

Green Growth and Green New Deal Policies in Korea: Are they Creating Decent Green Jobs?

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Young-Bae CHANG, International Secretary, Korean Federation of Public Services and Transportation Workers' Unions (KPTU), Seoul, Korea, corresponding author

Jae-Kak HAN, Deputy Director, Energy and Climate Policy Institute for Just Transition (ECPI), Seoul, Korea

Hyun-Woo KIM, Researcher, Energy and Climate Policy Institute for Just Transition (ECPI), Seoul, Korea

1. Introduction

Since 2008 the Korean government actively introduced and pursued so-called “green growth” and “green new deal” policies, which were highly controversial and engendered heated social debates about their genuine ‘greenness’ and social impacts.

In this paper we try to make a preliminary evaluation, based on literature survey, of these policies in terms of their contribution to generating green jobs and the quality of these jobs. For this objective, the broad outlines and key features of green growth and green new deal policies of the Korean government will be briefly introduced. Then we try to review these policies in terms of whether they have produced their intended outcomes and achieved social objectives, especially their impacts on the creation of green jobs and the quality (‘decency’) of these jobs.

It is now high time to do this since there are many critical voices that argue that goals of these green policies regarding decent green job creation as defined by the government have been a hyperbole. In addition, we try to compare the impacts on decent and sustainable green job creation of two different policy options, that is, 'Four

River Project' Initiatives (FRPI), the main focus of the Korean government's green growth policies, and policies that promote renewable energy production and use which are grossly neglected by the Korean government.

By way of a conclusion, we suggest that there should be a drastic reorientation and reprioritization of green growth and green new deal policies of the Korean government if they are to achieve intended policy outcomes and to contribute to realizing sustainable green economy and decent green jobs in Korea.

2. Rising greenhouse gas emissions and policy responses in Korea

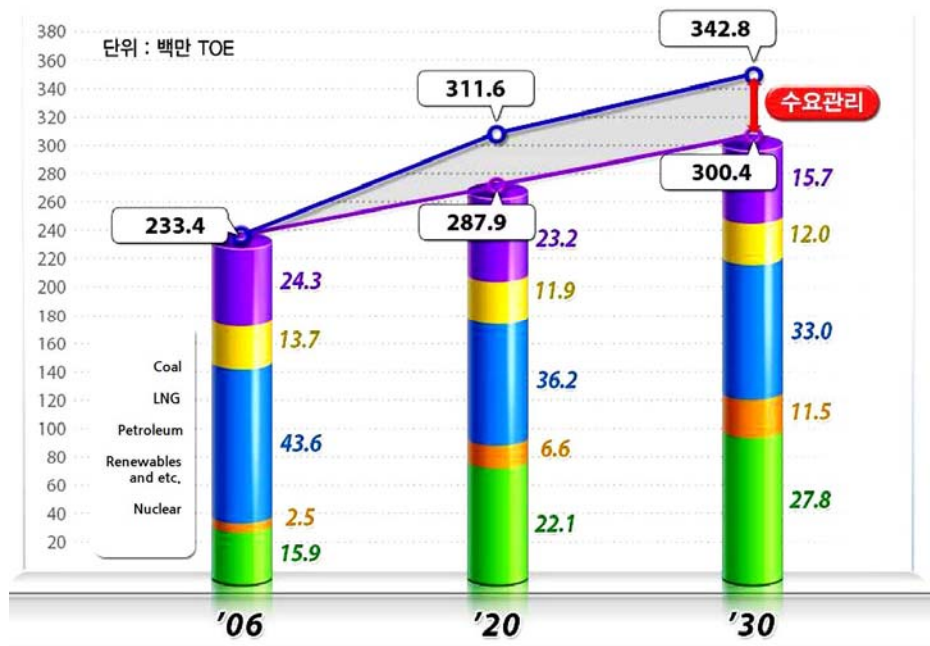
Total greenhouse gas (GHG) emissions in Korea was 599.5 million CO₂Et (tons of CO₂equivalent) in 2006, which was twice as much as that of 1990. During this period, the annual average rate of increase was 4.5%, highest among OECD countries. Per capita GHG emissions has almost doubled from 6.95 CO₂Et in 1990 to 12.41 CO₂Et in 2006.

If we look at sectoral variations, energy accounts for 84.3% of total GHG emissions, 554 million CO₂Et; industrial processes for 10.6%, 63.7 million CO₂Et; wastes for 2.6%, 15.4 million CO₂Et; agriculture for 2.5%, 15.1 million CO₂Et. Within energy sector, electricity generation is responsible for 35.5% of its total GHG emissions, industry for 31.3%, transportation for 19.8%, household and commerce for 11.3%, and public and others for 0.9%. GHG emissions due to energy consumption in electricity generation, transportation and industry have been substantially increasing.

In 2006, annual energy consumption in Korea was 226 million TOE, the 10th largest consumer in the world, accounting for 2.1% of the world total. Korea is also heavily dependent on energy import from abroad and for example in 2005, 97% of total energy consumption in Korea was covered by energy import from abroad. In that year Korea was the 4th largest oil importer and the 8th largest natural gas importer in the world, which means that Korea is very vulnerable to global energy crisis. Accordingly, Korea needs to reduce its heavy dependence on energy import and manage energy demand to curtail energy consumption, but the Korean government still sticks to supply-oriented

energy policies.

According to the National Basic Energy Plan of the government, total energy demand in Korea is predicted to increase by 1.1% annually thus reaching 300.4 million TOE in 2030, which is 32% higher than that of 2006. According to this scenario, per capita energy demand will increase from 4.83TOE in 2006 through 5.84TOE in 2020 to 6.18TOE in 2030.



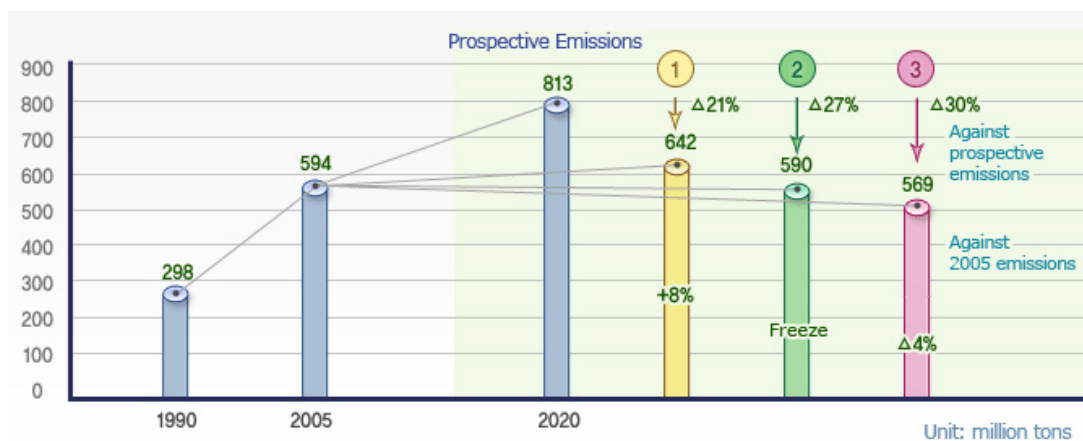
[Figure 1] Prediction of trends in energy consumption in Korea (2006-2030)

Korea belongs to “non-annex I countries without reduction commitment, but there has been increasing pressure from the international community that Korea has its due share of responsibility for GHG emissions reduction considering the relative size of its economy and energy consumption in the world. At the G8 summit in Japan in 2008, Mr. Lee Myung-Bak, President of Korea, declared that Korea will behave as an ‘early mover’ in tackling climate change and set GHG emissions reduction targets accordingly.

One year later, in November 2009, the Korean government announced its plan to reduce GHG emissions by 30% by 2020 in terms of BAU (4% less than total GHG emissions of 2005). Korea seems to have promised a progressive approach to GHG emissions, but the emissions reduction target proposed by the Korean government is just based on BAU and in 2020 Korea will still have GHG emissions twice as much as in

1990.

In 2009, Korea is the 9th largest GHG emitter and ranks the 22nd in the world in terms of accumulated GHG emissions. Considering that 41 countries in the world are committed to compulsory GHG emissions reduction as specified in the Kyoto protocol, GHG emissions reduction target for 2020 proposed by the Korean government leaves much to be desired.



[Figure 2] The Korean government's GHG emissions reduction scenario (www.gir.go.kr)

3. The Korean government's green growth strategy

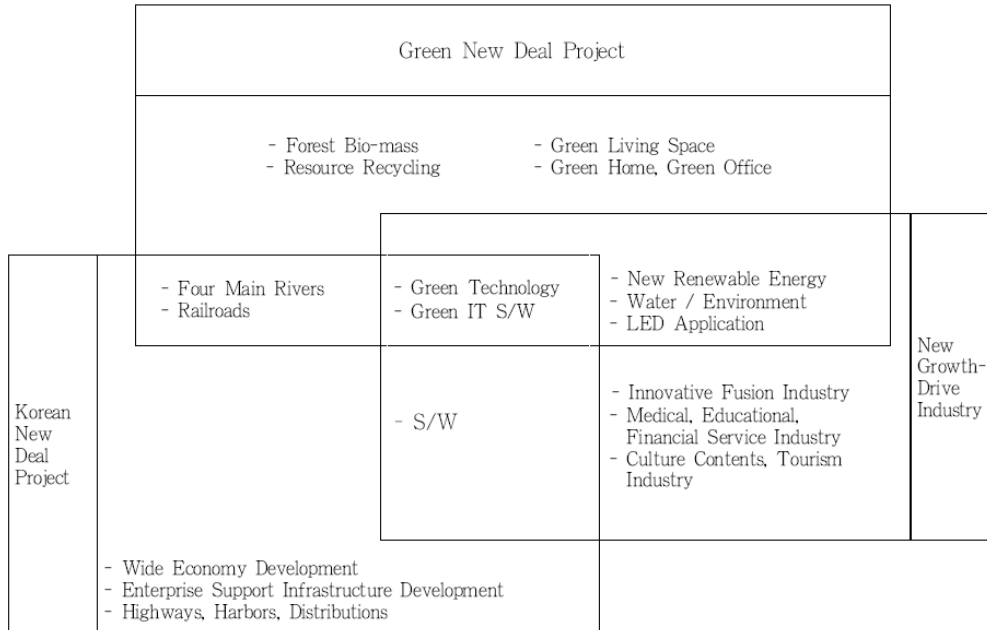
On 15th August 2008, President Lee proclaimed 'low carbon green growth' strategy as new national vision over the coming 60 years. According to him, green growth refers to sustainable growth reducing GHG emissions and pollution and is a new national paradigm for development which would provide a new engine of growth and create new jobs by means of green technology and clean energy.

Green growth would, he argued, provide opportunities for Korea to jump into the group of global leading countries and is an inescapable development path for Korea which faces both environmental and resource crisis. Then the government established the 'Presidential Committee for Green Growth' and in February 2009 introduced a new bill named 'Basic Law for Low Carbon Green Growth'.

In January 2009, the Korean government announced a 'green new deal' plan as a core of low carbon green growth policy. This plan aims at creating jobs while protecting environment, with the ambition of creating 960,000 jobs by investing 50 trillion Korean

won (about 40 billion US\$) for four years (2009-2012).

However, how much green is the Korean government's green growth strategy? First of all, the Korean government's green growth strategy is more focused on 'growth' rather than 'green'. It is through nuclear policy that we can clearly understand that the green growth strategy consistently pursues economic growth whatever it takes.



[Figure 3] Relationship between Green New Deal and other projects (MSF, 2009)

3 Key Areas and 10 Sub-areas of 'Green Growth Strategy' of Korea	
Climate Change	1. efficient GHG emissions reduction
Adaptation and Energy Independence	2. beyond oil and energy independence
Independence	3. strengthening adaptation capacity
Creating New Engine of Growth	4. developing green technology as new engine of growth
	5. ecologizing industry and promoting green industry
	6. enhancing industrial structure
	7. building a basis for green economy
Improving Life Standard and National Status	8. constructing green territory and transportation
	9. green revolution in everyday life
	10. building and showing a model of green growth

[Table 1] Key components of low carbon green growth strategy of the Korean government

According to the government's plan, additional 12 nuclear power units are to be built by 2022 as a way of responding to climate change, as a result of which nuclear power will account for 48% of total electricity production (while the current share is 24%). If these new nuclear power plants are completed as planned, the number of nuclear power units in Korea will be forty, which is twice as much as the number of nuclear power units currently operating while other eight units are being built.

For us, this is a fundamentally misleading policy in that it would continue to increase energy demand and threaten risks and social conflict for the whole Korean society. The Korean government seems only concerned with making profits through building and exporting nuclear power plants. Even after the Fukushima nuclear disaster in Japan, there is no fundamental change in the Korean government's policies regarding the expansion of nuclear power in Korea.

In contrast, support for renewable energy is deficient and lacking in Korea. Recently even FIT(feed in tariff) system was abolished by the Korean government, while the system had been widely regarded as very conducive to expanding renewable energy in Korea. This clearly reveals a very dark side of so-called green growth strategy of the Korean government which is solely focused on making money by promoting such dangerous and conflict-ridden technology as nuclear power.

Green growth strategy is also revealing a number of problems even in terms of natural ecological sustainability. 'Four River Project' Initiatives (FRPI), key element of the Korean government's green growth strategy, has been highly controversial and engendered heated public debates. For critics, FRPI is just a huge public engineering works causing an immense destruction of the environment, but the Korean government has tried every means to disguise FRPI as a policy tool of adaptation to climate change.

However, some major international agencies made serious mistakes in understanding the nature of FRPI. For example, in its 'Overview of the Republic of Korea's National Strategy for Green Growth', the UNEP gave a very positive assessment of the Korean government's green growth strategy and maintained that the strategy and its five-year plan would serve as a pattern for other countries, especially in Asia. According to the Overview, Korea is going to invest 107 trillion Korean won (about 90 billion US\$), equivalent to 2% of GDP, in green economy from 2009 to 2013, which is highly appreciated by the UNEP.

However, FRPI accounts for 39.0% of the budget for 'climate change adaptation and

energy independence' which is responsible for about 50% of the total investment (107 trillion Korean won) in green economy. The UNEP neglected this fact and thus made a crucial mistake in judging the greenness of the Korean government's green growth strategy.

'Four River Project' Initiatives (FRPI)

More critical attention should be paid to the actual state of affairs of FRPI, which is called as "Four Major Rivers Restoration Project" by Korean government and is the core of the Korean government's green growth strategy. FRPI's budget is 22.2 trillion Korean won (about 20 billion US\$), which amounts to 8% of the annual national budget of the Korean government. To raise such a big money for FRPI, budgets for pivotal public services such as welfare and railway construction are unilaterally curtailed.



[Figure 3] Map of four major rivers in FRPI

The core of FRPI is to construct sixteen small dams at four major rivers (Han, Nakdong, Geum, and Yeongsan. See the map above) in Korea, to dredge deeper and wider with 6 meter depth and more than 200 meter width and to construct banks at both riversides of each river.

According to the Korean government, FRPI has the following objectives.

- Securing water resources to prepare for water shortage and climate change,
- Flood management,
- Improving water quality and recovering ecosystem,
- Creating multi-purpose social spaces for local residents,
- Local development around rivers

But these objectives are neither appropriate nor realistic. For these reasons, opposition parties and over 2,400 professors in Korea have been strongly opposed to FRPI even from its planning stage and 70% of the population is against FRPI. Over the last two years, numerous demonstrations and campaigns against have been organized by environmental and social movement organizations, four major religious bodies, and the opposition parties.

However, FRPI will continue mainly because the Korean government wants to show off with a symbolic big national project and is keen to secure profits to the construction and engineering industries.

4. Assessing Job-creating Impacts of Green Growth Strategy

It is quite difficult to investigate the current state of green jobs in Korea. There are very few reliable statistics on the issue. According to a source from the government in 2009, there are 101 occupational categories of ‘green jobs’ scattered over 64 industrial subsectors among the total 164 industrial subsectors which are listed in the standard industrial classification in Korea. The number of total green jobs is estimated to amount to 610,000. (The number of the entire employed population is 24 million and unemployment rate is 3.4%.)

If we look at the sub-sectoral variations of green jobs, ‘energy sources’ sector provides 24,000 green jobs; ‘enhancing energy efficiency’ sector 54,000; ‘greening industry and space’ sector 251,000; ‘protecting the environment and recycling resources’ sector 102,000; ‘low carbon economic activities’ sector 179,000. The annual average rate of increase of the number of green jobs is estimated to 6.0% from 2009 to 2013 and the number of green jobs will thus reach 810,000 in 2013. That is, 200,000 new green jobs are expected to be created in four years.

The number of green jobs the green new deal policies of the Korean government is currently striving for is much bigger than the above estimation. According to the government, green new deal policies include the following programs.

- Investing 18 trillion Korean won in FRPI and associated works and creating 280,000 new jobs

- Investing 11 trillion Korean won in greening transportation and making 160,000 new jobs
- Investing 3 trillion Korean won in forest biomass production and generating 230,000 new jobs
- Investing 9 trillion Korean won in building energy-saving houses, green schools, and green offices and creating 150,000 new jobs

(Unit: Hundred Million, Ten thousand)

Project Title		Size of Budget			Number of Jobs
		Expected Size (2009)	Additional Execution (~2012)	Total	
Total		43,626	456,866	500,492	95.6
Core Projects (9)	Four Main Rivers	4,881	139,895	144,776	20.0
	Green Forest Protection	3,131	21,043	24,174	17.1
	Green Traffic Network	18,349	78,187	96,536	13.8
	Green Home, Green School	-	80,500	80,500	13.4
	Recycling of Waste Resource	506	8,794	9,300	1.6
	Mid-sized Dam	1,845	7,577	9,422	1.6
	Green Car and Clean Energy	3,209	17,318	20,527	1.4
	Eco-River	52	4,786	4,838	1.1
	Nation Space Information System	250	3,467	3,717	0.3
Related Projects (27)	Nature Disaster Prevention, Forest Restoration	786	6,541	7,327	5.3
	Disaster Risk Area Maintenance	5,137	19,901	25,038	4.2
	Bio-Mass Energy	362	10,858	11,220	2.4
	Green Waterside Area	331	7,669	8,000	2.0
	Clean Korea	437	1,666	2,103	1.5
	Public Facility-LED Replacement	-	13,356	13,356	1.0
	Green IT Technology Test-Bed	-	1,100	1,100	1.0
	etc	4,350	35,208	39,558	8.0

Note: Etc. section above includes expired reclaimed land redevelopment, transfer infrastructure, construction, e-data utilization acceleration, nation-wide bicycle path network, seawater freshening technology development and so forth among total 20 projects.

Source: Ministry of Strategy and Finance, etc.(2009), "Development Plan of 'Green New Deal' Project for the Job Generation," Cabinet Council Report Data.

[Table 2] Budget for Core and Related Green New Deal Project and Size of Job Creation

However, there are strong doubts about the practicality of these job-creating programs and the quality of jobs newly created.

As of July 2010, one year and a half since the launching of green new deal policies, even according to the government, the number of newly created jobs was only 140,228, 47.7% of what the government promised to achieve in terms of the creation of new jobs. Many components of the programs of green new deal policies were actually a reclassification into 'green program' of what the government has been doing in different names such as managing and cultivating forest and R&D programs. Thus alleged 140,228 new jobs were not all newly created and we could say substantial number of jobs 'newly created' have already existed for some time.

There is also another crucial issue of 'how decent these newly created jobs are'. By definition, green jobs should be both environment-friendly and decent in terms of wages and other working conditions. When the government made green new deal policies and associated programs to create 960,000 new jobs, there was little, if any, consideration of whether and how training and education needed for these jobs were to be provided and whether and how decent wages and working conditions were to be secured for these jobs. According to the government, among 960,000 new jobs mentioned above, only 250,000 new jobs (26% of all new jobs created) had some description of wage level and period of employment, and it was impossible to identify wage level and the sustainability of employment for the other new jobs. Even for the 250,000 new jobs for which some description of wage level and employment conditions, we could expect a substantial number of these jobs have quite poor working conditions and low wages. Among these jobs, the period of employment for 140,000 new jobs is less than 10 months. Included here are also 558 new jobs where employees receive 63,530 Korean won (less than 60 US\$) per day and are employed for no more than 60 days. This shows at least part of the dire reality behind the façade of purported green job creation.

5. Comparing Job-creating Impacts: FRPI vs. Renewable Energy

In this section we try to compare job-creating impacts of two different policy options, that is, FRPI and renewable energy. The focus of comparison is the number and quality

of new jobs created by these policy options.

1) FRPI and job creation

FRPI is responsible for the lion's share of green new deal policies and the Korean government announced it would create, through FRPI, more than 200,000 new jobs between 2009 and 2012. According to the master plan of the Ministry of Land, Transport and Maritime Affairs (MLTM) in June 2009, FRPI was predicted to create 340,000 new jobs with its total budget of 22.2 trillion Korean won, based on the 2006 employment inducement coefficient for the construction industry (17.3 new jobs per one billion Korean won).

According to MLTM, after the launching of FRPI in October 2009, the construction progress of FRPI was 13.9% as of May 2010 and the average number of employees per day who worked at the construction sites was 10,346. Among 10,364 employees, 2,166 were managers and technicians of the construction companies, 388 were construction inspectors of the construction inspection firms, and the remaining 7,810 were workers who operated construction equipments and simple tools.

However, doubts have been raised about the quality of new jobs thus created. For example, according to a survey on those who have newly taken out unemployment insurance at the 389 companies who have participated in FRPI, as of late April 2010, 2,425 new jobs have been generated compared with December 2009, 95% of which, 2,295 new jobs, were filled with day laborers (Group B, See the table below.), and the number of relatively good jobs (regular workers and workers with more than one year employment contract, Group A) were only 130.

Type of workers	Han River	Geum River	Yeongsan River	Nakdong River	Total
Group A	16	14	7	93	130
Group B	288	14	226	1,767	2,295

[Table 3] The Number of workers who have newly got unemployment insurance at the companies participating in FRPI, classified by four major rivers

2,425 new jobs were just a quarter (24%) of 10,364 employees who worked daily at the construction sites and the remaining three quarters (7,939 employees) seemed to be beyond the reach of unemployment insurance and suffer from very low quality jobs in terms of wages and other working conditions

Also at issue was the number of new jobs allegedly created by FRPI. According a prominent critic of FRPI, Mr. Heonho Hong from Citizen's Institute of Economic & Social Studies, MLTM made a critical mistake by mechanically applying employment inducement coefficient for the construction industry when calculating the job creation impacts of FRPI. Instead, even with the investment of 22.2 trillion Korean won, he argued, the employment effect of FRPI would be limited to creating 31,350 new jobs. The reason is that heavy construction equipments are intensively used at the construction sites of FRPI, and in this case the employment inducement coefficient for the construction industry mentioned above could be too much exaggerated.

According to another critic of FRPI, Professor Jeongwook Kim, Seoul National University, FRPI had a negative impact on employment, destroying jobs of 700 workers who collected natural aggregates and jobs of 24,000 farmers, and if we include the family of these workers and farmers, a maximum of 64,000 people might have lost their jobs and livelihood.

High rate of Industrial accident in FRPI

FRPI has even made human victims due to too speedy construction operation. Workers employed in FRPI are under heavy stresses and fatigues, but operations are proceeding day and night to be completed until autumn of 2011 during the terms of office of president Lee.

One member of parliament found that operations exceeded standard working hour except 1 site of 145 sites. The rate of death per industrial accident in FRPI is 30%, which is more than 10 times of ordinary construction site of 2.7%. Until April 2011, twenty workers have died in FRPI operation. It means that more than one person lost life per month since November 2009 when FRPI started.

Another complicating factor is that the government does not have any reliable data on new jobs based on a working survey on the construction sites. Under these circumstances, what might be termed a broad consensus among experts and the companies participating in FRPI based on interviews and questionnaires is that it is possible that FRPI has, for the period of two years, generated 72,770–88,400 new jobs.

Another structural problem with FRPI is that the construction industry might be vulnerable to employment crisis after the completion of FRPI since there is little, if any, opportunity for sustainable employment in FRPI due to the very limited number of workers needed for the management and maintenance of facilities built by FRPI.

2) Renewable energy promotion and job creation

Green new deal policies in Korea do include the investment in renewable energy. If we look at the government's plan, the total amount of investment in renewable energy amounts to 3.2 trillion between 2009 and 2012 (See the table below) and 53,000 new jobs are estimated to be created through this investment.

Name of the programs	Investment plan (2009-2012, 0.1 billion won)	Job creation effect (number of jobs created)
V. Promoting new renewable energy	7,391	4,348
V-3-1. Bio-ethanol (E5) demonstration project	212	260
V-3-1. Bio-ETBE demonstration project	60	315
VI. Turning wastes into energy sources	9,300	16,196
VI-1. Using floral and maritime biomass as energy sources	11,220	24,372
VI-2-1. Building production infrastructure for using biomass	758	3,019
VI-2-2. Using livestock excrements as energy sources	2,050	1,905
VII-1. Promoting forest biomass as energy sources	881	3,130
Total	31,872	53,545

[Table 4] Investment in renewable energy and its job creation effect in green new deal of Korea

According to the Ministry of Employment and Labor (MOEL), programs for promoting R&D and expanding the use of new renewable energy with the investment of 2.8 trillion Korean won for three years (2008-2010) has had the effect of creating 30,065 new jobs in total.

Renewable energy industries in Korea have shown a remarkable growth in recent years, but the size of total employment in these industries still remain quite small. According to the survey in April 2010 on renewable energy industries (solar, wind, bio, geothermal, fuel cell) in Korea done by the Ministry of Knowledge Economy (MKE), the number of renewable energy companies (renewable energy equipment manufacturers) has increased from 41 in 2004 to 146 in 2009, annual rate of increase being 29%. The total number of employees in these companies has increased 689 in

2004 to 9,151 in 2009 (annual rate of increase, 62%), expected to be 11,715 in 2010.

According to MOEL, the immediate, short-term effect of job creation is not high in renewable energy industries, but in longer term these industries are expected to create stable decent jobs.

3) Comparing two policy options

Here we will try to compare, in a very sketchy way, the employment effect of two contrasting policy options, that is, FRPI and renewable energy promotion.

First of all, the government's investment in FRPI (22.2 trillion Korean won, 2009-2012) is almost six times as much as the government's total investment in renewable energy industries (3.75 trillion Korean won, 2003-2010). There exists a huge investment gap between two policy options.

FRPI	Renewable Energy Industry	
	Invested already (2003-2010)	Green new deal plan
2009 – 2012 (4 Years) 14.5 – 22.2 trillion won	3.757	3.187

[Table 5] Comparison of governmental investment between FRPI and renewable energy

Secondly, job creating impacts of renewable energy industries are higher than that of FRPI. Referring to currently available data mentioned above, as of May 2010, 3.1 trillion was invested in FRPI (13.9% construction progress. We thus assume 13.9% of total budget, 22.2 trillion, has been invested) and 10,364 new jobs were created. On the other hand, 3.7 trillion was invested in renewable energy industries in Korea between 2003 and 2010 and about 20,999 new jobs were estimated to have been created in these industries during this period. This is certainly a rough estimation and comparison and we need a much more careful and detailed analysis before we are able to have a firmer grip on this issue.

	FRPI	Renewable Energy Industry		
		20,999	Manufacturing Sector (2010)	Installation Sector (2007)
Job Creation	10,346 per day		11,715	9,824
Investment	3.1 trillion won (Oct 2009 – May 2010)	3.757 (2003-2010)		

[Table 6] Comparison of Job Creation Effect between FRPI and renewable energy

Thirdly, there is another issue of the quality of jobs created. Most jobs created through FRPI are construction jobs which would soon disappear after the completion of the construction of major facilities (dams and banks) and are in that sense unsustainable, while jobs generated in renewable energy industries are expected to be more stable due to the continued growth of the industries. We could also use job categories as a convenient proxy for wages and working conditions to compare the quality of new jobs created. More managerial and R&D jobs are found in renewable energy industries that we could in jobs created by FRPI and its associated programs. This could certainly mean that wages and other working conditions could be much better in renewable energy industries than in FRPI-related construction jobs.

6. By way of conclusions

In this paper we tried a preliminary analysis of the Korean government's green growth and green new deal policies in terms of their impact on the creation of decent green jobs. Considering the deficiency of the currently available data, we need further research and systematic empirical data collection on this crucial issue. However, we think we could suggest the following as a conclusion.

First, the focus of green new deal policies in Korea has not been on the protection of the environment and the creation of decent green jobs. Green new deal policies have rather been designed as another means of economic growth through technology development and export, and have been shaped to have a green façade following the global policy trends of green growth. Thus for us, green new deal policies in Korea are not a genuine serious policy approach to tackle climate change and to realize the greening of industry in Korea. They have often been misunderstood, for example, by the UNEP, to be a 'model for green growth' for other countries. In assessing green new deal policies, we must move beyond the mere size of alleged green investment to delve into the fundamental orientation and specific impacts of the policies.

Second, as we have seen, there is confusion and a lack of consistency in the data on the number and quality of jobs created by green new deal policies in Korea. We could say this is largely due to the lack of the clear definition and standards of green jobs. Although some research and investigation have been done by international labor organizations such as ETUC on green jobs, we need to develop a clearer definition and standards of green jobs and this will make it easier to do an international comparative

study on green jobs.

Third, green growth strategy and green new deal policies in Korea were not successful in creating decent green jobs they promised to. Generating decent green jobs was not a first priority of green new deal policies and in the implementation of these policies a proper monitoring with regard to the creation of green jobs has not been done.

Fourth, FRPI, the core of green growth strategy, was not effective in creating and securing the number and quality (wages and employment stability) of green jobs, while renewable energy industries have shown the possibility of creating more decent stable green jobs with much less investment by the government. Renewable energy industries have a greater potential to generate local employment of workers with different skill levels and to sustain employment due to the need for continuous maintenance and development of facilities.

Fifth, scanty attention has been paid to the quality and working conditions of new green jobs created in Korea. Trade unions and civil society organizations have a central role to play in putting these issues higher on the agenda and need to search for ways to organize those workers in newly created green jobs and to improve their working conditions through collective bargaining and policy development and intervention.