineering (from 2.4% to 3.3%). Finally, the government established the Korea Advanced Institute of Women in Science, Engineering and Technology.

7.2 Gender-Specific Policies on Childcare, Equal Pay, Flexible Work and Transport for Women

▶ Support for Work-Family Reconciliation (Source: CEDAW 7th Periodic Report)

The *Act on Gender Equality in Employment and Work-Family Reconciliation* was amended in 2007 with the addition of clauses on maternity protection and work-family reconciliation. Specifically, the new provisions include the following:

- 1) parental leave for husbands
- 2) shortened working hours for mothers with young children (15-30 hours per week instead of maternity leave)
- 3) divided use of maternity leave.

▶ Affirmative Action for Women's Employment

Since 2006, the government has adopted *Affirmative Action for Women's Employment* to eradicate explicit as well as implicit discriminations in promotion. This act compares the companies within the same industry and of similar size and recommends that companies with considerably fewer women workers or managers submit a proposal on increasing women employees at all levels.

▶ Support for Childcare

Support for childcare is a core policy that has been maintained with extensive budget expenditures since the enactment of the *Infant Care Act* in 2001. Since 2002, the aid for childcare cost has been graded by

parental income levels. In 2009, of all households with children aged 0 to 5, the bottom 50% of the households in terms of income rank are eligible for fully reimbursed standard childcare costs, while households with incomes between 50th to 60th percentiles are eligible for 60% of the standard cost, and households with incomes between 60th and 70th percentiles are eligible for 30% of the standard cost. At the end of 2008, 41.4 of children used childcare services, and 64% of these benefited from childcare grants.

7.3 Ratification of CEDAW

In 1984 The Republic of Korea became the 90th country to ratify CEDAW, which came into effect in 1985. In 1996, Dr. Kim Young Jung (the vice president of Korean Red Cross at that time) was the first Korean to be elected as a CEDAW committee member. In 2006, Korea joined the Optional Protocol to the Convention. In 2009, the Government submitted the 7th Periodic Report on the Implementation of the Convention on the Elimination of All Forms of Discrimination against Women.

7.4 State Budget Allocations to Benefit Women in the Unstructured Economic Sector

This sector is not applicable to the Republic of Korea.

7.5 Institutionalization of Inter-Ministerial Relations on Gender

▶ The Third Basic Plan for Women's Policies

In 2007 the government established *the Third Basic Plan for Women's Policies* (2008-2012). With the vision of "a society with sustainable gender equality," the plan set up the goals of women's empowerment, balance between work and life and respect for diversity and differences. The five policy directives include women's active participation in the management of the nation, strengthening women's welfare and human rights, improvement of women's economic capacity, socially shared responsibilities for caretaking, and social integration and plantation of the culture of equality. In 2009, the office of the president, the office of the prime minister and 15 other ministries were named to maintain the units and positions specializing in women's policies. In 2008, three meetings were held among those policy units.

▶ Establishment of the Ministry of Gender Equality and Family

In 1988, the government designated the Ministry of Political Affairs as the governmental body responsible for the advancement of women's status in Korea. In 2001, the Ministry of Gender Equality as a central government ministry was launched. In 2010, the Ministry of Gender Equality & Family was established consisting of two offices, two bureaus, the office of the Spokesperson, 22 Divisions, and 211 total personnel. The Ministry of Gender Equality & Family is charged with overseeing all gender and family-related policies including youth and children-related duties for healthy family business.

▶ Gender-Responsive Budgets

The principle of gender-responsive budgets was legally ratified in 2006 when it was incorporated in

the *National Finance Act*. Gender-responsive budgets were put into practice beginning in 2010, with the Ministry of Strategy and Finance charged with compiling gender-responsive budgets proposed by the central government administrative offices and submitting the compiled budgets to the national assembly. So far, using gender-disaggregated statistics the Ministry analyzed the budgets for 195 businesses amounting to 7,314 billion Korean Won.

▶ Gender-Impact Assessment

Gender-impact assessment, the main policy of the government for gender mainstreaming, has been implemented since 2005. As of 2011, almost 2,000 gender-impact reports have been submitted. To improve the quality of the analyses that the central and local governments conduct on their policies, the Ministry of Gender Equality may designate any national or public research institute, research institute funded by local governments, or private research institute as supporting institutions to help in the analysis and assessment. Accordingly, as of 2009, besides the Korean Women's Development Institute in Seoul, five research institutes across various regions of the country were designated as supporting institutions.

▶ Gender Sensitive Statistics

The *Women's Development Act* article 13 and *Statistical Data Act* article 18 legislate the requirement for gender-specific statistics. The *Women's Development Act* article 13 prescribes that gender must be included as a main unit in analyses in the generating of statistics by the national and local governments. The *Statistical Data Act* article 18 recommends that all government offices planning to produce any statistics get approval in advance from the Minister of the National Statistical Office to use gender as a classification item so that they can produce gender-specific statistics at the time of data compilation. The *Statistical Data Act* article 6 prescribes that the heads of statistics-collecting agencies designate and manage a staff member in charge of gender statistics from among the staff under their control. The article specifies "business concerning the collection and distribution of gender statistics classified by gender, if natural persons are included in statistics."

Part 2

Knowledge Society Outcomes: Indicators of Women's Participation in the Knowledge Society

1. Women in Knowledge Society Decision Making

1.1 Share of Women as Legislators, Senior Officials & Managers

<Table 32> Share of Women as Legislators, Senior Officials & Managers

Unit: 1,000 persons, %

	2004	2005	2006	2007	2008	2009	2010
Total	599	602	602	601	549	546	562
Female	42	47	52	53	52	47	53
F %	7.0	7.8	8.6	8.8	9.5	8.6	9.4

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

<Table 33> Women's Share of Legislators, Senior Officials and Managers among OECD Countries (2008)

Units: %

Republic of Korea	10					
Turkey	10	Portugal	31	Slovenia	35	
Denmark	24	Norway	31	Canada	36	
Netherlands	27	Ireland	32	Poland	36	
Czech Republic	28	Israel	32	Estonia	36	
Austria	28	Spain	32	Hungary	36	
Greece	28	Sweden	32	Australia	37	
Finland	30	Belgium	33	Germany	38	
Slovakia	30	Iceland	33	France	39	
Switzerland	30	Italy	33	New Zealand	40	
Mexico	31	United Kingdom	35	United States	43	

Source: United Nations Statistics Division

The group of legislators, senior officials & managers is divided in five sub-groups: chief executive & senior officials; administrative & commercial managers; specialized services managers; construction, electricity & production managers; and sales & hospitality services. Available sources are the *Survey Report on Employment by Region* carried out by National Statistical Office, and the *Survey Report on Labor Conditions by*

Employment Type by Ministry of Employment and Labor. Also, after the 6th version of the *Korean Standard Classification of Occupations (KSCO)* was adopted, the trend between 2008 and 2009 showed some instability with subgroups. This paper uses data from the *Survey Report on Labor Conditions by Employment Type*, which is a survey of companies, targeting wage and salary workers (see Table 44). Women's proportion among total legislators, senior officials & managers showed a marginal increase (from 7.4% in 2004 to 9.4% in 2010). Of sub-major groups, specialized services were the highest with 12.4%, while the lowest were chief executive and senior officials (3.5%), followed by construction, electricity & production (4.4%).

<Table 34> Number of Managers by Industry (2010)

Unit: 1,000 persons, %

	Employees in All Occupational Field	Managers					
		Total	Chief executive & senior officials	Administrative & commercial	Specialized services	Construction, electricity & production	Sales & hospitality services
Total	7,698,676	158,068	7,139	44,487	28,694	44,051	33,697
Male	5,172,189	145,072	6,886	40,677	25,133	42,094	30,281
Female	2,526,487	12,997	253	3,810	3,561	1,957	3,416
F %	32.8	8.2	3.5	8.6	12.4	4.4	10.1

Note: Enterprises covered are those that consist of more than one person.

Source: Ministry of Employment and Labor (2010) *Survey Report on Labor Conditions by Employment Type*.

1.2 Share of Businesses with 35% or More Women in Decision-Making Positions

<Table 35> Participation of Women at the Board Level (2009)

	Number of Companies Rated by GMI	Avg. % Women on Boards
South Korea	86	1.0
Industrialized Asia-Pacific	717	3.6
Industrialized Europe	1005	9.6
Emerging Markets – Asia	337	4.7
Emerging Markets - Middle East & Africa	70	12.4
Emerging Markets – Europe	65	7.8
Emerging Markets - Latin America	112	4.7
Total	4203	8.9

Source: Governance Metrics International, 2009

What positions can be included in a decision-making position? This question is raised in relation to an issue of women's share in decision-making positions. If the term is limited to directors on corporate boards, the data on the participation of women at the board level are not available. Although statistics on companies that employ more than 1000 people are provided as a by-product of Affirmative Action, the statistics of companies

with over 35% women in board positions are difficult to obtain. However, if management positions are included, this data should be processed.

2. Women in Knowledge Economy

2.1 Share of Women in Professional and Technical Positions

The proportion of women in professional and technical occupations has remained at the 43-44% level for the past seven years. This means that women are not entering new fields. Women are predominately found in jobs in health, social welfare and education-related fields. Nearly three-quarters of employees in those fields are women, while the proportion of women in engineering professional occupations is under ten percent (9.2%).

<Table 36> Women in Professional and Technical Occupations ('000)

	2004	2005	2006	2007	2008	2009	2010
Total	3,464	3,597	3,840	4,050	4,382	4,426	4,571
Female	1,495	1,575	1,717	1,788	1,901	1,969	2,030
F %	43.2	43.8	44.7	44.1	43.4	44.5	44.4

Source: Statistics Korea, Korea Statistical Information Service (<http://www.kosis.kr>).

<Table 37> Women in Professional and Technical Occupations in OECD countries (2009), %

Korea, Republic	40				
Turkey	33	Netherlands	50	Finland	55
Mexico	42	Germany	50	Iceland	56
Switzerland	46	Norway	51	Canada	56
Italy	47	Sweden	51	United States	56
United Kingdom	47	Portugal	51	Slovenia	56
France	48	Denmark	52	Australia	57
Austria	48	Israel	52	Slovakia	58
Spain	49	Ireland	53	Poland	60
Belgium	49	Czech Republic	53	Hungary	60
Greece	49	New Zealand	54	Estonia	69

Source: UNDP, Human Development Report 2009.

The *Survey Report on Employment by Region* conducted by National Statistical Office provides available data on employment divided into two and three digit occupational classifications. Statistics shows teaching and health/welfare professional to be the occupations most dominated by women (42.9% and 37.7%, respectively). On the other hand, men had the highest share (26.4%) in engineering.

<Table 38> Women Professionals and Technicians (2 Digit Classification, 2010)

Unit: 1,000 persons, %

	Male	Female	F %
Total Employees	13,999	10,055	41.8
Subtotal of professionals and related workers	2,361 (100%)	2,137 (100%)	47.5
Science	39 (1.7%)	26 (1.2%)	40.0
Information and communications technology	273 (11.6%)	38 (1.8%)	12.2
Engineering	624 (26.4%)	63 (2.9%)	9.2
Health, social welfare and religion	298 (12.6%)	805 (37.7%)	73.0
Education	420 (17.8%)	917 (42.9%)	68.6
Law and administrations	49 (2.1%)	8 (0.4%)	14.0
Business and finance	384 (16.3%)	93 (4.4%)	19.5
Culture, arts and sports	274 (11.6%)	186 (8.7%)	40.4

Note: Household survey for all employees.

Source: National Statistical Office, 2010 Survey Report on Employment by Region.

Even in teaching jobs, a field in which women dominate, women are more likely to hold the positions of early childhood teachers (98.4%), art teachers (73%), primary & secondary school teachers (64.5%), while the share of women in university and higher education teachers was only 31.7%. In the health/welfare sector, women predominate as nurses and nutritionists (86.6%), whereas their share is low in medical (20.9%) and religious professionals (25%) respectively.

<Table 39> Women in Professionals and Technicians (3 Digit Classification, 2010)

(Health, Social Welfare and Religion Professionals and Related Workers)

Unit: 1,000 persons

Health, Social Welfare and Religion Professionals and Related Workers					
	Male	Female	F %	% of total professionals & related workers	
				Male	Female
Sub total	298	805	73	12.6	37.7
Medical professionals	72	19	20.9	3	0.9
Pharmacist and traditional pharmacist	15	19	55.9	0.6	0.9
Nurses	7	195	96.5	0.3	9.1
Nutritionist	1	27	96.4	0	1.3

Therapists and paramedical practitioners	44	87	66.4	1.9	4.1
Other health practitioners	23	142	85.5	1	6.6
Social welfare professionals and related workers	44	285	86.6	1.9	13.3
Religious professionals and related workers	92	31	25	3.9	1.5

Note: Household survey for all employees.

Source: National Statistical Office, *2010 Survey Report on Employment by Region*.

<Table 40> Women Professionals and Technicians (3 Digit Classification, 2010)
(Teaching Professionals and Related Workers)

Unit: 1,000 persons

Teaching Professionals and Related Workers					
	Male	Female	F%	% of total professionals & related workers	
				Male	Female
Subtotal	420	917	68.6	17.8	42.9
University & higher education teachers	69	32	31.7	2.9	1.5
School teachers	149	269	64.4	6.3	12.6
Preschool teachers	1	61	98.4	0.0	2.9
Vocation, arts & sports teachers	185	499	73.0	7.8	23.4
Other teaching professionals	16	56	77.8	0.7	2.6

Note: Household survey for all employees

Source: National Statistical Office, *2010 Survey Report on Employment by Region*.

2.2 Shares of Women in Administrative and Managerial Positions

<Table 41> Shares of Women in Administrative and Managerial Positions

	2001	2002	2003	2004	2005	2006	2007	2008
Legislators, senior officials and managers	5.9	5.6	5.9	6.9	7.8	8.2	8.8	9.6

Source: International Labour Organization, *Yearbook of Labour Statistics*.

There are no data on corporate managers disaggregated by gender and positions. Available data are from the survey on the current employment situation of male and female workers at 1,576 private and public workplaces staffed by 500 or more permanent workers, which are subject to the Affirmative Action (as of the end of December 2009).

<Table 42> Women Employment Rate by Positions, numbers and % (2009)

Classification		Total	Executives level	Section head level or higher	Under section head level
Enterprises consisting of 1,000 persons or more (658)	Number of employees	2,032,547	36,786	445,798	1,549,963
	Female	659,087	2,485	41,292	615,310
	F %	35.6	6.2	14.7	41.2
Enterprises consisting of 500 persons or more - under 1,000 (918)	Number of employees	565,535	11,367	95,147	459,021
	Female	187,870	804	11,456	175,610
	F %	33.1	7.3	14.4	38.3

Source: Ministry of Employment and Labor, *Analysis of Male & Female Employees* (2010).

- ▶ (1,000 persons or more): According to data on women's employment rate by positions, women held 6.2% of the board directors in the companies, 14.7% of senior positions, and 41.2% of under-senior positions. Women occupied 3.6% of board positions in the public sector, and 6.5% in the private sector. Women are better represented as board directors in the private sector. 475 companies (63.52%) had no women director on their boards.
- ▶ (500 persons or more - under 1,000): Women held 7.3% of board positions, 14.4% of senior positions, 38.3% of under-senior positions. The share of women directors on boards was higher in the private sector (7.9%) than in the public sector (4.8%). In 667 companies (72.7%), women's participation on the board was 0%.

2.3 Employment by Economic Activity (occupation and status) in Agriculture, Industry and Services in KS Area

<Table 43> Women in Wage Employment in the Non-Agricultural Sector, %

2001	2002	2003	2004	2005	2006	2007	2008
40.8	41.1	41.2	41.6	41.8	42	42.1	42.2

Source: United Nations Statistics Division, Millennium Development Goals Database.

<Table 44> Women's Total Employment by Economic Activity, %

Economic Activity	2001	2002	2003	2004	2005	2006	2007	2008
Agriculture, Hunting and Forestry	48.1	48.3	48.0	47.9	47.3	47.4	47.1	46.4
Fishing	26.5	24.3	31.5	36.8	34.2	34.4	37.5	
Mining and Quarrying	5.6	5.6	5.9	6.3	7.0	11.1	5.6	8.7
Manufacturing	35.6	35.8	35.1	34.8	33.4	32.9	32.6	32.0
Electricity, Gas and Water Supply	24.1	21.2	15.8	18.1	18.0	21.0	22.1	18.9
Construction	8.6	8.6	8.1	8.9	8.7	9.1	9.3	9.7
Wholesale and Retail Trade ¹⁾	47.0	46.7	47.3	47.2	46.8	46.3	45.7	45.9
Hotels and Restaurants	68.0	68.0	68.1	69.1	69.0	69.1	69.1	68.3
Transport, Storage and Communications	11.8	11.3	12.5	13.3	14.1	13.5	12.1	14.0
Financial Intermediation	54.9	54.1	51.3	50.7	50.4	51.4	52.0	50.4

Economic Activity	2001	2002	2003	2004	2005	2006	2007	2008
Real Estate, Renting and Business Activities	31.1	31.8	30.5	30.8	33.2	34.4	35.2	37.7
Public Administration and Defense ²⁾	29.2	28.3	24.8	27.7	30.2	32.4	31.9	31.2
Education	62.1	63.2	64.4	65.8	66.7	67.9	66.8	66.8
Health and Social Work	72.1	71.5	71.4	70.5	73.6	73.6	73.2	75.3
Social and Personal Service Activities in Other Community	41.3	40.9	39.9	43.8	44.6	44.9	49.4	45.7
Households with Employed Persons	97.1	98.6	97.9	96.8	96.8	97.7	97.7	96.7
Extra-Territorial Organizations and Bodies	12.5	16.7	31.8	29.2	26.6	25.5	19.6	18.8

Note: 1) Repair of Motor Vehicles, Motorcycles and Personal and Household Goods, 2) Compulsory Social Security.

Source: International Labour Organization, *Yearbook of Labour Statistics*.

Gradual increases in women's employment are shown in economic activities generally. In the non-agricultural sector, there was a 1.4% increase overall from 2001 to 2008, though each individual economic field shows a different trend of increase or decrease.

Classifications with respect to the knowledge society (KS) have been established by some organizations including the Ministry of Knowledge Economy. Although the National IT Industry Promotion Agency published the *2010 White Book*, which provides the number of people employed in the KS sectors, it does not present sex-disaggregated statistics.

2.4 Women with High Level Computer Skills

<Table 45> Distribution of ICT Skill Levels (2010), %

	Computer skills ¹			Word processor skills ²			Spreadsheet skills ³		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
No Basic Computer Skills	29.8	38.0	21.6	35.2	42.4	28.0	46.8	56.5	37.1
Low Level	31.4	34.0	28.7	31.8	34.7	28.8	30.4	30.6	30.2
Medium Level	25.3	22.8	27.8	22.9	17.2	28.7	14.9	9.1	20.7
High Level	13.6	5.2	21.9	10.2	5.8	14.5	7.9	3.8	12.0

Note: 1) Copy or move a file or folder (Low level); Set up and delete a program (Medium level);

Solve a problem in both S/W and H/W when an error happens (High level).

2) Make a document (Low level); Edit document (Medium level); Use high level skills such as macro (High level)

3) Use basic arithmetic formulae (Low level); Use advanced arithmetic formulae, and create a chart (Medium level); Write a computer program using a specialized programming language (High level)

Source: Korea Educational Development Institute, *2010 Korean Adult Lifelong Learning*.

A large proportion of women appear to lack computer skills on the whole. If they have such skills, their level tends to be lower than that of men. In 2010 38% of women had no basic computer skills, whereas only 21.6% of men were classified in that group. The percentage of those who have high computer skills is 5.2% in women and 21.9% in men, respectively.

2.5 Share of Women among Information Technology Workers

The *Yearbook of IT Industry Statistics* published by the Korea Association for ICT Promotion does not disaggregate statistics by sex. Statistics with respect to IT employees are collected by Korea Electronics Association Statistics, but they too are not disaggregated by sex. Data from the *Survey Report on Labor Conditions by Employment Type* by the Ministry of Employment and Labor (using the KSCO) show that among the group of “computer related professionals and associate professionals”, women’s share tends to be on the decline (from 22.5% in 2001 to 17.2% in 2010). This implies that the absolute number of women employees has risen, but less than for men.

<Table 46> Share of Women in Computer-Related Professions

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total	122,866	147,625	153,821	155,306	158,364	160,222	183,510	151,531	202,346	235,006
Female	27,608	30,756	30,004	29,700	28,022	30,161	36,178	31,006	34,171	40,511
F %	22.5	20.8	19.5	19.1	17.7	18.8	19.7	20.5	16.9	17.2

Note: The gap occurred in time series due to the change of classification standard. Figures between 2001 and 2008 (using KSCO 5th revision) are the sum of computer-related professionals and associate professionals. In 2009 and 2010 (using KSCO 6th revision), figures refer to IT professionals and technicians.

Source: Ministry of Employment and Labor, Employment and Labor Statistics of Korea.

(<http://laborstat.moel.go.kr>)

<Table 47> Share of Women among Computer Related Professionals, ‘000

	TOTAL	MEN	WOMEN	F %
Computer-Related Professionals	157.16	123.77	33.39	21.0

Source: International Labour Organization, 2000.

3. Women in S&T and Innovation System

3.1 Shares of Women Studying Science and Engineering at Tertiary Level

<Table 48> Women's Enrollment in Higher Education in Science and Engineering

Category	Field		2004	2005	2006	2007	2008	2009	2010
Under-graduate	Sciences	Total	236,118	235,045	235,548	236,367	235,234	238,604	243,441
		Female	101,994	101,905	102,808	104,167	103,330	104,372	107,243
		F %	43.2	43.4	43.6	44.1	43.9	43.7	44.1
	Engineering	Total	525,790	519,300	514,544	512,682	513,188	518,975	526,193
		Female	68,038	66,502	65,373	66,343	68,062	70,098	73,615
		F %	12.9	12.8	12.7	12.9	13.3	13.5	14.0
Post-graduate	Sciences	Total	23,048	22,865	23,579	24,169	24,513	24,785	25,677
		Female	9,772	9,680	9,998	10,609	11,053	11,280	11,800
		F %	42.4	42.3	42.4	43.9	45.1	45.5	46.0
	Engineering	Total	46,115	44,041	43,847	45,291	45,926	45,729	47,056
		Female	5,947	5,491	5,750	5,972	6,081	6,294	7,034
		F %	12.9	12.5	13.1	13.2	13.2	13.8	14.9

Source: Ministry of Education, Science and Technology, Korean Educational Development Institute, *Statistical Yearbook of Education*, each year.

Women's enrollment was much lower in the field of engineering than in the natural sciences. Few women were taking undergraduate courses in the field of engineering. While the share of women enrolled in natural science exceeded 40% in 2010, women's participation comprised only 14% in engineering. Since mid-2000s, there has been little change in women's enrollment in science and engineering fields. Within the undergraduate level, the proportion of women enrolled in the science field has increased slightly (43.2% in 2004 to 44.1% in 2010), and this share has also risen a little in engineering field (12.9% to 14%). At the postgraduate level, the data on the share of women earning master's and doctoral degrees in science and engineering illustrates the leaky pipeline phenomenon. In 2010, women received proportionately fewer doctorates (36.6%) than master's degrees (49.1%) in the sciences, and the same pattern can be applied to the engineering field (14.6% in master's degrees, 9.7% in doctoral degrees).

3.2 Shares of Women Scientists and Engineers⁴

<Table 49> Women's Share of Science Professionals

		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Science	Total	11,023	15,196	18,215	20,355	19,425	19,604	22,190	27,925	32,511	34,895
	Female	1,525	3,458	3,847	4,575	4,693	4,940	6,852	7,911	9,459	10,945
	F %	13.8	22.8	21.1	22.5	24.2	25.2	30.9	28.3	29.1	31.4
Engineering	Total	594,372	626,667	610,666	650,900	647,487	701,315	768,481	486,672	626,863	667,270
	Female	52,035	53,953	55,139	63,349	68,253	82,176	90,320	67,216	59,755	75,589
	F %	8.8	8.6	9.0	9.7	10.5	11.7	11.8	13.8	9.5	11.3
Total	Total	605,395	641,863	628,881	671,255	666,912	720,919	790,671	514,597	659,374	702,165
	Female	53,560	57,411	58,986	67,924	72,946	87,116	97,172	75,127	69,214	86,534
	F %	8.8	8.9	9.4	10.1	10.9	12.1	12.3	14.6	10.5	12.3

Note:

1) Figures between 2001 and 2008 (using KSCO 5th revision) are the sum of science professionals and related technical workers. In 2009 and 2010, figures refer to science professionals and related positions.

2) Figures between 2001 and 2008 (using KSCO 6th revision) are the sum of engineering professionals and related technical workers. In 2009 and 2010, figures refer to engineering professionals and related positions.

Source: Ministry of Employment and Labor, *Employment and Labor Statistics of Korea*

(<http://laborstat.moel.go.kr>).

Within the category of science professionals and related jobs, women's share has more than doubled from 13.8% in 2001 to 31.4% in 2010 in the past decade. This has been caused primarily by the rise of female presence within the science professionals and related positions, but the revision of occupational classification during the same period could have affected such an increase as well. For instance, between 2001-02 and 2006-07, women's participation in the science professions and related positions rapidly grew. This phenomenon was not shown in the group of engineering professionals and related positions. It is necessary to find out if the gap in time series actually occurred. The share of women within the group of engineering professionals and related positions improved steadily from 8.8% (2001) to 11.3% (2010).

⁴ This share of women scientists and engineers is the statistics of waged workers.

3.3 Shares of Women Researchers

<Table 50> Female Researchers in Sciences and Engineering Fields, %

		2001	2002	2003	2004	2005	2006	2007	2008	2009
Science	Total	30,088	32,778	29,242	30,965	33,248	35,239	35,443	35,760	41,687
	Female	6,264	6,371	6,100	6,618	7,756	8,328	8,436	8,799	10,724
	F %	20.8	19.4	20.9	21.4	23.3	23.6	23.8	24.6	25.7
Engineering	Total	118,949	128,930	139,457	150,628	169,145	184,897	195,841	205,478	217,911
	Female	6,769	8,267	9,391	11,381	13,459	14,988	16,760	18,198	18,853
	F %	5.7	6.4	6.7	7.6	8.0	8.1	8.6	8.9	8.7
Total	Total	149,037	161,708	168,699	181,593	202,393	220,136	231,284	241,238	259,598
	Female	13,033	14,638	15,491	17,999	21,215	23,316	25,196	26,997	29,577
	F %	8.7	9.1	9.2	9.9	10.5	10.6	10.9	11.2	11.4

Source: Ministry of Education, Science and Technology, Korea Institute of S & T Evaluation and Planning, *Survey of Research and Development in Korea*, 2010, each year.⁵

The share of female researchers in the natural sciences field is on the increase (from 20.8% in 2001 to 25.7% in 2008). However, it is still a low proportion when compared with the women's share among those who have master and doctorate degrees in the same field. The percentage of women among researchers in engineering field rose from 5.7% to 8.7% as well.⁶

For further information, sex-disaggregated data on status of faculty and employees at research institutions can be considered. In the report of WISSET (Korea Advanced Institute of Women in Science, Engineering and Technology) in 2011, the status of women in S&T R&D field and employment type is classified. The report shows that women's status in science (40.4%) is far greater than in engineering (13.6%).

⁵ These data were provided to OECD. OECD published *Main S&T Indicators, R&D Scoreboard, and Research and Development Statistics* collecting recent data of R&D activities of each OECD countries and certain non-members. Surveyed fields of research are natural sciences, engineering and technology, medical sciences, agricultural sciences, social sciences, and humanities according to "OECD Proposed Standard Practice for Surveys of Research and Experimental Development: FRASCATI MANUAL". Surveyed organizations in the year 2010 are public research institutes (729), universities & colleges (429), general hospitals (631), and business enterprises (19,762), and total 21,551.

⁶ This table that indicates the total R&D (Research and Development) personnel from 2001-2008 in additional information reported in an international statistics institution.

<Table> Total R&D Personnel

Unit: person, %

	2001	2002	2003	2004	2005	2006	2007	2008
Total	261,802	279,806	297,060	312,314	335,428	365,794	421,549	436,228
Female	42,340	47,309	49,616	53,507	59,029	65,383	86,424	92,241
F %	16.2	16.9	16.7	17.1	17.6	17.9	20.5	21.1

Source: UNESCO Institute for Statistics

<Table 51> Status of Women in S&T R&D at S&E Universities by Field and Employment Type

(2009)

	Science					Engineering					Science & Engineering Total				
	Full-time faculty	Non-regular faculty	Part-time lecturers	Other research personnel	Sub-total	Full-time faculty	Non-regular faculty	Part-time lecturers	Other research personnel	Sub-total	Full-time faculty	Non-regular faculty	Part-time lecturers	Other research personnel	Sub-total
Total	9,010	3,697	11,963	5,766	30,436	17,457	7,633	15,949	9,734	50,773	26,467	11,330	27,912	15,500	81,209
Female	2,175	1,324	6,493	2,316	12,308	853	812	3,699	1,533	6,897	3,028	2,136	10,192	3,849	19,205
F%	24.1	35.8	54.3	40.2	40.4	4.9	10.6	23.2	15.7	13.6	11.4	18.9	36.5	24.8	23.6

Note: Women in S&T R&D in each field (2009):

- Science: Bachelor's 53.7%, Master's 48.7%, Doctoral 32.9%

- Engineering: Bachelor's 16.8%, Master's 14.18%, Doctoral 10.2%

Source: Ministry of Education, Science and Technology, *Report of the 2010 Investigative Research on the Actual Status of Utilizing of Women in S&T*, 2011.

The ratio of full-time faculty recorded a low 11.4% at S&E universities. The female ratios of non-regular faculty and part-time lecturers stood relatively higher at 18.9% and 36.5%, respectively. Of all full-time faculty members at S&E universities, the share of female was 24.1% in the science fields and 4.9% in the engineering fields. This seems very low when compared to the ratio of female actually credentialed in both fields. (Source: WISSET, *2010 Korea Report on Women in Science and Technology*, 2011).

3.4 Comparative Rates and Trends of Publication

<Table 52> Comparative Rates and Trends of Publication, M/F (2009)

		Domestic academic journals		International academic journals		Total
		general level	KCI level	general level	SCI/SCOP-level	
Full-time professors at S&E Univ.	Total	6,106	25,098	13,596	17,211	62,011
	Female	789	3,002	958	1,329	6,078
	F %	12.9	12.0	7.0	7.7	9.8
R&D personnel in S&T public research institute	Total	3,112	3,419	1,779	7,710	15,480
	Female	451	566	404	970	2,391
	F %	14.5	16.6	22.7	13.5	15.4

Source: Ministry of Education, Science and Technology, *2010 Report on the Status of Women in Science and Technology*, 2011.

For S&E university faculty, women's share in publication in domestic academic journals was 12% of the total, but this share decreased to 7% of publications in international academic journals. At S&T public research institutes, very little differences exist between publication in domestic and international journals. Given the fact that in the same year, 11.4% of total full-time faculties S&E universities and 12.6% of total R&D personnel in S&E public institutes were women, women appear to publish more frequently than men. Female

faculties at S&T universities presented more articles in domestic journals than men. However, their scholarly outputs tend to be lower in international journals than their male counterparts.⁷

3.5 Gender Trends in Brain Drain in Highly-skilled Fields

Brain drain generally refers to the emigration of knowledgeable and skilled professionals from one country to another. This can also take place when well-educated professionals in one field move to another field for better opportunities. Data on female scientists and engineers working overseas or in other fields are limited. Brain drain for Korean women typically is found in withdrawal from the labor market participation due to childbirth and childrearing. Women withdraw from the labor market once they have children and generally do not return to labor market; recently women have begun to re-enter the labor market once their children reached school age. Such phenomena become clear when looking at the M-shaped curve characterizing the pattern of Korean women's labor force participation by age group and the employment analysis from micro-panel data. Several case studies and WISET Statistics demonstrate women's withdrawal from labor force participation owing to family/career conflicts. Overall, the length of service of women in S&T fields tends to be shorter than that of men. Women's participation decreases with age. These statistics describe a domestic brain drain of women.

The data of brain drain by emigration from Korea can be found in the *Global Competitiveness Report* of World Economic Forum, which is published every year. In the 2011-2012 report, the value of Korea in brain drain chart was 4.2 showing that Korean professionals were more likely to stay than to emigrate; the world ranking of Korea in this section was 18.

⁷ As an additional reference, the share of female professional researchers in the field of education, science, and technology are indicated as follows. On *2010 Report on the Status of Women in Science and Technology*, the female percentage of S&T public institutes is higher than S&E universities.

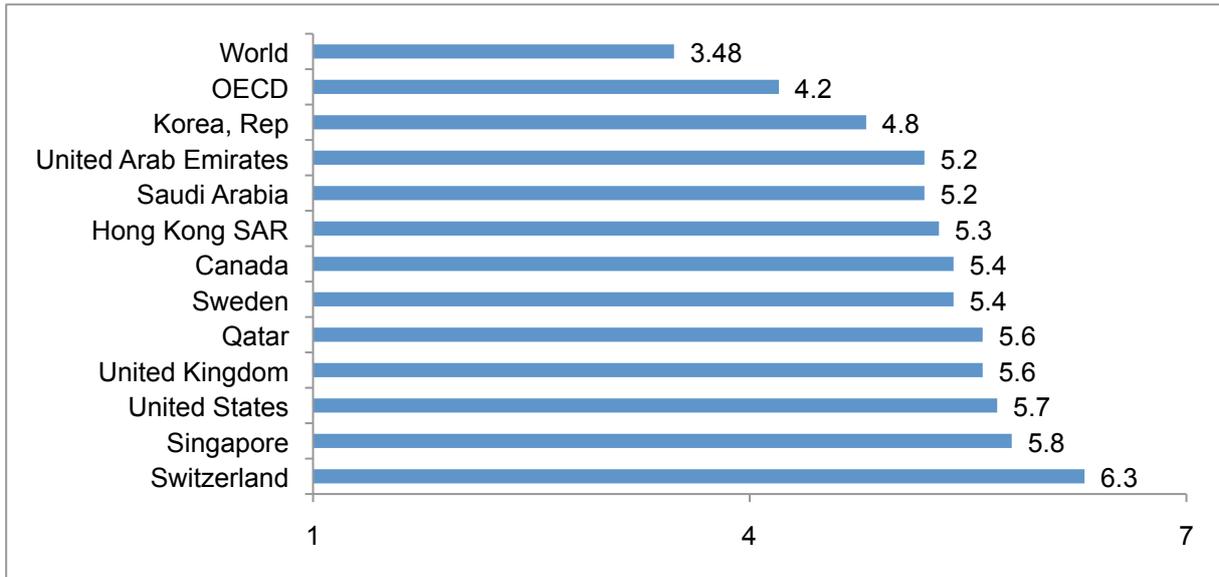
<Table > Women's Share of Full-Time Professors in S&E Universities and of Regular Workers in S&T Public Institutes (2009)

Unit: number, %

	S&E University	S&T Public Institutes
Total	26,467	23,027
Female	3,028	2,890
F %	11.4	12.6

Source: Ministry of Education, Science and Technology, *2010 Report on the Status of Women in Science and Technology*, 2011.

<Figure 8> Brain Drain of Korea and the 10 Lowest Countries ¹



Note:

1) These values are calculated from the question, “Does your country retain and attract talented people?” and the numbers indicate “Yes: 7” and “No: 1”.

Source: World Economic Forum, *The Global Competitiveness Report 2011-2012*.

3.6 Number of Women-Run Enterprises in Sector Value Chains

Korea has no specific data on the number of women-run enterprises in sector value chains. This comparison of operated enterprises by sex may be helpful in understanding how many female-run enterprises are maintained in Korea.

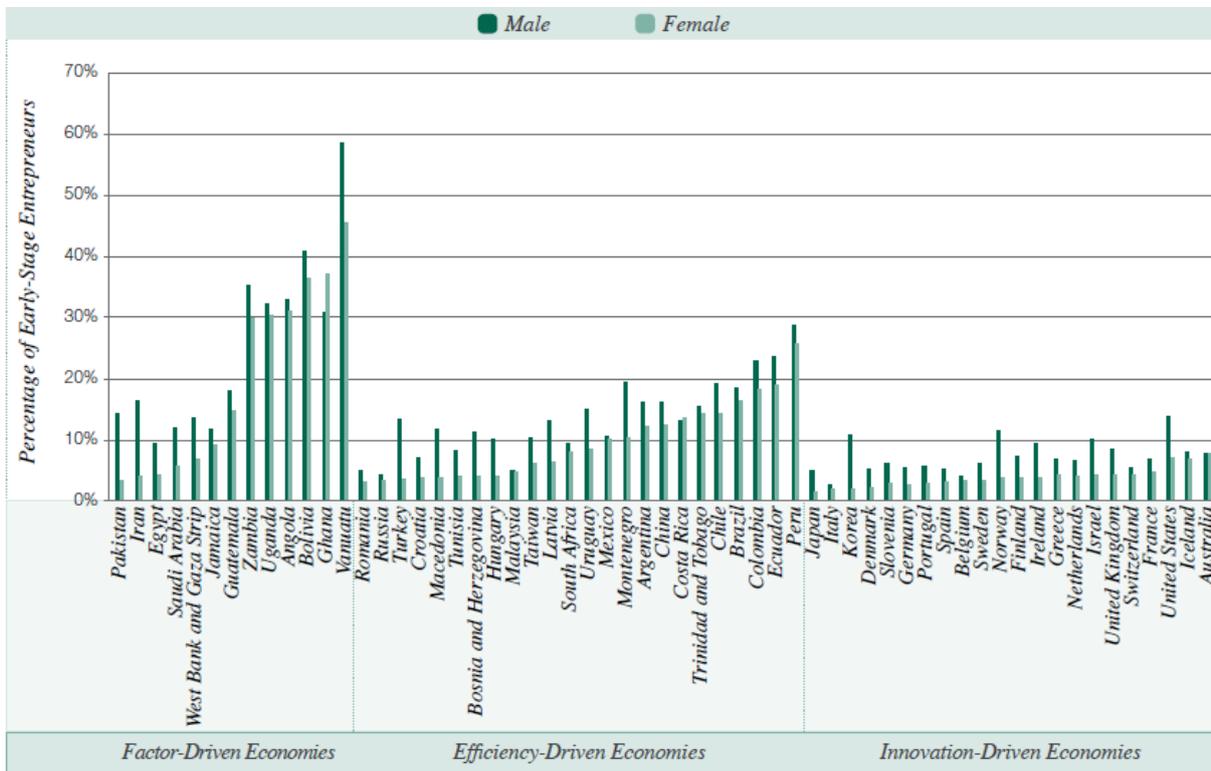
<Table 53> Number of Operated Enterprises by Sex (2009)

	Male-Run	Female-Run
Number of Enterprises	2,071,905	1,221,653

Source: Statistics Korea, *2009 Results on Enterprise Survey* (<http://www.kosis.kr>).

3.7 Women's Early-stage Entrepreneurial Activity

<Figure 9> Level of Female Participation in Total Early-stage Entrepreneurship Activity (TEA) (2010)



Source: Global Entrepreneurship Monitor, 2010 Global Report.

The Global Entrepreneurship Monitor shows the level of female and male participation in early-stage entrepreneurship, ranked by the percentage of women involved in TEA within the three economic groups: Factor-driven economics, efficiency-driven economics, and innovation-driven economics. The level of women's participation is somewhat similar to TEA levels; that is, if TEA is very low in an economy, there are also fewer women entrepreneurs. Women's participation in entrepreneurship relative to that of men ranges from a ratio of 20:100 in the Korea to 120:100 in Ghana. (Source: Global Entrepreneurship Monitor, 2010 Global Report). This indicates that the ratio of female entrepreneurial participation in Korea is among the lowest in the world.

<Table 54> Enterprise Operating Periods (2009)

Enterprise Operation Period	Male-Run		Female-Run	
	Frequency	%	Frequency	%
Less than 6 months	2,561	0.12	2,011	0.16
6 months to less than 1 year	81,072	3.9	74,686	6.1
1 year to less than 3 years	388,863	18.8	327,386	26.8
3 years to less than 5 years	295,348	14.3	217,625	17.8
5 years to less than 10 years	554,117	26.7	321,783	26.3
20 years and over	749,944	36.2	278,162	22.8
Total	2,071,905	100.0	1,221,653	100.0
Average Operation Period(month)	127.9		93.8	
Standard Deviation	443.2		435.7	

Source: Statistics Korea, 2009 Results on Enterprise Survey (<http://www.kosis.kr>).

Note: the operation period survey is based on the enterprise foundation date (from June, 2010).

The Results on Enterprise Survey of 2009 show that the enterprise operation term of male employers tends to increase as period extends, but the female employer's percentage seems to decrease in comparison with the male percentage. The frequency of male owners who run operations for less than 6 months was 2,561 (0.12%), and the other hand, the frequency of female owners was 2,011 (0.16%). When it came to 20 years and over, male-run frequency is 2.7 times higher than female-run frequency. This result shows that men-run enterprises are managed much longer than women-run enterprises. The average operation month is 1.7 times longer, too.

<Table 55> Employees in Enterprises (M/F) by Gender

	Male Employer			Female Employer		
	Total	Male	Female	Total	Male	Female
Average Number of Employees	6.5	4.3	2.2	2.8	0.75	2.0
Female /Total Employees (%)	33.2			72.9		

Source: Statistics Korea, 2009 Results on Enterprise Survey (<http://www.kosis.kr>).

As the rate above indicates, male owners tend to hire more employees (6.5) than women owners (2.8). On the other hand, female employers hire more female employees than male employees. And male employers hire many more male than female workers.

4. Women and Lifelong Learning

4.1 Women as Users of Knowledge Centers

More women (32.3%) participate in lifelong learning than men (28.7%), which may be due to the fact that the participation rate in informal education is higher than that of formal education.

<Table 56> Users of Community Centers for Lifelong Learning (daily average)

	2008	2009	2010
Total	94	89	91
Female	68	66	65
Male	26	23	26

Source: Korea Educational Development Institute, *Lifelong Learning Data Book*, each year.

<Table 57> Adult Participation in Lifelong Learning, %

	2007			2008			2009			2010		
	Total	F	M									
	29.8	30.7	28.9	26.4	28.4	24.4	28	30.5	25.5	30.5	32.3	28.7
Formal Education	5.7	4.2	7.2	4.1	3.4	4.8	4.3	3.8	4.9	3.9	3.1	4.6
Informal Education	26.4	28.2	24.6	23.9	26.3	21.4	25.3	28.4	22.2	28.2	30.5	25.9

Note: Surveyed 4,500 people aged 25-64 across the country based on the manual of Eurostat Adult Education Survey.

Source: Korea Educational Development Institute, *2010 Korean Adult Lifelong Learning*.

Formal education is defined as education provided in the system of schools, colleges, universities and other formal educational institutions. On the other hand, non-formal education is any organized and sustained educational activities that do not correspond exactly to the definition of formal education. They may cover educational programs to impart adult literacy, life-skills, work-skills, general art and culture, and sports and health.

4.2 Women as Managers of Knowledge Centers

No data on women as managers of village knowledge centers was available.