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2012 Modularization of Korea's Development Experience:

Structural Adjustment Policies of Korea's Coal Industry

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MOTIE
MINISTRY OF TRADE, INDUSTRY & ENERGY

Korea National Open University

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Structural Adjustment Policies of Korea's Coal Industry

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Preface

The study of Korea's economic and social transformation offers a unique opportunity to better understand the factors that drive development. Within one generation, Korea has transformed itself from a poor agrarian society to a modern industrial nation, a feat never seen before. What makes Korea's experience so unique is that its rapid economic development was relatively broad-based, meaning that the fruits of Korea's rapid growth were shared by many. The challenge of course is unlocking the secrets behind Korea's rapid and broad-based development, which can offer invaluable insights and lessons and knowledge that can be shared with the rest of the international community.

Recognizing this, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) in 2004 to share Korea's development experience and to assist its developing country partners. The body of work presented in this volume is part of a greater initiative launched in 2010 to systematically research and document Korea's development experience and to deliver standardized content as case studies. The goal of this undertaking is to offer a deeper and wider understanding of Korea's development experience with the hope that Korea's past can offer lessons for developing countries in search of sustainable and broad-based development. This is a continuation of a multi-year undertaking to study and document Korea's development experience, and it builds on the 40 case studies completed in 2011. Here, we present 41 new studies that explore various development-oriented themes such as industrialization, energy, human resource development, government administration, Information and Communication Technology (ICT), agricultural development, land development, and environment.

In presenting these new studies, I would like to take this opportunity to express my gratitude to all those involved in this great undertaking. It was through their hard work and commitment that made this possible. Foremost, I would like to thank the Ministry of Strategy and Finance for their encouragement and full support of this project. I especially would like to thank the KSP Executive Committee, composed of related ministries/departments, and the various Korean research institutes, for their involvement and the invaluable role they played in bringing this project together. I would also like to thank all the former public officials and senior practitioners for lending their time, keen insights and expertise in preparation of the case studies.

Indeed, the successful completion of the case studies was made possible by the dedication of the researchers from the public sector and academia involved in conducting the studies, which I believe will go a long way in advancing knowledge on not only Korea's own development but also development in general. Lastly, I would like to express my gratitude to Professor Joon-Kyung Kim and Professor Dong-Young Kim for his stewardship of this enterprise, and to the Development Research Team for their hard work and dedication in successfully managing and completing this project.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessary represent those of the KDI School of Public Policy and Management.

May 2013

Joohoon Kim

Acting President

KDI School of Public Policy and Management

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Glossary

CIPB	Coal Industry Promotion Board
EPB	Economic Planning Board
FKMWU	Federation of Korean Mine Workers Union
KCA	Korea Coal Association
KEEI	Korea Energy Economics Institute
KERI	Korea Energy and Resources Institution
KMPC	Korea Mining Promotion Corporation
KOCOAL	Korea Coal Corporation
KORES	Korea Resources Corporation
MER	Ministry of Energy and Resources
MIRECO	Korea Mine Reclamation Corporation
MITI	Ministry of Trade and Industry
MOL	Ministry of Labor
MOCIE	Ministry of Commerce, Industry and Energy
MOTIE	Ministry of Trade, Industry and Energy

Summary

In the process of economic growth, some industries are growing and some industries are declining. Declining industries can be defined as industries with losing competitiveness. They are no longerable to exploit invested resources efficiently. At the level of the national economy, it is desirable to move inefficiently-used resources to a more productive industry. In the case of high exit barriers existing in the declining industry, the government may execute adjustment policies, which would lower exit barriers to facilitate the shift of resources from the declining industry to a productive industry.

In general, adjustment policies comprise the measures for re-employing the laborers employed in the declining industry, disposal or transfer of the facilities and the revitalization of the community where the declining industry is located. This study aims at scrutinizing the adjustment policies of the Korean coal industry, which proceeded rapidly from the late 1980s to the early 1990s. From the result of the study, we can also expect some solutions for the smooth execution of the adjustment policies.

The demand for anthracite coal plunged since its record high of 26 million tons in 1986. The production of anthracite coal decreased sharply especially since 1989, with the commencement of the adjustment policies, which almost resulted in the disappearance of coal mines within the next several years. Such a rapid and perfectly executed adjustment process is notable.

After the liberation of Korea from Japan, coal mines in South Korea, first under the direct supervision of the U.S. military government office, was managed by KOCOAL, the government corporation, in the 1950s. The Korean War stimulated the demand for coal, which led to the increase of coal production and the growth of private mines. The Korean

government helped the establishment of large private coal mines by integrating small mines based on the Temporary Measures Law for Coal Development (legislated in 1962). In 1969, the government stimulated the production with the Temporary Measures Law for Coal Mining Promotion, and ittried to balance the supply and demand ofcoal with the Temporary Measures Law for the Supply-Demand Adjustment in 1975.

The Korean government maintained low coal price policies for price stabilization and low-income households because anthracite was the main fuel for home-heating in Korea. Because the gap between the coal price and the cost was compensated by the subsidies granted by the government, coal mining firms continued growing even with the low revenue. However, the policies prompting production by subsidies resulted in the proliferation of small, low-productivity mines and the deterioration of the coal quality. The Korean government promoted the rationalization of the coal mines with the introduction of machines in the first half of the 1980s. However it failed to restrain the increase of small mines.

Anthracite was losing its advantages as fuel despite the promotional policies for the production of coal in the 1980s. Although the production of coal reached 25 million tons in the mid-1980s, the coal industry declined, due to the change in the energy consumption structure from coal to oil, the loss of price competitiveness to oil and the low performance of the coal mining firms. Furthermore, the subsidies of the coal industry were large financial burden for the government. It became imperative to make adjustment to the coal industry. However, the government, instead of adjusting the industry by closing the inferior mines, continued taking efforts to maintain the coal production level until the middle of the 1980s.

'The Proposal for the Development and Rationalization of Coal Mines' (the Proposal), drafted by CIPB established in April of 1987, became the turning point to adjust the coal industry. In the proposal, CIPB suggested 'Scrap down and build up' policy, which promoted the high-productivity, low-cost mines and scrapped down the low-productivity, high-cost mines. In December 1987, the rationalization policies of the coal industry based on the proposal were finally approved by the Industrial Policies Council.

Establishing the criteria to classify mines into either scrap-down ones or not, was the most important topic in the proposal, as well as the measures of support for allowing scrap-down mines to exit easily from the coal mining industry. For its criteria, CIPB decided to scrap down the mines whose productivities, calculated in calories, were below the national average. As for the measures of support, CIPB determined the amount of money to be paid to the unemployed miners by compensating their re-employment and moving cost and the scrap-down mines by compensating the exit cost. However, CIPB did not provide the concrete measures for build-up mines, though the rationalization policies comprised the measures for promoting the build-up mines as well as for scrapping down.

The Coal Industry Act, legislated in January 1986, at first, did not include the contents concerning 'build up and scrap down', the basic concept of the rationalization policies. Since the amendment in 1988 added the clauses about measures for closing mines, the Coal Industry Act started to function as the basic law for the rationalization policies of the coal mining industry. On the basis of the Coal Industry Act, CIPB and the Coal Stabilization Fund were established. CIPB was the executing institution, and the Coal Stabilization Fund was the financial institution to supply fund for promoting the policies. The value-added-tax on bunker fuel Coil and the Petroleum Enterprise Fund were the most important resources of the Coal Stabilization Fund.

Applications for closing mines, far more than expected, rushed to CIPB as soon as the rationalization policies started. From 1989 to 1995, when the rationalization policies officially ended, 355 mines that had produced 14.4 million tons of coal and employed 33,448 laborers closed. In 1996, only 11 mines remained, producing 4.95 million tons and employing 10,725 laborers.

While it was possible to calculate the amount of money to be provided for transferring and scrapping down mine facilities, there were many difficulties in calculating the amount of money to be paidfor the laborers who lost their jobs. Many small mines did not have the labor management documents necessary to calculate the amount of compensations to laborers.

The unemployment of ex-miners and the impoverishment of the communities, where coal mines were located, were the most evident social problems accompanying the adjustment of the coal industry. The residents of the communities, who lost their livelihoods, resisted most fiercely regarding the closure of mines. However, the proposal did not provide concrete measures for revitalizing the communities. In the final plan of the rationalization determined in the end of 1988, the problems of the impoverished local communities were treated very lightly on the base of optimistic forecasts.

The residents' autonomous efforts to revitalize their community developed into a civil movement, which resulted in the legislation of 'the Special Law of Support for the Coal Mining Regions' (the Special Law) in March, 1995. The purpose of the act was to revitalize the coal mining areas by developing them into tourist attractions or inviting manufacturers as alternative industries to replace the coal industry. Eventually, casinos openedin the coal mining area, attracting native people as well as foreigners.

The result of the scrap-down policies exceeded the expected outcome. It is possible to estimate the rationalization policies as successful in the sense that the decrease of coal production by the policies prevented the huge inventory of coal, which would have had profound negative effects to the coal industry. At the level of the national economy, the

rationalization policies brought the effect of reducing financial burden on the government as well as increasing the consumers' welfare. However, another aim of the policies, the maintenance of the appropriate production level and the promotion of the build-up mine, could not have been accomplished.

The negative results of the rationalization policies were rapid increase of the unemployed miners and the impoverishment of the local communities. There was no systemic training program for re-employment that may have been the only subsidy for the unemployed miners. Though the local communities could receive huge financial aid from the government under the Special Law, the local authorities and the residents could not afford to distribute the aid systemically and rationally. The rationalization policies failed to secure the lives of the unemployed and revitalize the local communities.

2012 Modularization of Korea's Development Experience
Structural Adjustment Policies of Korea's Coal Industry

Chapter 1

Introduction

Introduction

In the process of economic growth, some industries are growing and some industries are declining. Declining industries can be defined as industries with losing competitiveness. They are no longer able to exploit invested resources efficiently. At the level of the national economy, it is desirable to move inefficiently-used resources to a more productive industry. In the case of high exit barriers[1] existing in the declining industry, the government may execute adjustment policies, which would lower exit barriers to facilitate the shift of resources from the declining industry to a productive industry. In general, adjustment policies comprise measures for re-employing laborers employed in the declining industry, disposal or transfer of facilities and revitalization of the community where the declining industry is located. The selection of measures to be adopted depends on the characteristics of each industry.

For instance, re-employment problems are not so severe in the aluminum industry, which is less labor-intensive compare to the coal industry or the textile industry. Adjustment processes are also affected by factors of industrial structure, such as degree of concentration and scale of employment. According to Uriu (1996), industries which are low-concentrated and employ a large scale of laborers are more likely to politicize their interests than those which are high-concentrated and employ a small scale of laborers. Moreover, international economic environments also affect the adjustment policies.

1. According to Porter, there are exit barriers such as durable and specialized assets, fixed costs of exits, strategic exit barriers, information barriers, government and social barriers (Porter, 1980).

This study aims to scrutinize the adjustment policies of the Korean coal industry,[2] which proceeded rapidly from the late 1980s to early 1990s. From this study, we can also expect some solutions to the smooth execution of the adjustment policies.

In Korea, anthracite, the only fossil fuel produced in Korea, was the main energy source in the 1960s. Anthracite, which rapidly replaced firewood in the 1950s, accounted for 45.7 percent of the primary energy consumption in 1966 <Table 1-1>. In 1986, however, anthracite accounted for only 21.5 percent as petroleum consumption was rapidly increasing, beginning in the 1970s.

Anthracite was consumed mainly in homes and businesses as heating fuel. During the 1970s and 1980s, the portion used for homes and businesses rose to nearly 90 percent of the entire consumption of anthracite <Table 1-2>. However, anthracite was hardly consumed for industrial uses because it was not appropriate. Neither was anthracite used for transportation, as steam locomotives were replaced by diesels. In short, anthracite was mostly used as home-heating fuel for ordinary people.

Table 1-1 | Primary Energy Consumption (Oil Equivalent)

(Unit : 1000 TOE)

	Anthracite	Bituminous	Fuel Oil	LPG	Non-Fuel Oil	LNG	Hydro	Nuclear	Fire Wood	Total
1961	3,112	47	790	-	1	-	163	-	5,636	9,748
	(31.9)	(0.5)	(8.1)		(0.0)		(1.7)		(57.8)	(100.0)
1966	5,969	60	2,127	5	37	-	246	-	4,611	13,056
	(45.7)	(0.5)	(16.3)	(0.0)	(0.3)		(1.9)		(35.3)	(100.0)
1971	5,835	37	9,895	60	604	-	330	-	4,107	20,868
	(28.0)	(0.2)	(47.4)	(0.3)	(2.9)		(1.6)		(19.7)	(100.0)
1976	7,820	1047	15,952	163	1,589	-	447	-	3,175	30,193
	(25.9)	(3.5)	(52.8)	(0.5)	(5.3)		(1.5)		(10.5)	(100.0)
1981	10,338	4,906	23,110	511	2,959	-	677	724	2,492	45,718
	(22.6)	(10.7)	(50.5)	(1.1)	(6.5)		(1.5)	(1.6)	(5.5)	(100.0)
1986	13,239	10,092	22,408	1,799	4,292	71	1,005	7078	1,480	61,462
	(21.5)	(16.4)	(36.5)	(2.9)	(7.0)	(0.1)	(1.6)	(11.5)	(2.4)	(100.0)
1991	8,144	16,391	45,773	4,339	9,515	3,503	1,263	14078	617	103,619

2. The coal industry comprises not only the coal-mining industry but also the briquette industry. In Korea, coal was used mainly for manufacturing briquette, which had been the main home-heating fuel. However, our main interests in this study are the adjustment polices of the coal mining industry, which were the core of the adjustment policies of the coal industry.

	Anthracite	Bituminous	Fuel Oil	LPG	Non-Fuel Oil	LNG	Hydro	Nuclear	Fire Wood	Total
	(7.9)	(15.8)	(44.2)	(4.2)	(9.2)	(3.4)	(1.2)	(13.6)	(0.6)	(100.0)
1996	2,561	29,639	73,264	6,874	19,760	12,172	1,301	18,481	1,161	165,212
	(1.6)	(17.9)	(44.3)	(4.2)	(12.0)	(7.4)	(0.8)	(11.2)	(0.7)	(100.0)
2001	3,678	42,033	59,049	8,676	32,660	20,787	1,038	28,033	2,456	198,409
	(1.9)	(21.2)	(29.8)	(4.4)	(16.5)	(10.5)	(0.5)	(14.1)	(1.2)	(100.0)
2006	5,208	51,479	51,800	9,689	40,342	32,004	1,305	37,187	4,358	233,372
	(2.2)	(22.1)	(22.2)	(4.2)	(17.3)	(13.7)	(0.6)	(15.9)	(1.9)	(100.0)
2011	6,898	72,495	44,245	10,301	50,476	46,566	1,715	32,285	6,364	271,346
	(2.5)	(26.7)	(16.3)	(3.8)	(18.6)	(17.2)	(0.6)	(11.9)	(2.3)	(100.0)

Source :*Yearbook of Energy Statistics*

Table 1-2 | Consumption of Domestic Anthracite

(Unit : 1000 Ton)

	Home and Business		Electric Utilities	Industry	Total	
1961	4,076	(67.6)	784	1,168	6,028	(100.0)
1966	8,466	(71.9)	1,346	1,957	11,769	(100.0)
1971	10,115	(84.4)	626	1,250	11,991	(100.0)
1976	14,670	(87.4)	1,244	868	16,782	(100.0)
1981	18,543	(86.6)	1,878	992	21,413	(100.0)
1986	24,251	(90.1)	2,285	391	26,927	(100.0)
1991	14,996	(87.3)	2,070	115	17,181	(100.0)
1996	1,960	(43.5)	2,514	28	4,502	(100.0)
2001	1,230	(30.5)	2,689	108	4,027	(100.0)
2006	2,327	(49.3)	2,356	34	4,717	(100.0)
2011	1,822	(77.0)	543	0	2,365	(100.0)

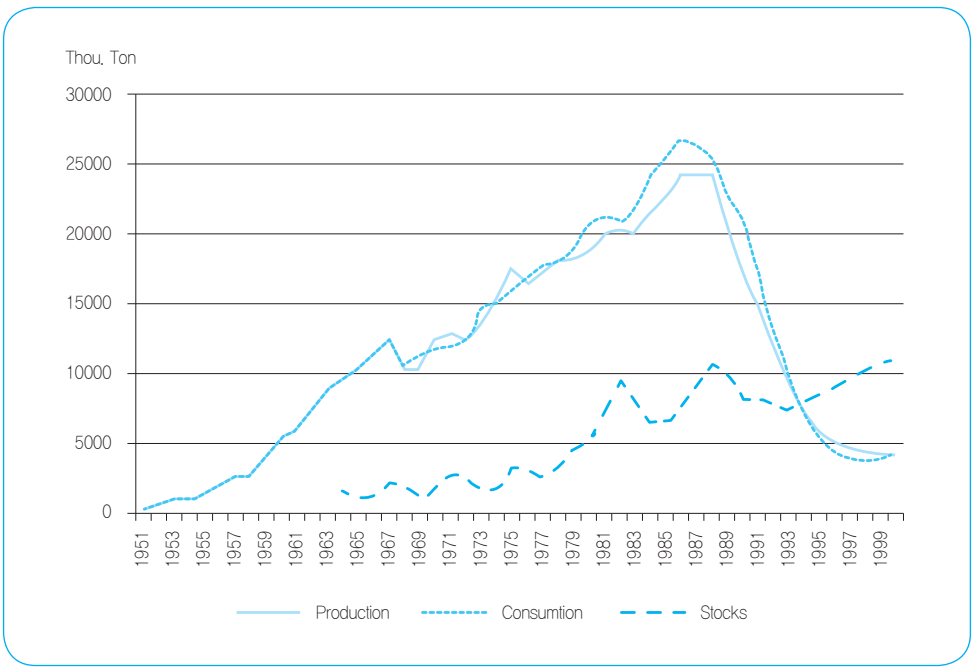
Note: Industrial consumption includes consumption for transportation and public uses.
Source: *Yearbook of Energy Statistics*

Production of anthracite, which was only 1 million tons in 1955, exceeded 10 million tons in 1965 and increased to the level of 25 million tons by the mid- 1980s. Since 1988, however, the production of anthracite plummeted, following the sharp drop in its consumption after

1986 [Figure 1-1]. The stock of anthracite also increased from 2-3 million tons in the 1970s to 8-9 million tons in the 1980s. Only over the span of 7 years from 1988 to 1995, the production of anthracite decreased from 25 million tons to 5 million tons, equivalent to the level in 1960. Such a drastic contraction of the industry is a very remarkable phenomenon.

Generally, it is said that the adjustment of the coal industry faced a lot of difficulties because of its high exit barriers. It included huge assets which are not transferrable and have a low liquidating value, enormous costs for retirement allowance and compensation for pollution. Governmental barriers had to initiate policies such as maintaining the industry to secure a domestic energy source or supplying briquette at a low price especially in Korea. Also had to be considered as exit barriers were social barriers like the protest from residents of coal-mining regions.

Figure 1-1 | Production, Consumption and Stocks of Anthracite



Source: *Yearbook of EnergyStatistics*

Our questions are as follows: what were the roles played by the adjustment policies entitled as "coal industry rationalization"[3] in the contraction process of the coal industry? How or by whom were the adjustment policies planned and enacted? How did the adjustment policies mediate the different interests among stake-holders such as mine-owners, laborers, residents in coal mining regions, the government, consumers?

We will trace the development process of the coal industry in Korea and the background of the rationalization policies in chapter 2. In chapter 3, we will explain the planning process, system and financial resources of the policies, and the execution process of the policies will be discussed in chapter 4. After we attempt to estimate the results of the policies in chapter 5, some suggestions for the smooth execution of the adjustment policies will be offered in chapter 6.

3. In this paper, we use 'rationalization' as the same meaning as 'adjustment' because the core of 'the rationalization policy' of the coal industry in Korea was the structural adjustment of the coal industry accompanying mine-closing and the decrease in production.

Chapter 2

Background of the Coal Industry Rationalization Policies

Background of the Coal Industry Rationalization Policies

1. A Short History of the Coal Industry in Korea

1.1. The Colonial Period: the Birth of the Coal Industry in Korea

Coal, one of five major minerals in colonial Korea, was extracted at first by imperial Japan, which exploited the coal field in the *Pyeongyang* area for supplying fuel to its navy plants around 1900 before the annexation of Korea by Japan in 1910. According to the investigation of coal fields in the colonial period, there were 1,350 million tons of anthracite deposit and 390 million tons of brown coal deposit in Korea. 39 percent of the anthracite deposit was located in the northwest area (*Pyeongannam* Province) and another 28% was located in the middle-east area (*Gangwon* Province). Deposits of the brown coal were more regionally concentrated. 92 percent of the brown coal was buried in the northeast area (*Hamgyengbuk* Province).

Production of coal increased from 120 thousand tons in 1911 to 6.18 million tons in 1941. The average annual increasing rate of the production for the period between 1911 and 1940 was 14.4 percent, which was much higher than the increasing rate of consumption. Although most of the coal produced in Korea was anthracite in the early colonial period, the share of anthracite declined to a little over 50 percent from the 1920s as production of brown coal increased.

Despite the increase in coal production, colonial Korea needed to import certain amount of coal because of the quality of the coal produced domestically. Anthracite could not be used for manufacturing coal used in the steel industry. Moreover, anthracite produced in Korea could not be used directly as fuel in homes and factories because it was in the form of powder, thus making it difficult to ignite. The quality of the brown coal was not good either.

The consumption of Korean coal was sluggish because of the quality problems, so the Fuel and Separation of Ore Laboratory was established in 1922 for investigation and research of the coal fields to make Korean coal usable. As the laboratory developed various ways to use Korean coal, anthracite could be used for the cement industry or steam locomotives and generators (after processed into pitch coal). The brown coal could be used as material for manufacturing artificial petroleum. In particular, anthracite fit for home heating fuel was exported to Japan after the Colonial General lifted the embargo on anthracite export to Japan.

During the colonial period, anthracite was cultivated mainly in the *Pyeongyang* coal field and the brown coal was cultivated mainly in *Hamgeongbuk* province while the remaining coal fields were left uncultivated. In the coal fields located in southern Korea, only four mines were built. Because of the retardation of the development in the southern area, coal production in Korea was more regionally concentrated than coal the deposits.

1.2. 1945-56: Growth of State-Operated Coal Mines

Emancipated from the grip of imperial Japan in August 1945, Southern Korea was placed under the military government of the USA until 1948. The coal mines owned by Japanese were expropriated as properties reverted to the government, and they were managed by the administrators appointed by the government.

Southern Korea, severed from Northern Korea, was faced with a severe shortage of coal because more than 80 percent was produced in the North. Struggling with the coal shortage, the military government established the coal production committee, which aimed to develop coal mines and make plans for the supply and demand of coal. *Chosun* Coal Distribution Company was designated as the only regulation institution that supervised all the areas of circulation related to coal; price, distribution, production, transportation, storage, export and import.

After the Republic of Korea was established in southern Korea, the new government made a five-year plan for economic self-reliance and started to develop the new coal mines, directly operating the existing coal mines. However, the state-operated system was soon confronted with serious troubles. The state-operated system needed cooperation between the government, coal mines and *Chosun* Coal Distribution Company. However, cooperation between the three was never achieved under hyperinflation and the continuing shortage of finances and materials.

The state-operated system was reorganized to the state-owned enterprise system, which means that public corporations managed the coal mines instead of the government. It was established by the foundation of Korea Coal Corporation (KOCOAL) in November 1950.

KOCOAL, in which *Chosun* Coal Distribution Company was incorporated, managed the manufacturing of briquette and the sales of coal as well as the production of coal. The share of KOCOAL in the anthracite market was initially over 90 percent. Although KOCOAL's market share decreased afterwards, it had been more than 50 percent before 1960.

The Korean War (1950-53) landed a heavy damage on the coal production, which had shown the signs of recovery. After the truce, the coal mines were reconstructed with the aid of UNKRA (United Nations Korean Reconstruction Agency) and the military delegation. UNKRA provided the funds for reconstruction of the coal mines during 1954-55, and its support was succeeded by ICA (International Cooperation Administration). The machines and equipment introduced with the support of UNKRA and ICA contributed largely to the technical development of coal mining in Korea. The military delegation which was assigned to the coal mines during the period of two years and nine months beginning from 1955 also contributed to the recovery of coal production and transportation.

1.3. 1957-68: Growth of Privately-Operated Coal Mines

The devastation of forests and inflow of the war refugees during the Korean War brought about a sudden overwhelming demand for coal. Securing a stable supply of coal became imperative to stabilize people's lives. To increase production of coal, the government made a five-year plan for coal development in 1956. The plan changed into a ten-year plan in 1957, and it was replaced by an eight-year plan in 1959. The plan was then incorporated into the first five-year economic development plan made by the new government established after the coup May 1961.

With the coal development plan, the government disposed state-run coal mines in 1956 to private owners, which provided the momentum for development of privately operated coal mines. The privately operated coal mines produced only 30 percent of the total anthracite production in 1956. However, their share in the production increased to 60 percent by 1968 with the strong support of the government.

Two laws, the Temporary Measures Law for Coal Development (the Development Law) and the Law for Mining Development and Building (the Building Law), were important for the growth of privately operated coal mines.

The Development Law, legislated in December 1961, aimed to exploit coal resources and increase coal production by integrating small private mines. The government set up large-scale mining fields, (*Tanjwa*) from which 300 thousand tons of coal could be produced annually. The mining areas owned by private citizens were compulsorily integrated into *Tanjwa*. It was expected that such a measure would bring multiple effects: concentration of equipments, prevention of overlapping investments, avoiding disputes about mining areas,

and decreasing disasters. The government launched a committee for coal development, which made plans for developing coal mines and appointed nine *Tanjwa*-development enterprises. Various supports including low-interest loans, tax preferences, construction of railways and power lines for developing *Tanjwa* were provided to those enterprises, some of which developed into large coal-mining companies. The Development Law provided momentum for the birth of private large-scale coal mining firms.

The Building Law, legislated in June 1962, made it possible for private mining firms to loan money from the governmentat low interest for operations such as drilling, digging, and introducing machines according to the security of mining rights. KOCOAL exercised jurisdiction over support for the coal mines on the basis of the Building Law, until Korea Mining Promotion Corporation (KMPC), established in 1967, took over the jurisdiction.

Production of coal went over 10 million tons per year in 1965 with strong support from the government. Increasing demand for coal also prompted the coal production, as coal replaced firewood as a primary home-heating fuel.

While demand for petroleum was increasing in global level, the government was already expecting that oil or gas would replace coal in 'the Outlook for Energy Supply-Demand and Energy Development Plan' made in 1965. In 1967, the energy policy changed to the 'oil-main and coal-secondary' policy, which tried to substitute bunker fuel oil C (B-C oil) for coal as home-heating fuel. The change in the policy was based upon the government's judgment that oil was cheaper and more convenient than coal, though the sharp shortage of coal in the winter of 1966 gave a direct momentum to such a change.

The 'oil-main and coal-secondary' policy discouraged demand for coal and damaged the management of the coal mines. From 1967 to 1969, the demand for coal decreased by 3.2 percent, while that ofpetroleum increased by 51.5 percent. From 1968 to 1969, more than five thousand mine workers lost their jobs as many coal mines closed due to financial difficulties.

1.4. 1969-79: Increasing Production through Subsidy Policy

The rapid contraction of the coal industry, which brought about large-scale unemployment of miners, forced the government to reconsider the coal policies. In 1969, the government enacted the Temporary Measures Law for Coal Mining Promotion (the Promotion Law), which aimed at the stable growth of the coal industry.

The principle of the Promotion Law was to grant coal-mining companies with subsidy financed by the tax revenue on B-C oil. By receiving subsidies, coal-mining companies could maintain the price competiveness of coal to oil, and overcome the crisis of 1968-69. The amount of subsidy increased geometrically, from 2.7 billion *won* in 1970 to 111.4

billion *won* in 1980. The Promotion Law, which was initially scheduled to expire by the end of 1979, was extended until 1986.

The 1973 oil crisis made the government recognize again the importance of coal as an energy source. Faced with increasing demand for coal, the government enacted the Temporary Measures Law in 1975 for the Supply-Demand Adjustment (the Adjustment Law), which aimed to stabilize people's lives by stabilizing the supply-and-demand of coal. With the law, the government could control production and sales, prevent cornering and manage quality-control of coal and briquette; the Coal Fund which amounted to 20 billion *won* was established for stabilizing the coal market and a license system was introduced for manufacturers and sellers of briquette. The Adjustment Law, the legal deadline of which was set initially by the end of 1979, was extended to 1986 after the oil crisis in 1979.

After the 1973 oil crisis, the government resumed its price control (which had been discontinued in 1964) over coal and briquette. Beginning in April 1974, the government adopted a ceiling-price system for coal produced by KOCOAL and briquette, which extended to coal produced by private coal mines beginning in April 1975. The official price announced by the government was lower than the production cost. In the case of coal produced by KOCOAL, the official price was only 80-90 percent of the production cost <Table 2-1>. Though the low-coal-price policy was expected to stabilize price and people's lives, the increasing rate of the coal price always went beyond that of the wholesale price because of the continuing rise in the product cost. The average annual increasing rate of coal price reached 30 percent, which was far beyond 20 percent of the wholesale price during the period from 1974 to 1981.

Table 2-1 | Product Cost and Price per Ton of Anthracite

(Unit : Won)

	1975	1976	1977	1978	1979	1980
Product Cost (A)	6,655	8,102	10,638	13,763	18,369	23,673
Price (B)	6,094	6,587	8,452	11,881	14,352	19,297
B/A (%)	91.6	81.3	79.5	86.3	78.1	81.5

Source : MER, *Energy and Resources Plan*, 1982-1986, 1982

The coal industry grew steadily through subsidies compensating the gap between price and cost. From 1969 to 1979, the coal production increased from 10.27 million tons to 18.21 million tons and the number of coal mines increased from 129 to 201. However, there were severe defects in the policy encouraging the production through subsidies. Most of the newly built coal mines were small ones producing annual output below 50 thousand tons.

This meant the policy failed to foster efficient large-scale mines. Moreover, it induced the deterioration of the quality of coal. The government could not avoid importing high-quality coal to maintain the quality of briquette beginning in 1978.

1.5. 1980-86: Increase of Small Mines

Reconsidering the problems with coal policies in the 1970s, the government complemented its policies for supporting the coal industry. In 1978, the government established the Ministry of Energy and Resources (MER), which incorporated coal-related services scattered among various departments.

Mechanization of the coal mines was one of the businesses promoted by MER. In 1984, MER came up with mid term and long term plans for mechanization of 347 coal mines, which resulted in a rise of the mechanization rate from 8 percent in 1980 to 40 percent in 1987. However, it only resulted in a moderate rise in productivity measured by OMS (output per man per shift).

Integration of mining areas was another business actively promoted by MER. MER, which expected rational development of the coal mines by the integration of mining areas, subsidized the coal mines which carried out the very activities. However, it was much more difficult to mediate different coal-mining interests for integration in this period compared to the early 1960s when integration was forced by the government.

The establishment of the Korea Coal Quality Inspection Center in 1982 was another important business of MER. As seen before, the coal policies in the 1970s not only brought an increase in coal production but also a deterioration in coal quality. The Korea Coal Quality Inspection Center was in charge of inspecting the quality of coal and briquette. Its inspection cost was passed onto the price of briquette.

With such policies for development of the coal industry, the government legalized *Teokdae*-system,[4] a kind of subcontract system, by revising the Mining Law in 1981. Until then, *Teokdae*-mines were placed out of the government supervision and support because they had no legal rights and responsibilities for operating coal mines, even though 22 percent of the coal was produced by more than 200 coal mines operated by *Teokdae* in 1980. The legalization of the *Teokdae*-system had a positive meaning, that the government could supervise subcontractors without mining rights. However, the legalization of *Teokdae*-system brought about a negative effect, spawning small-sized mines.

4. A *Teokdae* is a kind of subcontractor who has existed since Chosun dynasty. Owners of mining rights subcontracted some part of their mining areas to *Teokdaes*, who managed mining on their own responsibility, and paid some portion of the products or some amount of money to owners of mining rights.

According to <Table 2-2>, during the period from 1981 to 1986, the number of coal mines with the annual output of under 60 thousand tons increased by 139, while the number of large-scale coal mines with the annual output of over 200 thousand tons decreased from 19 to 14. The increase of the small mines from 1981 to 1983 owed much to the legalization of the Teokdae-system in 1981. Government subsidies, started in the 1970s, also contributed to the increase in small mines. Because of the policy compensating the gap between price and cost with subsidies, small mines could have continued to operate.

Table 2-2 | Number of Mines and Production according to Coal Mine Scale

(Unit : No., Thou. Ton)

	No. of Mines				Production					
	1981	1983	1985	1986	1981	%	1983	1985	1986	%
Seokgong	8	8	7	7	4883	24.6	4,863	5,056	5,218	21.5
500 Thou. Ton over	7	6	6	6	6315	31.8	5,544	6,337	6,604	27.2
200 Thou. Ton over	12	6	7	8	3575	18.0	1,642	2,099	2,535	10.5
100 Thou. Ton over	13	19	22	25	1723	8.7	2,398	2,874	3,561	14.7
60 Thou. Ton over	15	15	14	12	1277	6.4	1,123	1,153	1,001	4.1
12 Thou. Ton over	60	122	146	150	1693	8.5	3,482	4,323	4,529	18.7
12 Thou. Ton under	104	170	159	153	399	2.0	809	701	805	3.3
Total	219	346	361	361	19865	100.0	19,861	22,543	24,253	100.0

Source : KCA, *40 Year History of KCA*, 1988

As a result of the increase in small mines, the share of mines under 60 thousand tons of annual output in total coal production increased to 22.0 percent in 1986, up from 10.5 percent in 1981. Their increase in the coal production by 3,242 thousand tons during the same period, actually accounted for 73.9 percent of the entire increase in the coal production, which was 4,388 thousand tons.

Government policies helped increase the coal production, but only by increasing the number of small mines, which resulted in low productivity and the loss of competitiveness in the coal industry.

2. Decline of the Coal Industry

2.1. Structural Change of Energy Consumption

While the MER drove policies for development of the coal mines, anthracite had lost its attraction as an energy source. Though consumption of coal climbed to its zenith in 1986 with 24.2 million tons, the share of anthracite in the primary energy consumption fell to 21.5 percent in the same year, compared to 45.7 percent in 1966 <Table 1-1>. In 1969, petroleum had already become the largest energy source. In the 1970s, the share of petroleum in the first energy consumption went beyond 50 percent, though it decreased to 36.5 percent in 1986 after the oil crisis.

As anthracite was replacing firewood as fuel, its consumption was increasing. From the mid-1970s, 70 percent of anthracite was consumed as home-heating fuel. However, consumption of anthracite started to decrease in 1986. It was caused not by the temporary fall in consumption due to the factors such as warm winter, but by the structural changes in energy consumption. Improvement in home-heating systems prompted the substitution of petroleum and natural gas for anthracite as home-heating fuel. Until the early 1990s, the share of households using oil and gas as their home-heating fuel surpassed the share of households using briquette, though many households still used briquette in the mid 1980s <Table 2-3>. Observing such a drastic change in home-heating systems, the government could not help reconsidering the previous coal policies and adjusting the coal industry.

Table 2-3 | Ratio of Households according to Home-heating Method

(Unit : %)

	Seoul				Whole Country			
	1985	1986	1992	1993	1985	1986	1992	1993
Briquette customary furnace	24.7	24.5	6.8	6.6	27.1	26.8	13.6	12.8
Saemaeul boiler	31.9	31.5	23.1	15.4	27.4	28.4	23.5	18.5
Boiler for exclusive briquette	24.1	24.8	12.6	14.4	28.2	28.1	18.0	13.5
Both of briquette customary furnace and boiler	16.6	14.1			14.8	12.7		
Boiler for briquette and oil	1.8	2.6			1.7	2.0		
Oil boiler	0.9	2.2	33.6	34.4	0.8	1.7	31.6	38.7
Gas boiler			16.7	23.0			8.0	11.1
Others		0.3	7.2	6.2		0.3	5.3	5.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Korea Coal Association and Korea Federation of Fuel Industry Cooperative, *Briquette consumption Survey Report*, 1986; 1993.

2.2. Declining Price Competitiveness of Anthracite in the 1980s

In the 1980s, the price competitiveness of anthracite became worse in comparison to substitutive fuels such as B-C oil, diesel oil, city gas, and LNG. The price of crude oil declined gradually after recording its peak of 33.6 dollars per barrel in 1982, and it plummeted to 15 dollars per barrel in 1986. Contrary to the declining trend in oil prices, anthracite prices continued rising. Despite the low-coal-price policy, the average annual rate of coal price rose by 7 percent from 1982 to 1986, which was twice as high as that of the consumer price at 3.6 percent. As a result, anthracite lost its price competitiveness as home-heating fuel in the mid 1980s as seen in <Table 2-4>.

Table 2-4 | Relative Prices of Energy Sources to Briquette (Briquette=1)

	Simple Calorie Basis		Effective Calorie Basis	
	Diesel	B-C Oil	Diesel	B-C Oil
1980	3.02	2.31	2.26	1.73
1982	2.92	1.97	2.19	1.48
1984	2.87	1.76	2.15	1.32
1986	2.11	1.18	1.58	0.88
1988	1.51	0.72	1.13	0.54
1990	1.47	0.73	1.10	0.55
1991	1.47	0.69	1.10	0.52
1992	1.73	0.77	1.30	0.58
1993	1.73	0.77	1.30	0.58

Note: Price on the simple calorie basis is the price calculated in terms of calories. Price on the effective calorie basis is the price calculated in terms of calories considering efficiency of equipments.

Source: *Yearbook of Coal Statistics*

According to the above table, briquette maintained its price competitiveness to diesel oil on the basis of simple calorie even though it lost its price competitiveness to B-C oil from 1986 and to diesel oil from 1988 on the basis of effective calorie.[5] If the subsidies from the government to the coal industry, inconvenient cost accompanying the use of coal, and taxes charged to oils were taken into consideration, the price competitiveness of briquette had already disappeared in the early 1980s. According to a report, on the basis of effective calorie, prices of diesel oil and B-C oil were 80 percent and 50 percent respectively, of the price of briquette each, after recalculation taking into consideration factors such as subsidies, inconvenient cost, and taxes (Lee, 1988).

5. Price on the basis of simple calorie is the price calculated in terms of calories. Price on the basis of effective calorie is the price calculated in terms of calories considering efficiency of equipments.

"The Future of Energy in Korea: Long Term Expectation and Strategies: 1987-2010", published by Korea Energy Economics Institution, stated, "Anthracite will maintain its status as the main energy source in Korea until the early 1990s, however, afterwards, consumption of anthracite will decrease largely because of a rise in income levels and an increase in production cost of anthracite"(KEEI, 1987). This report predicted that the consumption of coal would decrease to the level of 29 percent of the entire consumption of energy. However, the prediction was optimistic, considering the share of anthracite in the entire energy consumption had already fallen under 20 percent in 1987.

2.3. Deterioration of Coal Mines' Management Performance

The deterioration of coal quality and stagnant labor productivity had undermined the management of coal mines. According to <Table 2-5>, the share of low-quality coal under 4,000 kcal per ton was increasing, while the share of medium and high quality coal was diminishing. The establishment of Korea Coal Quality Inspection Center in 1982 could not halt the deterioration of the quality of coal.

Table 2-5 | Composition of Anthracite Production according to Calorie

(Unit : %)

	1983		1984		1985		1986	
	KOCOAL	Private	KOCOAL	Private	KOCOAL	Private	KOCOAL	Private
4800 Kcal over	64.7	12.4	66.0	11.7	61.7	11.1	55.7	11.1
4000Kcal over	32.3	62.3	31.9	59.4	36.4	58.1	41.9	54.1
4000Kcal under	3.0	25.3	2.1	28.9	2.0	30.8	2.5	34.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: *Yearbook of Coal Statistics*

The increasing production policy, which emphasized quantity rather than quality, failed to provide incentives to producers to make investments in enhancing coal quality. Price controls also discouraged coal producers from making efforts to improve coal quality. Briquette manufacturers preferred low-quality coal, because the lower the quality, the lower the official coal price based on calorie.

Labor productivity was not improved as well. OMS stagnated at the level of about 1.2 from the 1973 oil crisis to the mid 1980s. The increase in small coal mines with low labor productivity brought about the stagnation of the average OMS.

As mentioned above, the legalization of *Teokdae*-system caused a proliferation of small coal mines with the annual output of under 50 thousand tons. In 1986, 315 coal mines with the annual output of under 100 thousand tons, which included 87 percent of all the coal mines, produced 6.3 million tons, accounting for merely 26 percent of the entire coal production.

The business situation of small coal mines was unstable and vulnerable because of low labor productivity and the inferior quality of their coal.

According to <Table 2-6>, all of the coal mines with the annual output of under 200 thousand tons had already operated in the red at the ordinary income base including the subsidy in 1985. The medium and large coal mines were also suffering from financial difficulties. All of the coal mines with the annual output of over 200 thousand tons, which had gotten in the black in 1985, ran into the red in 1988 (at the current net profit base) <Table 2-6>.

As many coal mines came into financial difficulties, the payment of wages was often delayed. Overdue wages, which amounted to 364 million *won* in October 1985, went up to 1,500 million *won* in April 1987. In 1985 only coal mines with the annual output of under 100 thousand tons could not pay wages. In 1987, however, wage payment was delayed at 2 large mines with the annual output of over 100 thousand tons in addition to 23 small mines (Lee, 1988). At the end of 1987, 37 coal mines were indicted to the Ministry of Labor (MOL) for delayed wage payment (CIPB, 1997).

Table 2-6 | Profit and Loss Statement according to Coal Mine Scale (1985, 1988)

(Unit : Won/Ton)

		KOCOAL	100 Thou. Ton under	100-200 Thou. Ton	200-500 Thou. Ton	500-1000 Thou. Ton	Million Ton over
1985	Production Cost	31,071	27,253	25,638	28,519	25,973	26,565
	Sales Cost	35,249	31,418	31,200	33,510	31,403	28,231
	Total Cost	37,230	32,537	32,146	36,616	32,251	32,246
	Operating Profit	4,326	2,334	4,931	6,960	5,580	4,747
	Ordinary Income	259	-680	-98	1,241	2,253	416
	Current Net Profit	146	-1,452	-96	1,376	748	-977
1988	Production Cost	34,738		24,348	28,627	33,103	
	Sales Cost	40,042		29,250	33,320	38,920	
	Total Cost	42,111		30,132	36,055	40,058	
	Operating Profit	-1,262		-728	-500	45	
	Ordinary Income	-962		-404	-824	485	
	Current Net Profit	-595		-571	-1,009	-621	

Source: KOCOAL, *KOCOAL Statistics*(1985); Korea Industrial Research Institute (1988).

2.4. Unsuccessful Coal Policies

The government had massively supported the coal industry since the early 1970s in various ways such as subsidies, loans, and preferential tax treatment.

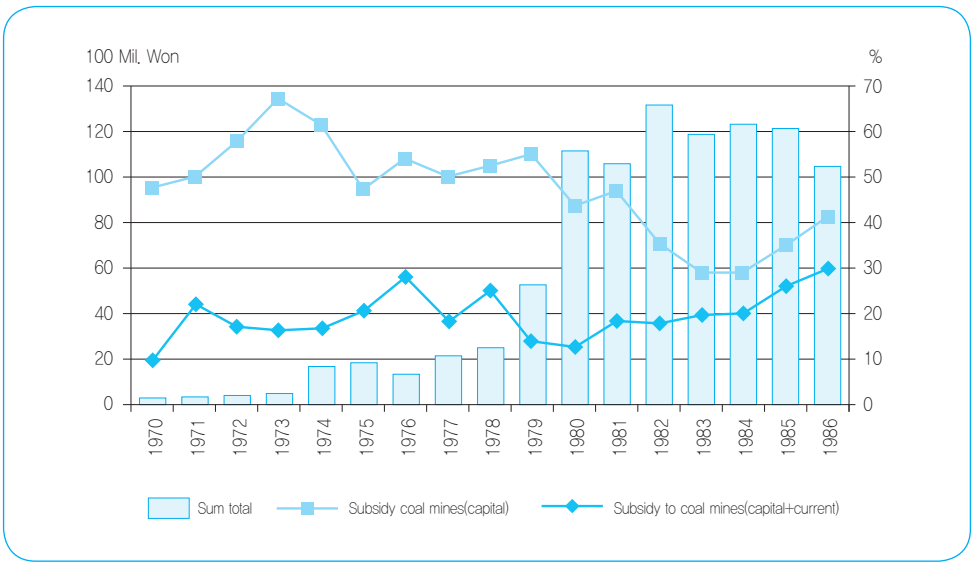
Subsidies financed by tax revenues on B-C oil,[6] comprised direct subsidies to coal mines, investment in KOCOAL and KMPC, subsidies to coal-related businesses operated by municipalities, and subsidies to the Coal Fund. Subsidies to the coal mines, which represented the largest subsidy category, were divided into the current subsidies and the capital subsidies; the former included subsidies for transportation, interest on loans for summer coal stock, exploration for coal, and compensation for KOCOAL's deficit. On the other hand, the latter included subsidies for building shafts and tunnels, the mechanization of mines, and housing constructions.

As seen in [Figure 2-1], the total sum of the subsidies was moderate before the oil crisis. However, in 1974 after the first oil crisis, the total sum jumped to 16.4 billion *won* and remained at the level of 20 billion *won* until 1978. The second oil crisis raised the amount of subsidies enormously, which was up to more than 100 billion *won* from 1979. This means that more than five thousand *won* per ton was granted as subsidies.

Among subsidies, the amount of direct subsidies to the coal mines increased from 1.3 billion *won* to 29.2 billion *won* in the 1970s, which represented more than 50 percent of the total subsidies. Though it increased to an average of 43 billion *won* per year in the 1980s, its share in the total subsidies fell to the level of 30 percent because other subsidies increased greatly with an exception of direct subsidies to the coal mines, most of which was the investment in KMPC and the Coal Fund. Such a change showed that the government policies were shifting from direct subsidies to loans as one of the main businesses of KMPC and the Coal Fund was loans to the coal mines.

6. Since 1978, 6 percent of the taxable amount of B-C oil was imposed as tax.

Figure 2-1 | The Total Sum and the Composition of the Subsidy for the Coal Industry (1970-1986)



Note: The total sum on the left axis, the subsidy to the coal mines on the right axis.
Source: *Yearbook of Coal Statistics*, 1989

The composition of direct subsidies to the coal mines had changed. While current subsidies exceeded the capital subsidies in the 1970s, the relation between the two was reversed in the 1980s as the capital subsidies increased while the current subsidies decreased. However, the total amount of the current subsidies was more than that of the capital subsidies during the period between 1970 to 1986.

The loans granted by the government comprised of the loans for the summer coal stock and the loans for coal-mining development promoted by KMPC. Stocking certain amount of coal in the areas of consumption during the summer was necessary to stabilize the coal market in the winter when demand for coal increased. The government loans for summer coal stock went over 100 billion *won* in the early 1980s and reached to more than 200 billion *won* in the mid1980s.

Loans from KMPC, which began in 1962 based on the Building Law, were granted to the coal mines for their investment in equipment and operation. The amount of loans from KMPC, which was only 200-300 million *won* per year in the 1960s, increased rapidly after the 1973 oil crisis to reach a peak of 47.2 billion *won* in 1987.

Despite the huge subsidies and loans to the coal industry, the policies for increasing the output of coal never attained the desired ends. Although policies aimed at rational development through investment in equipment, the coal mines preferred short-term measures producing immediate effects to long-term investment. The legalization of *Teokdae* resulted in the proliferation of the small mines whose financial bases were very vulnerable. The official price system could not restrain coal prices from rising and discouraged incentives for rationalization because the gap between the official price and the production cost could be compensated by the subsidies.

From the early 1980s, criticism of existing coal policies increased. For instance, the report published by the Korea Energy and Resources Institute (KERI) in 1982 suggested a new package of policies replacing the existing ones: contraction of subsidies and abolition of price control, which were part of switching from a government-initiated economy to a privately-initiated economy: rationalization by building efficient mines and scrapping inefficient mines (See Box 1). Such suggestions, though not realized, are noticeable as foresighted, predicting the direction of the coal policies hereafter.

Box 2-1 | Summary of *Study on the Coal Industry Organization* (Korea Energy and Resource Institute, 1982)

First, with respect to individual mines, it is necessary to stabilize its managerial base to secure competitiveness, and with respect to the national economy, it is necessary to drive the rationalization of coal mines for the rational development of resources. The structure of the coal industry must be reorganized fundamentally from the one initiated by the government to the one initiated by the private-sector.

Second, the reason why the rationalization of the coal industry has been sluggish can be found in the subsidy system. With the enhancement of quality and increase in the production of coal, the price-control system must be improved by reducing the subsidy so that the price is determined by the market.

Third, the proliferation of subcontracting small mines can never coincide with the rational development of coal mines. Rationalization of the coal industry must be carried out in two ways; one is the rationalization of management for securing production, and the other one is the rationalization of the industrial structure by 'scrap-down and build-up'.

Chapter 3

Creating the Adjustment Policies

1. The Process of Creating
2. Law and Institution
3. Financial Resources

Creating the Adjustment Policies

1. The Process of Creating

1.1. 'The Proposal for the Development and Rationalization of Coal Mines': the New Coal Policy

While the coal industry was declining, MER did not alter its position to protect the coal industry until the mid 1980s. Participating in the symposium sponsored by the Korea Coal Association (KCA) in July 1985, the vice minister of MER argued that it was necessary to promote the coal industry because of its strategic importance [Box 3-1]. He only referred to the change of methods, from direct subsidy to loan, to minimize the government intervention and foster the self-reliance of the coal industry.

This policy stance of MER was maintained in the energy-resource plan in the 6th five–year economic-social development plan (1987-1991) announced in 1986. The basic line of the plan was "securing energy supply by promotion of the domestic coal industry and R&D for the new energy technology". Though MER recognized the need to rationalize the coal industry in "the Plan for Promotion of Coal Industry Rationalization" in March 1987, it still focused more on the improvement of production structure rather than the adjustment of industrial structure.

Box 3-1 | Speech by the Vice Ministry of MER, Bongsuh Lee, at the Symposium on the Coal Industry Sponsored by KCA on July 16, 1985

Recently some people argued that the government must not protect the coal industry anymore, because the coal industry has been overprotected and it will lose its competitiveness to imported alternative fuels. However, I think such criticism is dangerous. With respect to energy security we should not underestimate the importance of domestic energy, considering our dependence on imported energy was 76 percent in 1984, which is expected to be more than 90 percent in 1990s.

In addition, on our way toward a developed country where full employment is no less emphasized than economic growth, we also must consider not only economic factors, but also long-term socio-economic factors of the coal industry, such as increase of employment, development of local communities, and decrease in the trade loss accompanying the substitution of imported energy for domestic coal. Recognizing that the coal industry should be promoted strategically, what we should do is to find out the best way to promote the coal industry.

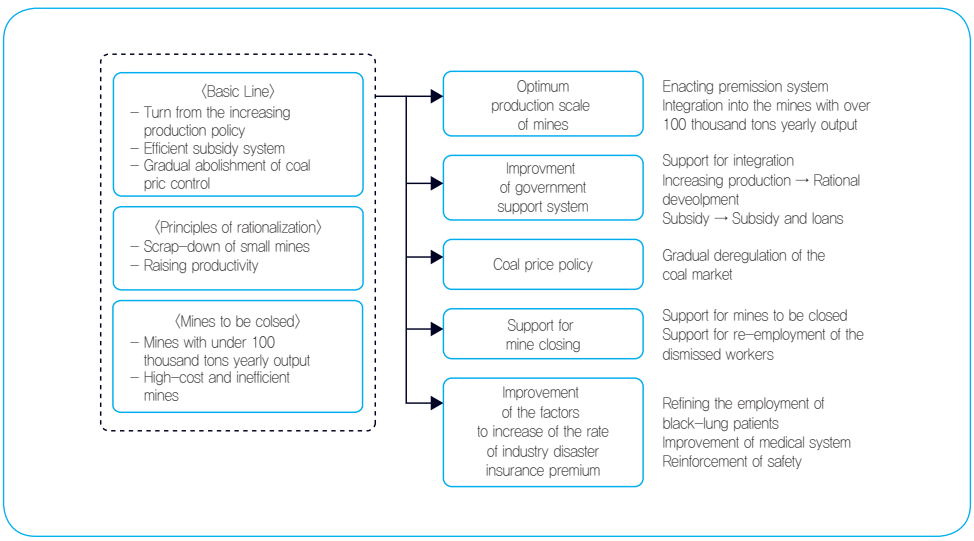
Admitting frankly the criticism that the coal industry is overprotected by the government, I want to emphasize that it is necessary to rationalize the management of the coal industry and raise its productivity for promotion of its self-reliance. For these purposes, we will try to integrate mining areas, mechanize mining, and develop mining technology, as well as make a medium-and-long-term investment plan.

The first step toward the adjustment of the industry was the establishment of the Coal Industry Promotion Board (CIPB) in April 1987 by the Coal Industry Act. According to *The White Paper on Coal- Mine-Closing Support*(CIPB, 1994), CIPB understood 'rationalization' as "expanding production of the high-productivity and low-cost mines, and scrapping down the low-productivity and high-cost mines", which became the basic line of the rationalization policy of the coal industry. It was equivalent to the 'scrap-down and build-up' policy that had already been practiced in other countries such as Japan and the UK.

In May, 'The Proposal for the Development and Rationalization of Coal Mines' (the Proposal) was made by CIPB in cooperation with MER. While the proposal considered all of the problems of the coal industry as seen in [Figure 3-1], the most important point was that it suggested the integration and scrap-down of small coal mines and enhancing productivity as the principles of rationalization. 315 coal mines with the annual output of under 100 thousand tons as well as the low-productivity and high-cost mines were to be the targets of scrap-down. The proposal also suggested measures for closing mines; financial support for the closed mines such as a preferential tax on disposed assets, support for the retirement

allowance, and stable lives of retired miners. The measures of supporting lives of retired miners included support for re-employment of dismissed workers such as employment preference, supplementing their living and school expenses, as well as providing training and education needed to get new jobs.

Figure 3-1 | The Proposal for the Development and Rationalization of the Coal Mines



Source: CIPB, *White Paper*, 1994

Changing its former policies that tried to maintain or increase the production of coal through integration of mining areas, the MER made a new plan, 'the Measures for Coal Industry Rationalization' called 'the New Coal Policy' in June, on the basis of the Proposal. On the premise that briquette would be gradually replaced by other fuels, the policies presented the basic lines for rationalization as follows:

(1) Deregulation of the coal market: refraining from passing increases in the production cost onto coal price, and reducing the government intervention in the coal market.

(2) Optimum production of coal: shifting from maximum production to optimum production and increasing production of high-efficient and low-cost coal mines.

(3) Reorganization of the coal industry: scrapping down marginal coal mines and promoting enlargement of the coal mines through integration of small coal mines.

(4) Improvement of the subsidy system: shifting from subsidy to loan and centering subsidies on the rationalization and enhancement of productivity.

The goals and policies for rationalization presented in the New Coal Policy were as follows: until the end of 1991, it would assist the coal mines in becoming large mines with the annual output of over 50 thousand tons and over 300 million *won* capital, raise the productivity and quality of coal over 1.2 ton OMS and 4000 kcal per ton respectively, promote integration of the adjacent mining areas and close 70 coal mines, to which subsidies were to be granted for closing.

It is important that the New Coal Policy suggested new directions as follows; the basis of the policies shifted from maximum production to optimum production. 'Mining performance' (calculated by multiplying productivity by calories) was introduced as a criterion for assessing rationalization, and plans as well as support for closing mines were officially mentioned.

After investigating the actual conditions of the coal mines and visiting Japan for research about the Japanese rationalization of the coal-mining industry, CIPB submitted 'the Measures for Closing Non-economic Coal Mines (The First Plan)' to the MER in September 1987 <Table 3-1>.

Table 3-1 | Process of Creating the Plan for Coal Industry Rationalization

Month/Year	Planner	Title
May 1987	CIPB	The Proposal for Development and Rationalization of Coal Mines
June 1987	MER	The Measures for Coal Industry Rationalization (The New Coal Policy)
Sep. 1987	CIPB	The Measures for Closing Non-economic Coal Mines (Rhe First Plan)
Oct. 1987	CIPB	The Policies for Closing Non-economic Coal Mines (The Second Plan)
Dec. 1987	CIPB	The Plan for Rationalization of the Coal Industry - centering around Non-economic Coal Mines (The Third Plan)
March 1988	EPB	The Tentative Plan for Structural Adjustment of Coal Industry
June 1988	TFT	The Plan for Closing Non-economic Mines and Supporting Measures
Aug. 1988	MER	Expenses for Closing Small Coal Mines
Sep. 1988	TFT	The Plans for Rationalization of Coal Industry - centering around Closing Non-economic Mines
Dec. 1988	MER (CIPB)	The Plan for Coal Industry Rationalization (final plan)

Source: CIPB, *White Paper*, 1994

In October, CIPB submitted 'the Policies for Closing Non-economic Coal Mines (The Second Plan), which prescribed the criteria for closing mines and the range of support for closing mines. According to the plan, 244 mines under 5,343 'mining performance' in 1986 were designated to be closed. For the workers dismissed by mine-closing, retirement allowance, unpaid wages, unemployment benefits and training fees for finding new jobs were to be provided. To mine owners, subsidies for closing mines were to be paid. The Coal Stabilization Fund and the Petroleum Enterprise Fund[7] were tasked with financing the expenses for closing mines.

In December, CIPB submitted "the Plan for Rationalization of the Coal Industry – centering around Non-Economic Coal Mines" (The Third Plan), by which the rationalization plan of the coal industry was almost completed. It is noticeable that the third plan adopted the principle of agreement between labor and management for closing mines. Closure of mines could be put into action if labor and management accommodated the closing plans suggested by the government. This was to avoid conflicts among stake-holders. However, the plan did not refer much to the interests of residents in the coal-mining regions.

The third plan estimated the total mine-closing expenses to be 363.2 billion *won*, from which 123 billion *won* were expected to be financed by the government. To secure the funding for closing mines, MER needed the cooperation of the Economic Planning Board (EPB)[8] that supervised the government budget.

1.2. From EPB Plan to the Final Plan

Correcting the 6th five–year economic-social development plan after February 1988, EPB made a tentative plan for the structural adjustment of the coal industry. EPB understood the problem of the coal industry as a problem of the governmental finance and recognized the necessity of the adjustment of the coal industry with respect to the efficient finance, while MER tried to maintain the coal industry (see [Box 3-2]). The core of EPB's plan was to scrap down the coal mines below the average 'mining performance' until 1996. EPB's plan having a lot in common with CIPB plan meant that EPB readily accepted the financial request from MER. More importantly, EPB's plan suggested the adjustment policies of the coal industry to be financed by the government budget and the Petroleum Enterprise Fund.

7. About Coal Stabilization Fund and the Petroleum Enterprise Fund, see Chapter 3 (3. Financial Resources).

8. EPB, established in 1961, was the government organization that planned and supervised economic policies. EPB played a dominant role in the economic development of Korea by making economic plans, supervising government budget, financing economic development, etc.

After MER received EPB's cooperation in financing the coal policies, rationalization by scrapping down inefficient mines became the basis of the coal policies. MER moved rapidly; in May, the principles for organizing a task force team were determined and public hearings and panel discussions were opened. In June, a 'professional subcommittee' was established as a task force team in CIPB. Managers in charge of coal-policy-related works in EPB, the Ministry of Finance, MER and the Ministry of Labor (MOL) participated in the task force team.

The task force team (the TFT) enthusiastically pushed ahead, making plans for rationalization. In June, just after its establishment, the TFT drafted a plan for rationalization, in which details of supports for closing mines were described as 'the Plan for Closing Non-economic Mines and Supporting Measures'. In this plan, 'mining performance' in 1987 was determined as new criterion for mine-closing and 237 mines were to be closed and 26,625 workers were to be dismissed.

Reflecting the plan submitted by the Federation of Korean Mine Workers Union (FKMWU), this draft emphasized support for dismissed workers. The plan of FKMWU reinforced support for workers with new suggestions as follows: support for living expenses for workers who were receiving trainings for new jobs, support for school expenses for workers' children, support for workers who started to run their own businesses, and support for workers who were reemployed in the coal mines. The amount of money needed in the FKMWU's plan was twice as much as that in the CPB's plan. On the other hand, the draft suggested two plans for supporting mine owners whose mines were to be closed; one was to subsidize 10,000 *won* per ton while the other was to subsidize 23,366 *won* per ton.

At the meeting of the TFT in August, FKMWU and MOL required reinforcement of the support for workers. Reflecting these requirements, MER submitted to EPB the report concerning expenses for closing small coal mines. In the report, support for children's school expenses required by FKMWU and a compassionate allowance for injured workers were added on top of the basic support for workers (75% of retirement allowance, two monthly payments for unpaid wage, one monthly payment as a compassionate allowance for retirement). Support for living and moving expenses of workers, who were receiving trainings for new jobs, was added as well. As a result, total expenses for rationalization increased from 221 billion *won* to 309.9 billion *won*, and for matching the increase in the amount of expenses, the government subsidies were increased from 140.2 billion *won* to 224.8 billion *won*. Because this report was submitted to the EPB, supervising the government budget, such an increase of government subsidies had an important meaning.

In September, the TFT made a new plan that suggested the criteria to support the mine-owners. The TFT made a judgment that, the mine-owners could extinguish their mining

rights by paying their debts if the government would grant subsidies equivalent to the value of properties not depreciated (=unredeemable liabilities + equity capital) to mines to be closed. However, in the face of criticism that such a support plan was too generous to the mine owners, the equity capital and unpaid wages were removed from supports in the end. The amount of support per ton was determined on the basis of the average production during the period of 1985-1987 after CIPB examined the financial situations of the mines below the average 'mining performance' in 1987.

After the TFT made a comprehensive investigation into the conditions of the coal mines in August, CIPB established a panel in the coal-mining regions in September regarding the coal industry policies. In the panel, each stake-holder expressed its interests in the rationalization plan; large coal mines required maintenance of present consumption-level of anthracite, deregulation of coal mines in operation and enlargement of the government support. Small and medium coal mines required enlargement of the government support for closing mines. FKMWU and laborers required reinforcement of support for workers and emphasized the importance of the agreement between labor and management on the process of rationalization.

In October, CIPB delegated a visiting team including the vice-ministry of MER to the coal-mining regions. The team explained the rationalization plan to municipal officials, field overseers of mines, and representatives of workers, as well as hearing their opinions. CIPB also participated in the panel provided by KCA, where KCA required raising the tax rate on B-C oil from 6 percent to 12 percent to secure financial resources for the rationalization of the coal industry.

At last, the final plan for rationalization was determined, as the Coal Industry Council resolved 'the Plan for Coal Industry Rationalization' (the final plan) drawn out by CPB in December. The basic line of the final plan was to make the coal industry stand on its own feet without subsidies and induce optimum production with the support for closing inefficient mines and fostering economic mines.

Regarding closing mines, 237 mines under 5,375 'mining performance' were scheduled to be closed from 1989 to 1996. During the same period, 7.6 million tons of anthracite and 26,625 workers were to be decreased. The details of the support were as below <Table 3-2>.

As basic support for dismissed workers, two monthly payments for unpaid wages, 75 percent of the retirement allowance, and one monthly payment as a compassionate allowance for retirement were provided. As additional support which reflected the requests of FKMWU, school expenses, two monthly payments for living expenses, moving and job-seeking expenses, and compensation for disaster equivalent to 'industrial disaster compensation,' were provided.

Table 3-2 | The Details of Support for Mine-closing in the Final Plan (Dec. 1988)

(Unit : 100 Million Won)

Support		Contents of Support			Budget
Support for the dismissed workers	Basic support for life-stabilization	Unpaid wages 75% of retirement allowance Compassionate allowance	Two monthly payments Three monthly payments (with 4 years of continuous service) One monthly payment		215 324 108
	Additional support for life-stabilization		Non-reemployed in coal mines	Reemployed in coal mines	
		School expenses Living expenses Special compassionate allowance* Moving · job-seeking expenses Compensation for disaster	Max. 3 years Two monthly payments One monthly payment 300 thou. *won* Equivalent to industrial disaster compensation	Max. 3 years Two monthly payments - 150 thou. *won* Equivalent to industrial disaster compensation	146 129 43 62 87
	Support for employment	Re-employment in coal mines Support for businesses run by workers Support for training	Employment preference Loans up to 5 million *won* instead of support for living expenses Entrusting training ·education		- 250** 12
Support for Mine-owners		Support for transfer · abolishment of equipment	8116 *won* per ton		615
		Tax preference	Exemption for tax on capital gains		
Support for Reclamation		Reclamation of forest Reclamation of mine pollution			24
Revitalization of the coal-mining regions		Promotion of 'the Second Mining Region Comprehensive Development Project' Support by the Agriculture and Fishery Region Development Fund Promotion for the region-specific industries			-

Note: * paid to those who are unable to be re-employed because of physical disabilities
** loans to those hoping for self-run business instead of paying 'living expenses' oftwo monthly payments

Source : CIPB, *White Paper*, 1994

The amount of the basic support was equivalent to six monthly payments and the amount of the additional support was equivalent to about 5.9 monthly payments (in the case of reemployment in the coal mines, 4.5 monthly payments). Adding to such support, the final plan included some measures for supporting the employment of dismissed miners such as employment preference, support for businesses run by workers (loans up to 5 million *won* instead of support for living expenses), and support for training.

To owners of the mines to be closed, the amount of money equivalent to the value of unredeemable liabilities was paid. In fact, 8,116 *won* per ton was paid for the average annual output during 1985-87 for the mines to be closed. In addition, tax preferences such as an exemption for tax on the capital gains were provided.

The expected amount of expenses for the workers and mine owners were 137.6 billion *won* and 61.5 billion *won* respectively. The total of expected expenses for closing mines was 201.5 billion *won*, which included the expenses for reclamation of forests and mine pollution.

Support for building economic mines lagged far behind the support for closing mines. The basic line was to maintain the optimum production level of 16 million tons per year by raising the productivity of efficient mines. The optimum production level according to the anticipated production in 1996, was calculated under the premise that the coal consumption would be declining and the coal stock would be maintained at the level equivalent to 25 percent of the coal consumption per year. The expected expense for building economic mines was 244.7 billion *won*: 104.1 billion *won* as subsidies forworkers' welfare and 140.6 billion *won* as loans for raising productivity.

The plan only referred to the measures for reclamation of the damaged forest and pollution, revitalization of the coal-mining regions and fostering the economic mines. The plan did not suggest any concrete schedules for revitalization of the coal-mining regions, expecting that closing mine would not lead to the decline of the coal-mining regions because of the remaining large mines. It was obvious that such expectation was too optimistic. The absence of regional policies provoked fierce protests from the residents in the coal-mining regions afterwards.

Box 3-2 | Interview with the Former Chief Director of CIPB, Kwang Sik Kim[9]

Q1. In the process of creating the rationalization policy, what was the perspective of MER, and what is the meaning of the EPB Plan?

MER did not seem to expect a sudden collapse of the coal industry, presuming that demand for coal would be maintained at the level of 20 million tons per year hereafter. However, coal as a home-heating fuel was being replaced rapidly by gas and oil, and coal stock was also increasing rapidly. Most mines were small and their mining conditions were bad: scarce reserve and low quality. There were only 30 mines with the annual output of over 100 thousand tons, which also had difficulties with respect to technology and finance, and in accordance with deep-mining. In contrast to MER, trying to maintain the current situation of the coal industry, CIPB judged that the adjustment of the coal industry was necessary for the survival of competitive mines, because demand for coal was decreasing.
I joined CIPB on April 17, just after it was established. On the request of MER, I made a plan for the coal industry. Though MER suggested 'the New Coal Plan' on the basis of my plan, it was basically the policy for maintaining the coal industry. I disagreed with that, and submitted CIPB plan to EPB. EPB judged that the adjustment of the coal industry was necessary for efficient financing, and adopted mine-closing as the government policy upon deliberation with MER. The decision of EPB was important because it guaranteed the government financial aid indispensable for the rationalization of the coal industry.

Q2. What do you think about the reasons why the re-employment of the dismissed workers and the revitalization of the coal-mining regions were considered little by CIPB?

In the rationalization of the coal industry, support for the mine-owners and dismissed workers was the most important. Various subsidies were paid to the dismissed workers and more than 7,000 won per ton were paid to the mine-owners for the elimination of their debts. With respect to re-employment of the workers, skill-training was a difficult problem. Since the workers could not afford to receive training, CIPB tried to secure the stability of their lives by the subsidy. Re-employment of the workers was difficult under the condition of the industrial structure at the time. In contrast with Japan, where it was possible for the dismissed workers to get jobs in the local industry, we could support the dismissed workers only by the subsidy in Korea because there was no job in the coal-mining regions. Though the workers could receive the subsidy for training by MOL if they wished, there were not many applicants. I do not agree with the opinion that the support for re-employment of the workers was neglected. CIPB made great efforts to support the dismissed workers in those days. Although CIPB discussed the revitalization of the coal-mining regions with the Ministry of Construction (MOC) and EPB, it was not the responsibility of CIPB. MOC was in charge of the businesses related to regional development.

Q3. What reactions did you expect from the workers and mine-owners to the rationalization of the coal industry?

I expected a great resistance from the workers to the rationalization because they would lose their jobs and subsequently, the purpose of living. Mine-owners were expected to face great troubles because they had to pay debts. To solve those problems, we discussed the rationalization many times with the workers and mine-owners. We tried to reflect their demands in the rationalization plan. Afterwards, we, in agreement with them, determined the contents of the support, we recommended the budget to EPB. Facing strong demands from the workers, we paid a compassionate allowance for retirement, school expenses, expenses for job-seeking, a special compassionate allowance in addition to a retirement allowance and unpaid wages, which may seem a little excessive.

2. Law and Institution

2.1. Legislation and Amendment of the Coal Industry Act

The Coal Industry Act enacted in 1986 was the basic law backing up the rationalization of the coal industry. However, at the time of the legislation, the law aimed at incorporation of the three existing laws concerning the coal industry (the Development Law, the Promotion Law, and the Supply-Demand Adjustment Law) rather than the rationalization. Until the amendment of 1988, this law had not entailed clauses for closing mines.

The government had prepared the new law to replace the three existing laws, as their expiration came close. In 1984, KERI submitted the report, "A study for incorporating coal-related laws", to the government. The conclusions of this report were as follows: maintaining financial support for the coal industry due to the importance of domestic coal as an energy resource, incorporating the three existing laws into the new law for systematizing the support of the coal industry, including provisions for a ceiling coal price into the new law, a tax preference for integrating mining areas, securing financial resources, and a fund for closing-mines.[9] However, the concept of 'scrap-and-build', which was the core principle of the rationalization realized afterwards, had not yet appeared in this report, despite its reference to

9. 'Fund for closing-mines' suggested by the report had little to do with 'scrapping-down' of the inefficient mines. It was for legislation of 'mine-closing expenses' levied on mines by the government. KCA established Coal Mine Support Board in 1981, which was tasked with helping mines to pay retirement allowance, cost for reclaiming forests and mine pollution and other related activities in case the mines were closed because the coal reserve was depleted or became unprofitable. The government levied 100 *won* per ton as 'mine-closing expense' to mines and saved the collected money as the fund of Coal Mine Support Board.

the Coal Mining Rationalization Special Measures of Japan that attempted rationalization through 'scrap-and-build'. On the basis of the report, discussions about the legislation of the new law began in 1985, and the Coal Industry Act was enacted in January 1986.

The Coal Industry Act comprised six chapters: general rules (chapter 1), rational development of coal resources (chapter 2), adjustment of supply-and-demand in the coal market (chapter 3), support and supervision to the coal industry (chapter 4), supplementary rules (chapter 5), and penalties (chapter 6).

Chapter 1 is composed of the clauses concerning the purposes of the law, the long-term plan of the coal industry, and the composition of the Coal Industry Council. The purposes of the law, stipulated in the first clause, are as follows: 'fostering a sound coal industry through rational exploitation of resources and efficient use of coal' and 'enhancement of people's lives through stabilizing the coal market and efficient distribution of coal'.

Chapter 2 comprises the clauses about use and integration of the mining areas and companies, reflecting the contents of the Development Law. Chapter 3 comprises the clause about supply-and-demand of coal and briquette, reflecting the contents of the Supply-and-Demand Adjustment Law.

Chapter 4 reflected the contents of the Promotion Law and the Supply-and-Demand Adjustment Law. It prescribed the financial source and use of the Coal Industry Subsidy (clauses 26, 27), the Coal Industry Promotion Fund (clause 28), the Coal Industry Stabilization Fund (clause 29), the Coal Industry Promotion Board (clause 31) and support for mine-closing (clause 32). The contents reflected that the Coal Industry Subsidy was to be financed from the tax imposed on B-C oil (6 percent of the taxable amount of B-C oil). The Coal Industry Promotion Fund was for promoting the coal industry and stabilization of the coal market, and the Coal Industry Stabilization Fund was for stable operation of the coal mines, workers' welfare and enhancing the safety of briquette. CIPB was an implementing institution for the rationalization policies. The clause of support for closing mines, which did not mean support for scrapping-down mines, only provided the legal ground for 'expenses for closing mines' that had been compulsorily collected from mines and saved as a fund of the Coal Mine Support Board since 1981.[10]

As shown above, the Coal Industry Act did not legislate so much for the rationalization through scrap-down as for incorporation of the three existing laws concerning the coal industry. Therefore, it became necessary to stipulate clauses for closing inefficient mines in the Act as closing inefficient mines was suggested as a key measure for rationalization by CIPB. In the amendment of the Coal Industry Act in December 1988, the clauses concerning

10. Refer to footnote 1.

closing inefficient mines were added as chapter 4-2. The specifics of the clauses are shown in <Table 3-3>. In addition, the amendment allowed the Coal Industry Stabilization Fund to use its resources for closing mines and made it possible for the Coal Industry Subsidy to finance the Coal Stabilization Fund. The amount of the coal industry subsidy was also raised from 6 percent to 12 percent of the taxable amount of B-C oil. The enforcement ordinance of the Act was amended in March 1989.

Table 3-3 | Contents of the Coal Industry Act Ch. 4(2)

Clause		Contents
39-2	Criteria for mine-closing	- The Ministry of MER announces the criteria of mine-closing after deliberation of the Coal Industry Council
39-3	Payment of mine-closing expenses	- The Stabilization Fund pays mine-closing expenses to the dismissed workers, 75 % of retirement allowance, two monthly payments, and one monthly payment as compassionate allowance are paid. · To mine-owners, less than 10 thou.*won* per ton are paid for the average yearly output of coal. - The Ministry of MER can invalidate mining rights after deliberation of the Coal Industry Council, if mine-owners are missing and mine-closing is inevitable.
39-4	Mine-closing and mortgage	- Invalidation of mining rights for mine-closing needs approval of mortgagee
39-5	Mine-closing and subcontracting right	- Subcontracting right is effective until the expiration day of subcontracting right
39-6	Limitation to application of mining right	- It is not permitted to apply for mining right for the mining area the mining right of which is invalidated by mine-closing
39-7	Measures for dismissed workers	- Making a plan for dismissed workers by mine-closing and employment preference of the coal mines

2.2. Establishment of the Coal Industry Promotion Board

CIPB was an institution for implementing the rationalization of the coal industry on the basis of the Coal Industry Act. After the Coal Industry Act was legislated in January 1986, the preparation bureau for establishing CIPB was organized in September and the establishment committee was inaugurated in January 1987. The committee, whose chairman was the vice-minister of MER, comprised directors of the price-policy bureau in EPB and the mining bureau in MER, the chairman of KCA, and the chief director of Korea Coal Mines Cooperative.

In April, CIPB was established, incorporating the three institutions: the Korea Coal Scholarship Committee, the Coal Mine Support Board, and the Korea Coal Quality Inspection Center. It had been established on the basis of the three existing laws incorporated in the Coal Industry Act. The Korea Coal Scholarship Committee was operating the scholarship fund made by imposing certain amount of surcharge per ton of coal produced. The Coal Mine Support Board, established to support mine-closing, was an operating fund financed by imposing a surcharge of 100 *won* per ton on coal. The Korea Coal Quality Inspection Center was established to inspect the quality of coal and briquette, financed by imposing some amount of surcharge on briquettes.

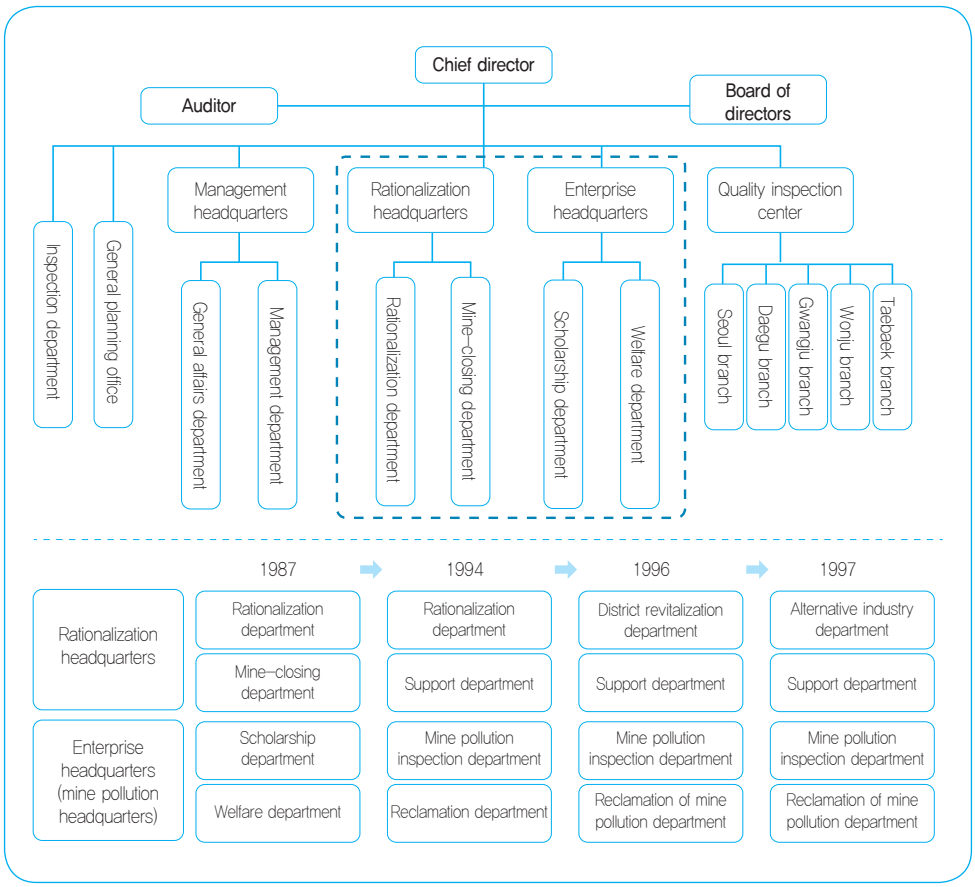
The purpose of CIPB was to implement efficient policies for the rational development of the coal industry. According to its statute, CIPB was supposed to carry out all of the services relating to the coal industry such as closing mines, making long-term plans for the coal industry, stabilizing the price as well as the services provided by the three existing institutions <Table 3-4>. However, it is obvious that the most important service of CIPB was closing mines.

Table 3-4 | List of CIPB's Businesses

1. Business of the coal industry rationalization	2. Making long-term plans for the coal industry
3. Management of the Stabilization Fund	4. Mine-closing
5. Scholarship work	6. Inspection of quality of coal and briquette
7. Development of technology related to coal and briquette	8. Safety in using briquette
9. Welfare of mine workers	10. Safety of coal mines
11. Fair trade of coal	12. Study ·research ·statistics ·publicity related to the coal industry
13. Other businesses entrusted by MER	

Source: CIPB, *A History of Korea Coal Industry*, 1990, p.351

Figure 3-2 | The Organization of CIPB (1987)



Source: MIRECO(2007).

The organization of CIPB is shown in [Figure 3-2]. The board of directors of CIPB was the final decision-making authority that determined the business of CIPB and amended the stipulation. It comprised the government officials and representatives of the coal industry. Park Sang-gun, the director of the electric-power bureau in MER, was appointed as the first chief director <Table 3-5>. Because a chief of the board and auditors as well as directors were appointed by the minister of MER on the condition of the approval of the chief of the board, CIPB was under the dominant influence of MER.

Table 3-5 | The Initial Members of the Board of Directors of CIPB

Affiliated institution	Name	Affiliated institution	Name
Director of mining affairs depart. in MER	W. Lee	Chairman of KCA	Y. Lee
		Chief director of KFIC	H.S. Kim
Director of KEEI	H.S.Lee	Chief director of KCMC	Y.S. Jeong
Vise president of KOCOAL	H.T. Gwon	Chairman of FKMU	S.S. Lee
Director of KMPC	J.S. Lee	Samdeok certified public accountant*	B.N. Kim
Ex-chairman of KCA	H.S. Choi		

Source: CIPB, *10 Year History of CIPB*, 1997

Note: * auditor.

KEEI(Korea Energy Economics Institution), KFIC(the Korea Fuel Industry Cooperative), KCMC(the Korea Coal Mines Cooperative).

CIPB was composed of one office (the general panning office), three headquarters (management, rationalization, enterprise) and one quality inspection center. Under the quality inspection center, five local branches were established. The core parts of CIPB were the rationalization and enterprise headquarters; the former took charge of closing mines and promoting mines while the latter took charge of scholarship and miners' welfare.

In 1994, when the rationalization of the coal industry had nearly ended, the organization of CIPB underwent great changes. As shown in [Figure 3-2], the main businesses of enterprise headquarters in 1994 were changed from scholarship and welfare work to mine pollution. In 1996, the enterprise headquarters was renamed as the mine pollution headquarters and the rationalization headquarters' rationalization department was replaced by the coal-mining district revitalization department. In 1997, the rationalization department was replaced by the alternative industry department and businesses related to the coal-mining regions were shifted to the newly-established mine district headquarters. Finally, CIPB was reorganized into the Mine Damage Prevention Organization in 2006, which was renamed as the Korea Mine Reclamation Corporation (MIRECO) in 2008. Such changes in the organization show the main business of CIPB shifted from rationalization to mine-reclamation and the revitalization of the coal-mining regions.

While CIPB was in charge of the implementation of the rationalization policy, the three councils – the Industrial Policy Council, the Coal Industry Council, and the Mine-Closing Council – took parts in the decision-making process of the rationalization policy. The Industrial Policy Council, established in December 1981, was the highest ranked institution that counseled policies related to the adjustment of the industry structure and the disposal of the troubled companies. The Minister of EPB was assigned as the chairman of the council, which comprised about 20 members including ministers of the government and a presidential chief-economic secretary. The Proposal submitted by CIPB could be executed only after it was approved by the Industrial Policy Council.

The Coal Industry Council, established under the MER by the Coal Industry Act, was in charge of counseling rational development of the coal industry and stabilization of the coal market. A vice-minister of MER was assigned as a chairman of the council, in which high-ranking officers of coal-industry-related government departments, scholars, and representatives of the coal-industry-related organizations participated as members. MER announced the criteria for mines to be scrapped down with the deliberation of the council. When the mine owners were missing, the Ministry of MER could invalidate their mining rights by its authority and pay mine-closing expenses after the council adopted a resolution.

The Mine-Closing Council, established in February 1989, selected the mines to be closed among the applicants. Led by the chief director of CIPB, the council was composed of the middle-class officials (MER, EPB and MOL), the chief of development headquarters of KMPC, the chairman of FKMWU, the director of KCA, the director of Coal Mines Cooperative, and the chief of the rationalization headquarters of CIPB. At the second meeting in March 1989, this council determined the mines to be closed in the 1989 fiscal year.

3. Financial Resources

At the point when rationalization through scrap-and-build started, financial resources for the rationalization comprised the Coal Industry Subsidy (Coal Subsidy), the Coal Industry Stabilization Fund (Stabilization Fund) and the Coal Industry Promotion Fund (Promotion Fund). The uses and financial resources of the funds were stipulated by the Coal Industry Act.

3.1. The Coal Industry Subsidy

The Coal Industry Act stipulated the Coal Industry Subsidy, which was financed by the tax revenue imposed on the taxable amount of B-C oil. The initial 6 percent tax rate was raised to 12 percent by the amendment of the Coal Industry Act in 1988. The purpose of the Coal Industry Subsidy, managed by the Ministry of MER, was the rationalization and stable growth of the coal industry.

The Coal Subsidy supported various businesses related to the coal industry: support for mine maintenance and prevention of mine pollution, support for workers' welfare and revitalization of coal mining regions, support for mine equipment and investment in the Stabilization Fund and the Promotion Fund, and support for investment and subsidy to KOCOAL and KMPC. The investment in the two funds was added to the businesses of CIPB after the amendment of the Coal Industry Act.

According to <Table 3-6>, the amount of the coal subsidy, which was 79.6 billion *won* in 1987, exceeded 100 billion *won* in 1990. After the rationalization policy started in the beginning of 1989, it is noticeable that support for mine-closing (investment in the Stabilization Fund) increased. In 1991, the total of mine-closing expenses was 18.4 billion *won*, 18.5 percent of the entire amount of the Coal Subsidy. In contrast, support for the production decreased from 34.7 billion *won* in 1987 to 27.2 billion *won* in 1991.

Table 3-6 | The Budget of the Coal Industry Subsidy and its Executive Organs

(Unit : Million Won)

Business		1987	1988	1990	1991	Executive Organ
Coal Production	Tunneling, Mechanization, Exploration, Enlargement	31,825	32,306	27,172	26,138	KMPC
Coal Production	Production Stabilization	2,909	2,510	1,178	1,122	CIPB
Safety Facilities		3,351	3,491	4,435	4,722	KMPC
Workers' Welfare	Education, school expenses	2,818	5,818	6,620	5,776	CIPB
Workers' Welfare	Housing, welfare infrastructure	8,110	6,582	6,126	6,205	Municipalities
Workers' Welfare	Contribution to the Black Lung Fund	1,506		14,800	4,365	ML
Prevention of mine pollution		5,490	3,624	5,034	5,095	Municipalities

Business		1987	1988	1990	1991	Executive Organ
Mine-closing	(Financial resource of the Stabilization Fund)	-	633	20,304	18,444	CIPB
Compassionate allowance for disaster		-	20	50	50	
Marine transportation of briquette		8,875	7,973	6,617	6,027	Municipalities
Capital Investment & Research Fund	Investment in KMPC and KOCOAL Contribution to Research institution	12,000 1,561	9,000 1,669	14,000 1,570	14,000 1,570	
Investment in the Promotion Fund	(Financial Resource of the Promotion Fund)	1,212	2,214	-	-	
Promotion of Mine Region		-	-	6,728	8,668	municipalities
Total		79,657	75,840	114,634	102,182	

Source: Official gazette, 1987.1.7; 1988.1.7; 1990.1.6; 1991.1.28

Note: The budget of the coal industry subsidy in 1990 and 1991 was 160 million dollars and 139 million dollars, respectively (at the end of 1990, the exchange rate of *won* to dollar was 712.05 *won* per dollar, whereas the same rate was 733.83 *won* per dollar at the end of 1991)

The businesses supported by the Coal Subsidy were entrusted to several institutions and executed by them; businesses related to production and safety equipment were entrusted to KMPC; production stabilization, education of workers, scholarship for workers' children and mine-closing expenses were entrusted to CIPB. Housing, infrastructure, marine transportation of briquette and revitalization of the coal-mining regions were entrusted to municipalities. Investment in mine-closing and a promotion fund was a major financial resource of the Stabilization Fund and the Promotion Fund, respectively.

3.2. Coal Industry Stabilization Fund

The Coal Industry Act established the Coal Industry Stabilization Fund for the purpose of stabilizing the coal industry. CIPB, the manager of this fund, used the fund as a financial resource for the businesses as follows: support for closing coal mines, scholarship work for children of workers in coal mines, welfare of workers and development of the coal mining regions, inspecting the quality of briquette, developing technology related to manufacturing briquette, enhancement of safety in using briquette, price stabilization of coal and briquette, prevention of pneumoconiosis (black lung disease) and protection of workers. Among

them, support for mine-closing and price stabilization accounted for the largest share of payments from the fund.

The Stabilization Fund was financed by surcharges on coal and briquette, investment from non-government and the government, loans, earnings from operating the Stabilization Fund, and other revenues <Table 3-7>. Most of the other revenues came from the Petroleum Enterprise Fund (the Petroleum Fund).[11]

Table 3-7 | Revenue of the Coal Industry Stabilization Fund

(Unit : Million Won)

	1987	1988	1989	1990	1991	1992	1993	1994	Total	%
Surcharges on coal and briquette	7,048	10,035	4,477	3,130	2,326	2,058	1,561	1,135	31,770	1.9
Investment of the government			50,662	20,304	18,444	13,000	60,443	35,308	198,161	11.8
Loans		15,000							15,000	0.9
Interest revenue	5	127	3,677	5,445	5,781	3,543	3,905	9,323	31,806	1.9
Government subsidy	2,085	3,334	3,677	4,707	3,686	3,029	1501	889	22,908	1.4
The Petroleum Fund			107,048	93,909	194,805	193,846	369,883	409,800	1,369,291	81.7
Rent revenue	509	592	639	800	844	850	992	1,258	6,484	0.4
Others	218	167	335	222	115	66	18	11	1,152	0.1
Total	9,865	29,255	170,515	128,517	226,001	216,392	438,303	457,724	1,676,572	100.0

Source : CIPB (1995)

At first, the most important resource was the surcharges, which were imposed on coal and briquette by the 30th clause of the Coal Industry Act. After the Stabilization Fund was financed by the Coal Subsidy and the Petroleum Fund from 1989, however, the investment of the government (the Coal Subsidy) and the Petroleum Fund represented the dominant part of the Stabilization Fund. According to <Table 3-7>, the investment of the government and other revenues accounted for 11.8 percent and 83.5 percent respectively of the total amount of the fund raised from 1987 to 1994, which was 1676.5 billion *won*. The surcharges

11. The Petroleum Enterprise Fund was established in 1977 to stabilize the domestic oil market and develop the petroleum industry. As international oil prices dropped from 1985, the gap between international price and domestic price controlled by the government was enlarged. Though the government lowered domestic oil price a little, much of the gap was absorbed into the Petroleum Fund. By the end of 1987, the amount of the Petroleum Fund reached 350 billion *won*.

only accounted for 1.9 percent. While the investment of the government was used for mine-closing, revenue from the Petroleum Fund was used mainly for stabilizing the price of coal. The amount of the Petroleum Fund to be used for mine-closing was about the same as that from the government investment.

CIPB managed the fund under the supervision of MER. The fund-managing plan crafted by CIPB needed the approval of the Minister of MER after passing through the deliberation of the board of the Stabilization Fund. CIPB and MER could comparatively enjoy great flexibility in using the Stabilization Fund without the approval of the National Assembly.

However, such flexibility was narrowed as the Stabilization Fund was integrated into the Special Account for Energy and Resources Enterprise in 1995. 12 Since the Special Account required the approval of the National Assembly, it became more difficult to secure funds for mine-closing expenses and to use the funds flexibly at the government's discretion.

3.3. Coal Industry Promotion Fund

The Coal Industry Act established the Coal Industry Promotion Fund, along with the Coal Industry Stabilization Fund. The purposes of this fund were rational promotion of the coal industry and stabilization of the supply-and-demand of coal. The existing Coal Fund established by the Adjustment Law was integrated into the Promotion Fund.

The resource of the Promotion Fund comprised the investment of non-government sources and the government, loans, earnings from operating the Promotion Fund, and other revenues. The investment of the government was the Coal Subsidy, which could finance the Promotion Fund by the amendment of the Act in the same way the Stabilization Fund did. The amount of the fund increased to 250 billion *won* in 1989, and 290 billion *won* in 1993, up from the initial amount of 185 billion *won* from the Coal Fund.

The Promotion Fund financed businesses as follows: the coal stock of the government, loans for summer coal stock, loans for equipment improvement for the coal stock, loans for equipment improvement for the coal industry, loans for KOCOAL and KMPC, loans for purchasing mining rights and mining equipment.

The businesses of the government coal stock and loans for summer coal stock succeeded the Coal Fund, and the businesses of loans for equipment improvement and purchasing equipment succeeded KMPC. Though the Minister of MER was in charge of managing the Promotion Fund, KOCOAL managed the fund according to the plan designed by MER.

12. In 1994, the government established the Act of Special Accounts for Energy and Resources Enterprise. This Act aimed to manage energy and resource related enterprises effectively through integrating the existing energy-and-resource-related funds including the Stabilization Fund and the Promotion Fund into the Special Accounts for Energy and Resources Enterprise. When the Act was enforced in 1995, the Stabilization Fund and the Promotion Fund were abolished and mine-closing expenses were provided by the Special Account.

The amount provided by the Promotion Fund was about 160 billion *won* per year during 1990-1993, which is more than half of the Promotion Fund <Table 3-8>. More than 60 percent of the money provided by the fund was used for loans for the summer coal stock. Because the Promotion Fund was financed by the recovery of loans and sales of the coal stock, it did not require continual financing from outside, as in the case of the Stabilization Fund. The investment of the government was suspended after 1988.

Table 3-8 | Balance Sheet of the Coal Industry Promotion Fund

(Unit : Million Won)

Revenue					Expenditure				
	1990	1991	1992	1993		1990	1991	1992	1993
Recovery of loans for summer coal Stock	84,058	98,058	111,399	98,567	Loans for Summer coal Stock	98,205	114,996	98,447	92,373
Sales of the coal stock	40,094	18,668	7271	-	Purchase of coal	1,026	15,910	29,255	11,126
Recovery of deposit	227	-	-	-	management cost	3,306	6,558	14,093	4,234
Recovery of loans for briquette factory facilities	849	1,123	2,277	2,966	Loans for briquette factory facilities	3,629	3,192	1,336	1,191
Interest revenue	7,987	12,142	10,032	6,408	Redemption for loans	1,050	3,976	3,768	3,556
The balance brought forward	21,638	47,638	32,997	17,077	The balance carried forward	47,638	32,997	17,077	12,537
Total	154,854	177,629	163,976	125,017	Total	154,854	177,629	163,976	125,017

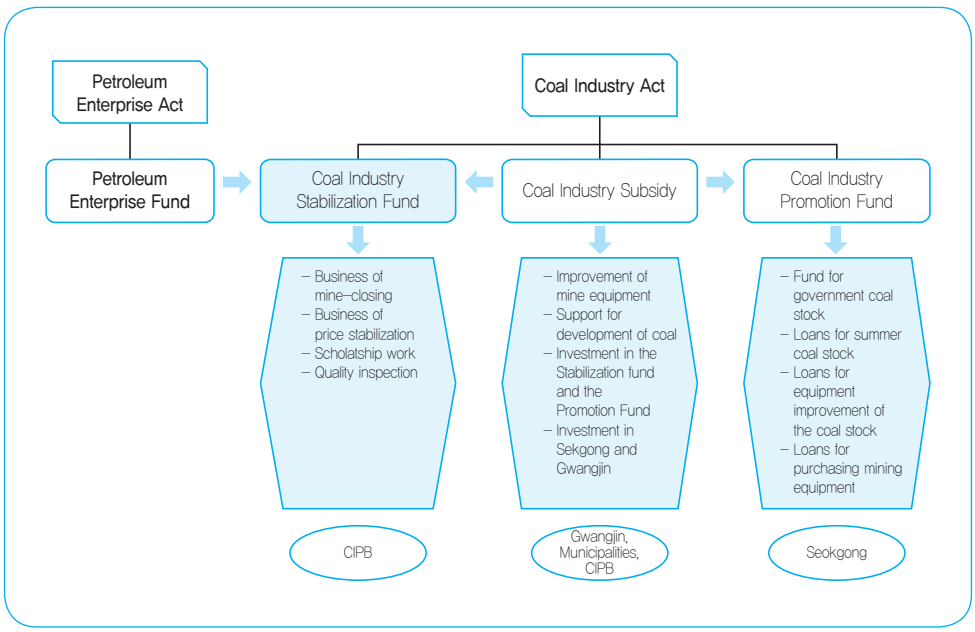
Source: : MER, *Financial Statements of Petroleum Business Fund*, each year

To sum up, financial resources and businesses of the Coal Subsidy, the Stabilization Fund and the Promotion Fund may have interrelated and somewhat overlapped each other, but their managing departments were different [Figure 3-3]. Support for mine-closing, price control and workers' welfare was the business of the Stabilization Fund managed by CIPB. The loans for summer coal stock were provided by the Promotion Fund managed by KOCOAL. Support for equipment improvement for enhancing productivity of thecoal mines was the responsibility of KMPC, financed from the Coal Industry Subsidy. Subsidy for welfare equipment, prevention of mine pollution, and the development of the coal-

mining regions was also provided by the Coal Industry Subsidy, but it was managed by municipalities.

Although the rationalization of the coal industry not only included scrap-down but also build-up, support for build-up was managed by KMPC, instead of CIPB. This brought about inefficiencies in driving the rationalization, as seen later in Chapter 5.

Figure 3-3 | Financial Resources for the Rationalization



Chapter 4

Execution of the Rationalization

1. Scrap-down
2. Build-up
3. Coal Price Stabilization
4. Development Policies for the Coal-mining Regions

Execution of the Rationalization

1. Scrap-down

1.1. Procedure for Mine-closing

Determining the mines to be closed was the starting point of mine-closing. At first, the government considered closing the small and medium mines with the annual output of under 100 thousand tons. However, the criterion was changed from the scale of production to 'mining performance' (calories produced per one man per one shift), as opinions prevailed to consider factors such as quality of coal, coal reserves, altitude, and working conditions. In the final plan, 237 coal mines under 5,375 'mining performance' were to be closed gradually until 1996.

According to the survey on KCA-membership coal mines in November 1988, owners of 115 of 231 mines wished to close, and owners of 88 mines of the 115 mines hoped to do so in 1989. The expected decrease in the coal production in 1989 was 3.5 million tons, which was much more than the amount the final plan assumed, which was 1-1.5 million tons per year. Moreover, only 27 mines of the 88 mines were under 4,000 'mining performance' (the criterion for closing mines in 1989) and 19 mines were over 5,375 'mining performance'. This meant that it was difficult to determine the mines to be closed by referring only to 'mining performance'.

In January 1989, the new criteria were announced after the deliberation of the Coal Industry Council <Table 4-1>. According to the new criteria, in addition to mines under 4,000 'mining performance', mines over 300 meters of altitude or mines that produced coal containing more than one percent sulfur could apply for closing if their 'mining performance' was under 5,375. Subcontracting mines could apply for closing if their subcontracting rights had expired in 1989.

Though 112 mines applied for closing under the new rule, some mines did not yet meet the new criteria. CIPB again softened the criteria for closing mines, adding several cases to the existing ones: mines under 12 thousand tons of annual output, mines which produced coal under 3,500kcal per kilogram, mines where management and laborers agreed on closing on the ground of depletion of coal reserves, and mines unable to operate because of financial difficulties.

Since most of inefficient and small mines were closed in 1989, the criteria for closing mines became more and more loosened from 1990. In 1990, it was mines under 4,500 'mining performance'. In 1991, it was mines under 30 thousand tons of annual output. In 1992, mines which started mining after the rationalization policies started could close, andall coal mines were allowed to apply for closing in 1993 <Table 4-1>.

After MER announced the criteria for closing mines, CIPB proceeded to pay expenses for mine-closing to the dismissed workers and the mine-owners according to 'the mine-closing expenses payment regulations'. The regulations, comprising 22 clauses, included rules about payment for the mine owners (3^{rd}-4^{th} clauses), payment for dismissed workers (5^{th}-8^{th} clauses), the application procedure of expenses for mine-closing (9^{th}-15^{th} clauses), and determination of the amount of subsidies and payment procedure (16^{th}-20^{th} clause).

Table 4-1 | The Criteria for Mine-closing

	1st	2nd	3rd	4th	5st	6th	7st	8st
	1989.1	1989.4	1990.1	1991.1	1992.2	1992.9	1993.2	1993.7
Criteria	Under 4000 mp	Same as left	under 4500 mp	Same as left	Under 6000 mp	Same as left	Same as left	all mines hoping for closing
	Over 300m altitude or over 1 % sulfur of the mines under 5375 mp	Same as left	Same as left	Same as left	Same as left (eliminating altitude clause)	Same as left	Same as left	
	Expiration of subcontracting rights	Expiration of subcontracting rights or depletion of coal reserve	Same as left	Same as left	Same as left(eliminating depletion clause)	Same as left	Same as left	
		Deterioration of management	Same as left	Same as left	Same as left	Same as left	Same as left	
		Under 12 thou. tons yearly output or under 3500Kcal/kg	Same as left	Under 30 thou. tons yearly output or under 3500Kcal/kg	Elimination	Including mines that started operating after 1989	Same as left	

Note: Mp means mining performance
Source: CIPB(1995), p.51

According to the regulations, subsidy paid to mine-owners was calculated by the average annual coal output. For the prevention of false reports, mine-owners were obliged to submit an authorized document that could confirm the production of their mines to the Minister of MER. Workers who continued working for more than three months could receive the subsidy. Mine-owners had to submit the list of workers and documents of their wages and retirement allowances to CIPB. Workers had to write the desired careers after their retirement. The workers who did not hope for re-employment in thecoal mines received a greater subsidy than those who hoped for re-employment in the coal mines. However, through four rounds of revisions, the discrimination was eliminated by the end of 1994. The method to calculate the average annual output became clearer, and the laborers who worked in the subcontracting mines could receive the subsidy.

The process of mine-closing was composed of five steps [Figure 4-1].

(1) After MER announces the criteria for mine-closing, MOL makes plans to support workers to be dismissed and CIPB decides the protocol topay formine-closing expenses. After the protocol decision is made, the mine-owners submit applications for closing.

(2) Deliberating on the applications, the Mine-Closing Council decides on the mines to be closed and informs mine-owners of the result. The mine-owners make plans for mine-closing on the basis of a management and labor agreement, and they apply for payment of mine-closing expenses to CIPB and apply for invalidation of their mining rights to MER. If the mine-owners are missing, representatives of workers can apply for the invalidation of their mining rights to the Minister of MER, accusing the owners of non-payment of wages.

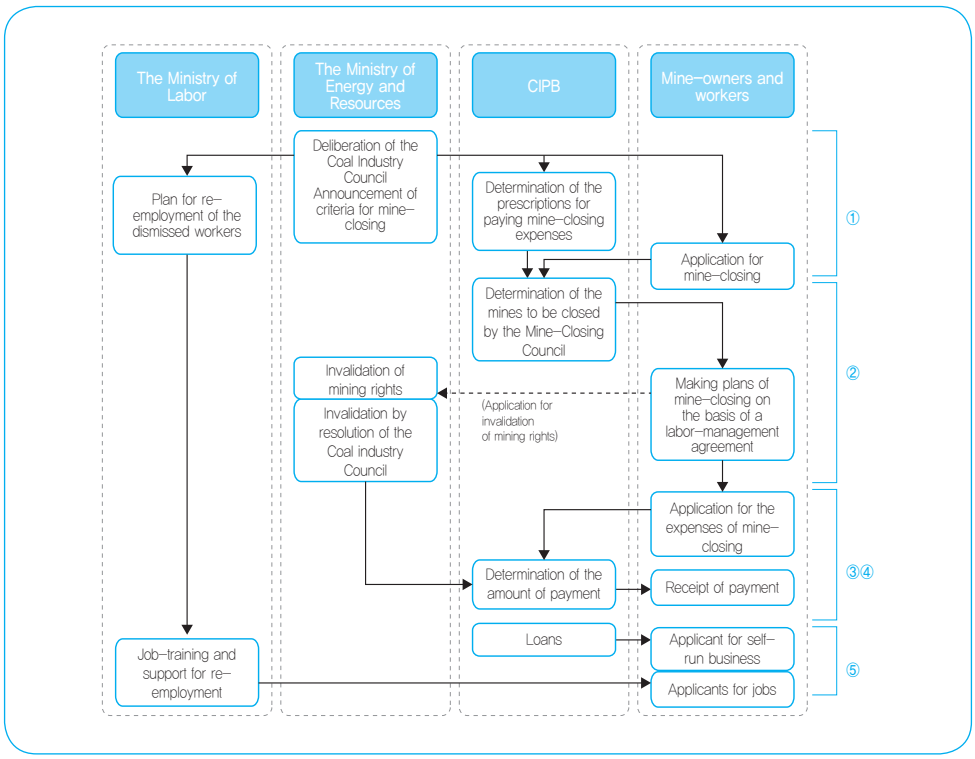
(3) CIPB determines the amount of payment and the recipients, after on-the-spot inspection.

(4) CIPB subsidizes the mine owners for closing and provides basic support to dismissed workers individually (75 percent of retirement allowance, unpaid wages, and a compassionate allowance for retirement).

(5) CIPB asks MOL to guide reemployment of dismissed workers, helps them to get loans, and provides support for school expenses for children, finding new jobs and providing a compassionate allowance for disasters.

Using this procedure, expenses for mine-closing were first paid to the dismissed workers in *Seokbong* coal mine in June 1989.

Figure 4-1 | Process of Mine-closing



Source :CIPB, *White Paper*, 1994

1.2. Results of Mine-closing

From 1989 to 1995, 386 mines applied for closing, and 334 mines were selected to be closed ultimately. By closing mines, coal production decreased by 14.4 million tons and 33, 422 workers were dismissed. As a result, only 11 mines remained in 1996, which produced 4,950 thousand tons of coal and employed 10,725 workers.

Viewing the results of closing mines by year in <Table 4-2>[13], 130 mines closed in 1989, the starting year of mine-closing. It was nearly 40 percent of the operating mines at the time. Thereafter, the number of closing mines decreased.1995 was the final year of closing mines, and only 16 mines were selected to be closed among 18 mines that submitted application.

13. In 〈Table 4-2〉, the number of workers and the amount of coal in 'result of mine-closing' do not exactly match to those in 'support for mine-closing'. The reasons are as follows:The number of workers in the column 'support for mine-closing' does not count the workers whose working period was less than three months. While the amount of coal in 'result of mine-closing' is the product of 1988, the amount of coal in 'support for mine-closing' was the average annual output during the period from 1985 to 1987.

Table 4-2 | Result of Mine-closing and Support for Mine-closing

(Unit : No., Person, Thou. Ton, Mil. Won)

	In operation			Result of mine-closing				Support for mine-closing					
	No. ofmines	Production	Average production per mine	Application	Closed mines	Dismissed worker	Decrease in production by mine-closing*	Dismissed workers**	Expenses for dismissed workers	Decrease in production by mine-closing***	Subsidy for transfer and abolishment equipment	Subsidy for reclamation of forest and mine-pollution	Total of subsidy
1989	332	20,785	63	141	130	11,075	4,343	10,047	49,141	4,814	37,717	13,370	100,228
1990	143	17,217	120	55	47	5,412	1,943	4,688	29,854	1,984	13,950	7,519	51,323
1991	170	15,057	89	50	46	5,111	2,156	4,696	40,495	2,189	14,521	9,859	64,875
1992	115	11,970	104	61	50	4,686	2,069	4,108	32,550	2,157	16,454	8,245	57,249
1993	70	9,443	135	40	30	5,251	3,107	4,718	51,920	2,917	14,915	7,373	74,208
1994	45	7,438	165	21	15	1,206	629	1,129	16,649	545	3,239	2,165	22,053
1995	27	5,720	212	18	16	681	188	629	5,659	326	2,638	9,345	17,642
1996	11	4,951	450	-	-	-	-	-	-	-	-	-	-
Sum				386	334	33,422	14,435	30,015	226,268	14,932	103,434	57,876	387,578

Note : * Decrease in production by mine-closing in the column of 'result of mine-closing' is the production of the closed mines in 1988

** The numbers of dismissed workers in the column of 'support for mine-closing' does not count the workers whose working period was less than three months

*** Decrease in production by mine-closing in the column of 'support for mine-closing' is the average yearly output during the period from 1985 to 1987

Source: CIPB, *10 Year History of CIPB*, 1997, pp.200, 207; MIRECO (2007)

Viewing the reasons for closing mines from the same sources in <Table 4-2>, 100 mines (29.9 %) closed due to the deterioration of the financial situation. 'Mining performance' below the criterion for mine-closing (89 mines, 26.6%), expiration of subcontract right (32 mines), sulfur content over one percent (25 mines), product scale below the criterion for mine-closing (23 mines) followed. By specifying various closing criteria in addition to 'mining performance', more mines that sought closing could be closed in real.

Table 4-3 | Results of Mine-closing during 1989-95 according to the Production Scale and Management Form

(Unit : No., Thou. Ton, Person)

	1988			Result of Mine-closing(1989-95)			1996		
	No. of mines	Production	Workers	Closed mines	Decrease in production by mine-closing	Dismissed workers	No. of mines	Production	Workers
Over 300 thou. Tons	15	13,161	32,484	8	4,140	6,717	7	4,505	9,916
Over 100 thou. Tons	30	4,447	11,579	28	4,150	8,249	2	335	565
Over 50 thou. tons	38	2,442	6,270	35	2,250	5,500	1	62	140
Over 30 thou.tons	43	1,668	4,037	39	1,503	3,476	1	49	104
Under 30 thou.Tons	221	2,577	7,889	224	2,392	9,480	0	0	0
1Non-subcontract mine	178	19,234	48,684	168	9,574	19,183	11	4,951	10,725
Subcontract mine	169	5,061	13,575	166	4,861	14,239	0	0	0
Total (%)	347 (100.0)	24,295 (100.0)	62,259 (100.0)	334 (96.3)	14,435 (59.4)	33,422 (53.7)	11	4,951	10,725

Source : CIPB, *10 Year History of CIPB*, 1997, p.205

Table 4-4 | Subsidy for Mine-closing Paid to Dismissed Workers and Mine-owners according to the Production Scale (1989-95)

(Unit : No., Person, Thou. Ton, Mil. Won)

	No. of mines	Workers			Mine-owners			Reclamation cost of forest	Total amount of subsidy
	Number of mines	No. of workers (A)	Amount of subsidy (B)	(B)/(A)	Decrease in production by mine-closing (C)	Amount of subsidy (D)	D/C		
Over 300 thou. tons	8	6,116	65,050	10.64	3,499	14,170	4.05	5,676	84,896
Over 100 thou. tons	28	7,638	62,142	8.14	4,158	30,855	7.42	9,577	102,574
Over 50 thou. tons	35	5,063	33,782	6.67	2,145	17,021	7.94	6,122	56,925
Over 30 thou. Tons	39	3,205	17,835	5.56	1,446	11,646	8.05	4,060	33,541
Under 30 thou. Tons	224	7,993	47,459	5.94	3,684	29,742	8.07	10,891	88,092
Non-subcontracting mine	168	17,369	149,997	8.64	9,470	61,868	6.53	20,080	231,945
Subcontracting mine	166	12,646	76,271	6.03	5,462	41,566	7.61	16,246	134,083
Total	334	30,015	226,268	7.54	14,932	103,434	6.93	57,876	387,578

Source : CIPB, *10 Year History of CIPB*, 1997, p.208

With respect to the production scale <Table 4-3>, small mines represented a dominant share of all closed mines; 67 percent were the ones with annual output of under 30 thousand tons, and 90 percent were under 100 thousand tons of annual output. About half of the closed mines were the subcontract mines <Table 4-3>. Such data shows that most small mines and subcontract mines had been closed for only seven years.

The total amount of expenses for closing mines paid to 334 mines during the period from 1989 to 1995 reached 387.6 billion *won*: 226.3 billion *won* was paid to workers (7,540 thousand *won* per man) while103.4 billion *won* was paid to the mine-owners (6,930 *won* per ton). 57.9 billion *won* was paid for reclamation of the forests <Table 4-4>.

The workers employed in the mines over 100 thousand tons of annual output were paid more, because their wages were higher and their working periods were longer than those of workers employed in the smaller mines. On the contrary, the expenses per ton paid to the small mines were more than those of the larger mines. Because it was deemed that the large mines could afford to bear the cost of transfer and disposal of equipment, only 8,100 *won* per ton, which was half of the standard expenses, was paid to the mines with the annual output of over 300 thousand tons. On the same grounds, the subcontract mines received more money than non-subcontract mines per ton.

Retirement allowance accounted for 27 percent of the entire payment to workers. Following it, support for living expenses, compassionate allowance for disaster, and unpaid wages represented 15-16 percent, and compassionate allowance for retirement and school expenses represented 8-9 percent. The remainders were special compassionate allowance, compensation for moving and job-seeking costs, and trainings for new jobs.

1.3. Reactions of Owners and Workers

Both mine-owners and workers welcomed closing.

Mine-owners wanted mines closed because their mines fell into financial difficulties. Unable to expect an optimistic future for the coal industry, owners judged that closing was the better way to minimize their losses. They could consider it as maximizing gains at the time.

While declining coal-demand deflated coal prices, the demand for higher wage became more severe as laborers expressed their interests strongly in the surge of democratization in Korea in 1987. Though management and labor unions agreed on a 14 percent of wage increase in 1989 and a 15.5 percent in 1990, many mines could hardly afford the rate of increasing wage. Small mines' pecuniary troubles were especially severe that they could not help dumping their coal. In the deep depression of the coal industry, mine owners were required to close small mines with the support of the government.

Even laborers welcomed closing mines. As fierce labor disputes occurred across the country with the democratization of Korea, workers in the coal mines also spouted out their requirements in relation to mine-closing. However, as seen in <Table 4-5>, laborers' demands were centered on receiving unpaid wages and living expenses from closing mines, instead of securing their jobs by sustaining mine operations. Laborers also judged that closing mines was more favorable than maintaining mines, facing the situation where delayed wages were not infrequent and receiving a retirement allowance was uncertain.

Table 4-5 | Rallies of Workers in 1989

	No. of mines	No. of times	Requirements
Stay-in in the coal-mining regions	9	18	· Payment of unpaid wages · Designation as mines to be closed · Emergent payment of mine-closing expenses
Stay-in at CIPB	9	13	· Designation as mines to be closed · Extinction of subcontracting right by the authority of MER · Payment of subsidy to the workers in subcontracting mines · Payment of the unpaid wages to the mine-owners with the subsidy
Petitions and questions by letter	over 11	127	· Designation as mines to be closed · Support for workers unqualified to receive subsidy · Payment of the unpaid wages and retirement allowance to the mine-owners with the subsidy · Questions about laws and processes concerning mine-closing

Source: CIPB, *White Paper*, 1994, p.125

As seen above, both mine-owners and workers accepted mine-closing as an unavoidable choice and expected to resolve their problems through mine-closing. Opposition to closing mines rarely came from the mine-owners or workers. Problems of closing mines burst out from unexpected places.

One of the problems was too many applications for closing,which exceeded the expectation of CIPB. In 1989, CIPB expected a decrease of 1,230 thousand tons of coal and 5,089 workers by closing 56 mines. In reality, 130 mines actually closed in 1989, from which 10,047 workers were dismissed. Such a rush of applications exceeded the capacity of CIPB to handle.

Another problem was the lack of information. Because of the absence of documents or information needed to close mines, the work of mine-closing did not proceed smoothly. For instance, only 26 mines among 112 mines that received mine-closing expenses were closed according to the normal process in 1989. The rest closed by the authority of CIPB because of the absence of the mine-owners or the lack of the documents regarding labor management.

Mines could apply for closing-expenses only after extinguishing their mining rights. In the case that the mine-owners were missing with unpaid wages, however, closing- expenses could be paid after extinguishing their mining rights by the authority of CIPB. In the case of

workers, a subsidy for dismissed workers was paid individually on the basis of the service period and the average wage of each worker after documenting the identification of each payee. Many small mines did not have such documents of labor management and some mines submitted false documents for the purpose of receiving more money. In such cases, CIPB also determined the amount of the subsidy by using its authority.

2. Build-up

2.1. Build-up of Promising Mines

Rationalization of the coal industry comprised not only scrapping down inefficient mines, but also building up efficient mines that aimed to maintain the proper level of coal production for energy security and social stability.

As seen previously (Chapter 3, 1), the final plan for the rationalization aimed to maintain 16 million tons of coal production per year as the optimum production level by raising the productivity of promising mines. The businesses related to building-up efficient mines were as follows: construction of infrastructure for raising productivity, restraining the development of inefficient mines, securing coal demand for maintaining proper production level, prevention of mine disasters, promotion of the welfare of mine workers and residents in the coal-mining regions, prevention of pollution in the coal mines and briquette manufacture, promotion of technological development, and supporting a sound financial base for mines.

For construction of infrastructure to raise productivity, the final plan suggested concentrating investment in large and promising mines and improving the system of loan and subsidy, targeting the enhancement of productivity from 1.25 OMS in 1987 to 1.76 OMS in 1992 by raising the mechanization rate from 40 percent to 62 percent. For securing coal demands, the final plan prompted the construction of a thermal power plant using anthracite in the 200-thousand-kilowatts class.

As the small and medium coal mines closed rapidly, the mechanization rate and productivity reached the target plan: a 63 percent of mechanization rate and 1.61 OMS in 1992. The government made a new plan for the coal production in 1992, which aimed to raise the mechanization rate and productivity to 82 percent and 3.2 OMS, respectively, by 1996. However, maintaining the proper production of 16 million tons per year was not achieved. The production of coal in 1992 was only 13 million tons, far less than the target amount. Because of the rapid decrease in coal demand, the plan of 1992 had to go through the revision to reset the target of production at 10 million tons per year.

The enhancement of mechanization and productivity was owed more to closing small and inefficient mines than to building up of large and efficient mines. Plans of building up itself was not driven actively by the government. According to <Table 4-6>, the subsidy for building-up decreased as the rationalization proceeded. The sum of the subsidy of production,[14] which was paid for building up promising mines, was 44.6 billion *won*, which accounted for 60.0 percent of the entire subsidy for the coal industry in 1987. Although the total subsidy increased greatly after the start of the rationalization in 1989, the subsidy for production decreased to 41.8 billion *won* and its share of the total subsidy plummeted to 18.9 percent in 1990. After 1993, the subsidy for the production represented less than 5 percent of the total subsidy. Such a decrease in the subsidy of the production means the plan lacked concrete and feasible measures for building-up, though it was partly ascribed to the diminution of the coal mines.

Table 4-6 | Subsidy for the Production

(Unit : Million Won)

	Support for Production Stabilization	Explor-ation	Enlarge-ment	Tunne-ling	Mechanization	pollution-prevention equipment	Safety Facilities	Sum of subsidy for production A	Grand total of subsidy B	A/B %
1987	3,700	5,569	1,717	14,307	11,822	4,352	3,147	44,614	74,312	60.0
1988	2,721	5,078	831	14,419	11,708	4,580	3,360	42,697	68,673	62.2
1989	2,411	4,535	758	14,308	9,424	5,633	4,815	41,884	221,869	18.9
1990	1,128	4,160	486	10,134	11,288	5,619	4,527	37,342	189,557	19.7
1992	3,972	3,026	133	10,644	12,878	5,057	4,622	40,332	258,429	15.6
1994				3,779	6,360	6,027	2,909	19,075	439,024	4.3
1996				2,265	2,407	6,835	2,724	14,231	435,783	3.3
1998				1,771	1,885	7,796	3,003	14,455	462,857	3.1
2000				839	905	7,678	2,957	12,379	357,201	3.5

Source: *Yearbook of Coal Statistics*

Although the target production was lowered to 10 million tons in the plan of 1992, the government coal stock, on the contrary, increased since 1992 because the rate of decrease in demand continued to stay higher than the decrease in supply. It was inevitable for the

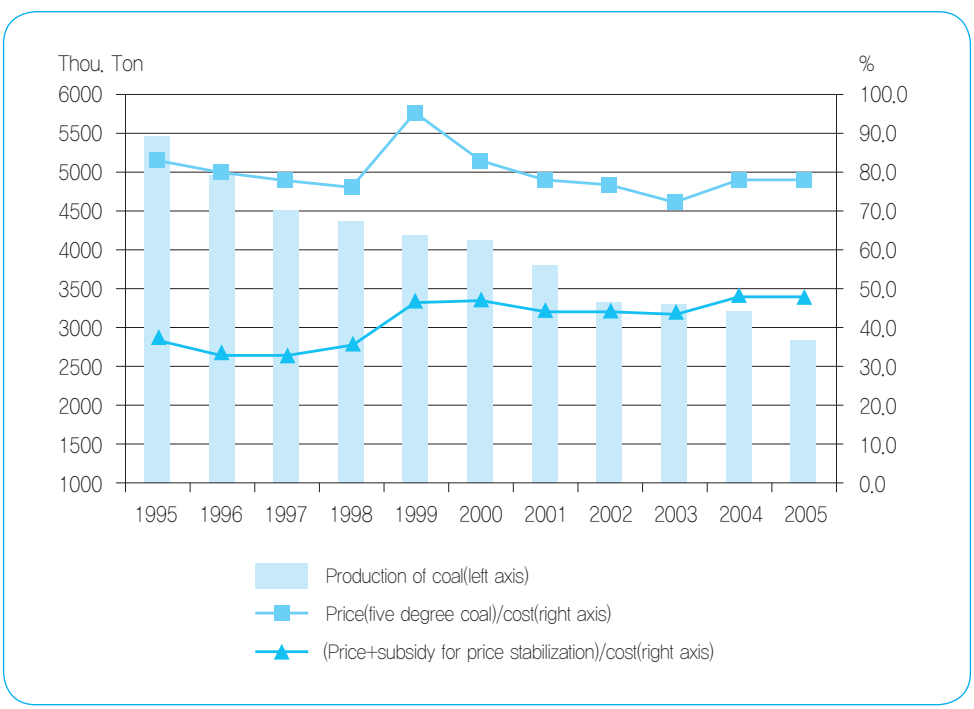
14. The subsidy for the production comprised supports areas as follows: production stabilization, exploration, enlargement, tunneling, mechanization, pollution-prevention equipment and safety facilities. Other subsidies, which comprised supports for KMPC and KOCOAL, price-stabilization, closing mines, and revitalization of the coal mining regions, were not for building-up, and the subsidy for production did not include loans.

government to lower the level of the target production in order to cope with the decrease in demand for coal. Since the rapid decrease of the production could bring about the instability of the coal-mining regions, the government made a new plan in April 1995 to promote the coal production, 'the Comprehensive Plan for Coal Industry Promotion'.

According to the plan, the government lowered the level of the appropriate production to 4.3 million tons per year and appointed 11 'long-term operating mines' which were supervised by the government. 11 mines chosen as 'long-term operating mines' were actually all the mines that were operated in 1995.

Although no mines closed until 2000, the production of coal continued to decrease. The production of 11 coal mines decreased from 5,470 thousand tons in 1995 to 3,810 thousand tons in 2001. Despite the support of the government, the production cost of coal was much higher than the price controlled by the government. Though the coal price rose gradually from 1996, it was still less than half of the cost [Figure 4-2]. Though the government compensated the gap between the cost and the price, coal-mining companies could not get out of financial difficulties.

Figure 4-2 | Production of Coal and Ratio of Coal Price to Cost in Long-term Operating Mines



Source: *Yearbook of Coal Statistics*, Mine Reclamation Corporation(2007)

2.2. Support for Decreasing Production

Although the coal production decreased rapidly after CIPB started closing mines, the decrease in consumption of anthracite far exceeded the decrease in production of anthracite. To match coal-supply to coal-demand, it was necessary not only to close small and inefficient mines, but also to decrease the production of large mines. The government expected that support for decreasing the production of the large mines would help balance the supply with the demand in the coal market. Additionally, decreasing production in the large mines expected to induce several positive effects: decreasing or suspending production in the inefficient mining areas could raise the productivity, the government could lighten its financial burden, and it could minimize the social problems, which the sudden closing of the large mines might bring about.

From 1994, the government started granting a subsidy for decreasing production financed by the Stabilization Fund. Large mines with over 500 thousand tons of annual output could receive the subsidy if their production decreased more than 10 percent compared to the production of the previous year. The total amount granted to the mines was calculated by multiplying the decrease in the production by subsidy per ton. Subsidy per ton was determined by the quality of coal, and the decrease in production was determined as the amount, which was calculated by deducting the average natural decrease from the actual decrease compared to the previous year's production.

On the other hand, the government required the mine owners to submit an agreement between the management and labor about retirement attended with the decreasing production because down-sizing employment should accompany decreasing production for raising productivity of mines and improving the business situation of the coal mines.

As seen in <Table 4-7>, approximately 70 billion *won* was paid to three or four large mines as a subsidy for decreasing production from 1994 to 1996. As a result, the production of the two large coal mines with over 1 million tons of annual output decreased to 720 thousand tons and 560 thousand tons, respectively during the three years. Until 1998, 121.4 billion *won* was paid to the mines as a subsidy for decreasing production.

Table 4-7 | Subsidy for Decreasing Production

(Unit : Thou. Ton, Thou. Won)

	No. of mines	Production of the previous year	Production of the year	Decrease in production	Natural decrease in poduction	production to be compensated by subsidy	production compensated by subsidy	subsidy per ton	amount of subsidy
1994	3	5,717	4,638	1,079	243	836	527	20	10,627,189
1995	3	4,638	3,541	1,098	0	1,098	1,184	31	36,620,602
1996	4	3,595	3,106	489	2	487	550	42	22,980,211
Total	4	13,950	11,285	2,665	245	2,420	2,261		70,227,002

Note : Decrease in production and production to be compensated by subsidy are represented on the basis of current year. Production compensated by subsidy, subsidy per ton, and amount of subsidy are represented on the basis of payment year. Because subsidy for decreasing production was paid three months later, the production to be compensated does not coincide with the production compensated

Source: CIPB, *10 Year History of CIPB*, 1997, p.528

3. Coal Price Stabilization

The government had stuck to low-coal-price policy, aiming to stabilize prices and people's lives. The government set the ceiling price under the level of the production cost and compensated the loss to the coal mines by granting subsidies to them (see Chapter 2). If the production cost of coal increased, the government raised the ceiling price to the minimum for compensation of the coal mines' additional losses. The government controlled briquette price in the same ways as coal price.

As the crude oil price decreased in the 1980s, the relative price of oil to coal dropped despite the low price policy. For instance, the relative price of diesel oil to coal dropped from 2.19 in 1982 to 1.13 in 1988. In 1989, judging that raising the coal price harmed people's lives and further contracted demand for coal and briquette, the government made decisions to freeze the prices of coal and briquette and compensate the gap between prices and costs by granting a subsidy to the coal mines and briquette manufacturers. Most of the subsidies were financed by the Coal Stabilization Fund.

The subsidy for coal price stabilization was paid to support four areas: premium for industrial disaster insurance, transportation cost, production stabilization, and the Black Lung Fund. According to <Table 4-8>, the amount of the subsidies for coal price stabilization increased rapidly from 37.6 billion *won* in 1989 to 220.4 billion *won* in 1996. On a per ton basis, 57,148 *won* per ton in 1996 was 30 times that of 1986, 1,811 *won* per ton. At first, the subsidy for premium of industrial insurance and transportation cost accounted

for the largest part of the entire subsidy for coal price stabilization. Since 1992, however, the subsidy for the production stabilization became the largest part, which represented 78 percent of the entire subsidy for the price stabilization in 1996.

Table 4-8 | Subsidy for Coal Price Stabilization

		1989	1990	1991	1992	1993	1994	1995	1996
Coal Mine	Production (thou. tons)	20,785	17,217	15,058	11,970	9,443	7,438	5,720	4,951
	Premium for Industrial Disaster Insurance	25,835	42,178	51,780	38,495	87,217	67,817	45,677	42,246
	Black Lung Fund	11,800	14,800	4,365	1,235	8,013	9,864	13,164	15,364
	Transportation Cost		13,113	40,265	40,582	52,430	50,524	38,571	4,900
	Production Stabilization			33,095	62,296	120,835	156,189	175,092	220,431
	Sum (million *won*)	37,635	70,091	129,505	142,608	268,495	284,394	272,504	282,941
	Per Ton (*won*)	1,811	4,071	8,600	11,914	28,433	38,235	47,641	57,148
briquette	Production (million)	5,547	5,128	4,110	3,007	2,121	1,282	827	536
	Manufacturing Cost	19,355	28,189	37,708	49,605	49,759	37,307	40,007	27,185
	Transportation Cost		4,831	8,213	6,039	7,157	7,013	8,318	6232
	Marine Transportation Cost		340	1,182	1,383	1,100	686	708	338
	Sum (million *won*)	19,355	33,360	47,103	57,027	58,016	45,006	49,033	33,755
	Per Unit (*won*)	3.49	6.51	11.46	18.96	27.35	35.11	59.29	62.98
Total Sum (million *won*)		56,990	103,451	176,608	199,635	326,511	329,400	321,537	316,696

Source: MIRECO (2007), pp.358,367

The premium for industrial disaster insurance was an important factor in raising the production cost of coal, accounting for more than five percent of the production cost of privately-operated mines. CIPB subsidized 50 percent of the industrial disaster insurance from 1989, and raised the subsidy to 80 percent in 1990 after the premium rates were raised.

The subsidy for transportation costs and production stabilization was granted from 1990 and 1991 respectively. The subsidy for production stabilization was paid to compensate the loss of mines due to increase in the production cost of coal. As the production cost of coal per ton had increased rapidly from 42, 454 *won* in 1988, to 70,498 *won* in 1992, to 108,571 *won* in 1995 because of the wage rise and the deterioration of mining conditions, the

subsidy for the production stabilization became the largest part of the subsidy for the coal price stabilization. The subsidy for transportation cost was incorporated into the subsidy for the production stabilization.

The Black Lung Fund, financed by a compassionate allowance for black lung patients and the contribution of the mine-owners and the government, was established in 1985. CIPB took over the contribution of the mine-owners from 1989 and paid the same amount of the contribution to MOL, which was in charge of managing the contribution of the mine owners.

The government froze not only the coal price, but also the briquette price, from 1989. The amount of subsidy for briquette manufacturers also increased rapidly, from 19.3 billion *won* in 1989 to 58.0 billion *won* in 1993. Although the amount of subsidy decreased after 1993, it still upheld a high level of more than 30 billion *won* until 1996 <Table 4-7>. The subsidy per one briquette kept rising through the 1990s, increasing from 3.49 *won* in 1989, to 27.35 *won* in 1993 and to 62.98 *won* in 1996, reflecting the increase in wages, public utility charges, and the coal price.

The total sum of subsidy for the price stabilization, including subsidy for coal-mines and briquette manufacturers, increased from 57 billion *won* in 1986 to around 320 billion *won* in the mid-1990s, which accounted for the largest part of the total subsidy for the coal industry.

4. Development Policies for the Coal-mining Regions

4.1. Absence of Development Policies for the Coal-mining Regions

The rationalization of the coal industry resulted in the decline of the coal-mining regions that had been dependent heavily on the coal industry. The mine-closing was finished in 1995 when only 11 mines remained. Until then, however, there had been no effective policies for regenerating the declining coal-mining regions.

In particular, the southern part of *Gangwon* province, where 60 percent of the total coal production took place and 55 percent of mine workers were employed, suffered severe decline from the rationalization <Table 4-9>. The product of the coal industry accounted for more than 90 percent of the total product in the region. Most of the residents in the region made their living in the coal industry or the businesses related to the coal industry. Mine-closing meant the loss of their jobs.

Table 4-9 | Dependence on the Coal Industry of the Coal-mining Regions in *Gangwon* Province

(Unit: Thou.Ton, Person, Thou. Won)

	Production of Anthracite		Number of Mine Workers		Product of the Mining and Manufacturing Industries per Capita			
					Mining		Manufacturing	Sum
whole country	24,295	(100.0)	62,259	(100.0)	76	(3.9)	1,885	1,961
Gangwon Province	17,737	(73.0)	43,831	(70.4)	442	(32.0)	941	1,383
Taebaek	6,459	(26.6)	16,195	(26.0)	2,243	(90.3)	242	2,485
Jeongseon	5,418	(22.3)	11,690	(18.8)	1,309	(92.2)	111	1,420
Samcheok	2,570	(10.6)	6,624	(10.6)	2,133	(95.1)	110	2,243

Source: Gangw on Province(2006), vol.1, pp.518-519

However, the rationalization plan referred to the regeneration of the coal-mining regions very vaguely, from the optimistic perspective that mine-closing would not bring about severe decline in the regions even though slight negative effects would be possible. The regeneration measures suggested by the plan were as follows: municipalities of mining regions making regeneration plans with the cooperation of MER, promoting 'the Second Mining Region Comprehensive Development Project', support from the Agriculture and Fishery Region Development Fund, the attraction and development of the local-specific businesses such as vegetables and livestock farming, silk-raising, the agricultural industry, and tourism.

Among the measures, promotion of 'the Second Mining Region Comprehensive Development Project' was the most concrete one. The project was created for the development of mining regions after the fierce labor dispute in 1980 taken place in *Sabook* coal mine. The first project (1982-1986) aimed to enhance laborers' welfare and improve facilities promoting their well-being, investing 199.5 billion *won*. Though the second project (1987-1991) initially aimed to enhance laborers' welfare, it turned to focus more on the improvement of infrastructure, after its amendment in 1989 especially in the coal- mining regions. In the second project, however, the actual investment reached only 40 percent of the expected investment.

As mine-closing sped up from 1989, the decline of the regions became more severe and the newspapers competed in reporting their desolation. While the decline of the coal-mining regions became a significant social problem, the Coal Industry Act was amended by the initiative of a member of the National Assembly elected in the coal-mining region in

January 1991. By this amendment, revitalization of the coal-mining regions was added to the purposes of the law and five clauses were newly constituted, concerning designation of the regions to be revitalized and revitalization plans.

According to the amended law, the Minister of MER designated four regions as revitalization regions in May 1991 and made a revitalization plan. This plan aimed to improve the living environment of the residents, construct infrastructure, and promote alternative industries such as tourism, investing 189.4 billion *won* in 42 businesses in the revitalization regions during the period of 1992-1997. However, the plan did not go far beyond the Mining Region Comprehensive Development Project in scale as well noted in <Table 4-10>. Decline of the coal-mining regions continued. Eventually, the residents of the coal-mining regions rose up to protest the lagging revitalization policies of the government.

Table 4-10 | Result and Plan of Investment in the Development Projects of Coal-mining Regions

(Unit : 100 Mil. Won)

	Mining Region Comprehensive Development Project					Revitalization Plan of Coal-mining Regions	
	The 1st Step Result	The 2nd Step Plan	The 2nd Step Revised Plan	The 2nd Step Result		Result (1992-96)	Result in 1997
Welfare for workers	1107	1656	2176	2072	Promotion of alternative industries	604	185
Improvement of infrastructure· Regeneration of local economy	804	539	3121	428	Improvement of infrastructure	781	340
Improvement of environment	84	760	927	30	Improvement of environment	73	
Total	1995	2955	6224	2530	Total	1458	525

Source: CIPB (1991), p.71; MOCIE (2003), p.872

4.2. Residents' Initiative

The government inflated the expectation of the residents, promising rosy plans for the revitalization of the coal-mining regions before the local election in 1991.[15] However, such promises were not kept and mine-closing went on its way after the election. The disappointed residents rallied to urge the government to reinforce the revitalization policy and organized a committee to require the government to promote alternative industries in the coal-mining regions in July 1991.

Unfortunately, the committee was lacking in competence to carry through the residents' requirements. The residents, discontented with the committee's incompetence, rallied in front of the National Assembly building to urge the government support for the coal-mining regions. This rally provoked national interest in the decline of the coal-mining regions and was followed by many similar rallies in the coal-mining regions.

Because such rallies ended without any result, the residents were to learn that they could not rely on the government and should make efforts to revitalize their regions by themselves. Such consciousness led to the residents' movement for the establishment of a citizens' corporation.

In March 1994, the residents in *Taebaek* area established *Taebaek* citizens' corporation (alias *Taebaek* Highland) and *Jeongseon* citizens' corporation (alias *Jeongseon* Greenland) followed it. The founders of the citizen's corporations were local businessmen and merchants who not only suffered severe economic damages from mine-closing, but also were deeply attached to the regions. The citizens' corporations were social enterprises; the residents participated in the corporation as investors and managers. The aim of the corporation was not the maximization of profit, but the maximization of residents' welfare. The establishment of the citizens' corporation was the outcome of the residents' self-reliant efforts.

Taebaek Highland announced its regional-development project aimed to construct a large leisure-tourism complex. However, the project did not come to fruition. Though the project needed a huge investment amounting to 200 billion *won*, the corporation collected only 1.6 billion *won* by offering shares for public subscription. Adding to its lack of funds, the corporation confronted more essential obstacles: legal regulations that banned the development of forests protected by law.

Because it was impossible to construct a leisure complex without developing forests, the residents' movement turned to requiring a special law for abolishing the legal regulations

15. In March 1991, the local election, the first election after the local autonomy system was implemented in 1988, was carried out in Korea.

that barred the development of the regions. Starting with a signature-collecting campaign for establishing the special law in *Taebaek* region at the end of January 1995, this movement developed into a joint struggle involving all of the coal-mining regions in the southern area of *Gangwon* province. In particular, it is noticeable that the rally in *Jeongseon* region, where three thousand residents participated at the end of February, gave a great momentum to the movement. As the residents' movement developed into a protest to the government on a large scale, the government could not help negotiating with the residents. As a result of the negotiation on March 3 1995, the residents acquired a compromise from the government that promised the establishment of the special law (the 3·3 agreements).

Box 4-1 | Interview with the Former Director of the Institute for Social Study of Mining Area, GiJoon Won

Q1. What was the background of the residents' movement, and how did it proceed?

While the labor movement was dwindling, the residents' movement started aiming to revitalize the coal-mining regions. I, as a social activist, thought that it was enough to support the citizens' corporation at first, and regional development should be initiated by the residents, not by outside capital or subsidy from the government. Though the citizens' corporation was unsuccessful, I still emphasized the initiative of the residents while the residents' movement for the legislation of the Special Law was proceeding. Until the legislation of the Special Law, the contradictions between the residents did not come to the surface. After the casino opened, however, the conflict between *Jeongseon (Sabuk, Gohan)* and Taebaek escalated. Although the residents' solidarity committee tried to solve the conflicts, the solidarity between regions finally collapsed.

Q2. How did the citizens' corporation start? What is its meaning for the residents' movement?

Though the attempt to establish the citizens' corporation was good, its foundation was too vulnerable to accomplish its aim. For a sound basis, it should have raised funds and induced ideas and participation from the residents. Although the citizens' corporations were established and the Special Law was enacted by the sacrifice and endeavor of the regional leaders, such performances had no effect for the development of the residents' movement. For the success of the citizens' corporation, mature citizenship, understanding the regional development initiated by residents and preferring public concerns to private interests was necessary. I did not expect that trivial private interests could break the solidarity of the residents. We have to make more efforts to develop the regions by the residents' initiative. The citizens' corporation was an amazing product of the residents' movement facing the regional crisis, but it revealed the limit of the residents' movement by its suspension in 1997.

Q.3 In comparison with the experiences in other countries, how do you assess the revitalization policy in Korea?

The dynamic residents' movement was not observed in other countries. Generally, the revitalization policies in other countries were executed for long periods, and the residents followed the government policies. In Korea, the residents, who could not expect the government revitalization policy, tried to revitalize their regions with the residents' movement. It is very regrettable that the residents' movement could not go further. Germany was able to prevent the desolation of the coal-mining regions by rational development appropriate to the regional character even though there was no dynamic residents' movement. Combining the Korean type of revitalization project with the German type could have been ideal. The citizens' corporation, in which more than 3,000 residents participated, was a historical monument in the residents' movement in Korea, and it was a strong evidence that showed the passion of the residents' movement. In those days, it sent a warning to the government, which tried to execute the revitalization policy with its initiative.

4.3. The Special Law for Support of the Coal-mining Regions

Based on the 3·3 agreements, 'the Special Law for Support of the Coal-Mining Regions' (the Special Law) was enacted in December 1995. This law aimed to develop tourist resorts and attract alternative industries for the revitalization of the coal-mining regions. It was called the "Casino Law", because the establishment of a casino opened to natives, was allowed as an exception.

The legislation of the Special Law was not smooth. The Ministry of Culture and Sports opposed the exemption clause that allowed the casino to be opened to natives. The Ministry of Environment also repelled the exemption clause that allowed the development of the forest. Conflicting the residents, environmentalist groups criticized the Special Law as destroying the environment. However, the residents persuaded them that the Special Law was necessary to stabilize their lives and reclaim the destroyed environment from closing the mine.

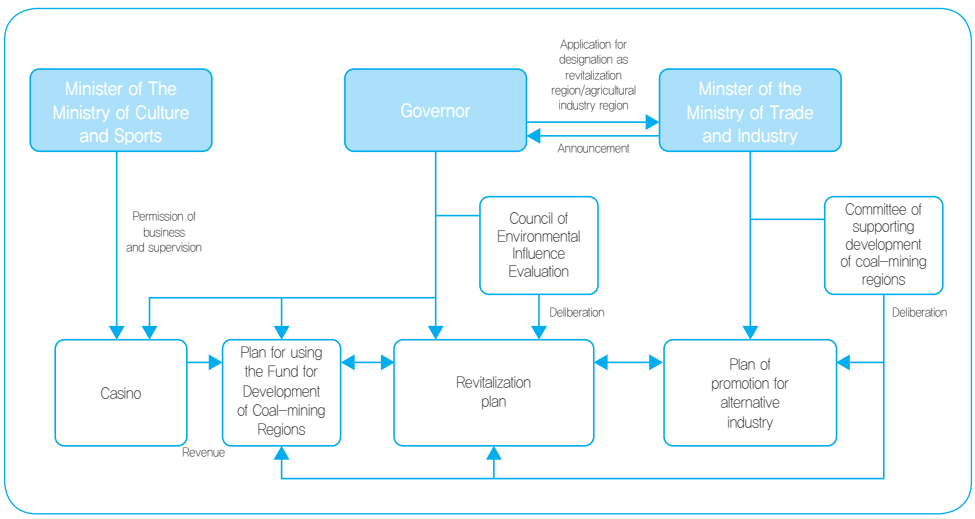
The revitalization policies were carried out through the following process [Figure 4-3]: the Minister of the Ministry of Trade and Industry (MITI)[16] designates the revitalization regions and the governor of the regions makes a revitalization plan. The Council of Environmental

16. MER and the Ministry of Trade and Industry were merged into the Ministry of Trade, Industry and Energy (MOTIE) in April 1993. MOTIE was reorganized into the Ministry of Trade and Industry (MITI) in December, 1994. During the government reforms of 1998, responsibility for international trade issues was moved to the Ministry of Foreign Affairs and Trade, and MITI was reorganized once again into the Ministry of Commerce, Industry, and Energy (MOCIE).

Influence Evaluation deliberates the plan. Then the governor makes a plan for using the Fund for Development of Coal-Mining Regions, financed by the revenue of the casino, while the Minister of the Ministry of Culture and Sports supervises the administration of the casino.

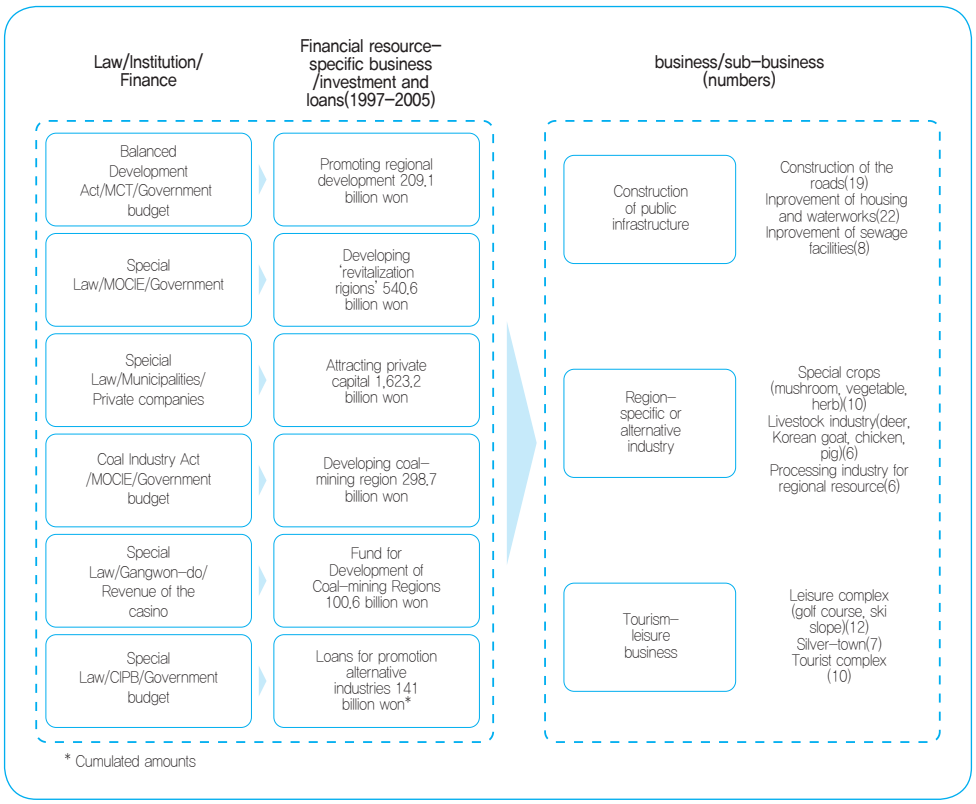
In line with the protocol, the committee, composed of the vice Minister of MITI, high-ranking officers of eight related ministries, and the vice governor of the coal mining region, was established by the enforcement ordinance of the Special Law. The committee deliberated matters such as designation of the revitalization region, support for revitalization regions, use of the development fund, businesses exempt from the Forest Law, and a plan for promoting the alternative industries.

Figure 4-3 | Revitalization of the Coal-mining Regions under the Special Law



As the Minister of MITI designated *Taebaek, Samcheok, Youngwol, Jeongseon* in *Gangwon* province and *Moongyung* in *Gyoungsangbook* province as the revitalization regions in the Special Law, *Gangwon* province made the Coal-Mining Region Comprehensive Development Plan (1997-2005) in 1996. With respect to its contents, the plan could be grouped into the three businesses: the tourism-leisure business, region-specific or alternative industries, and construction of the public infrastructure and improvement of the environment. With respect to the financial resources, the plan was financed by six businesses, which respectively had independent financial resources: the business of developing 'revitalization regions', the business of developing the coal-mining regions, loans for promoting alternative industries, the Fund for Development of the Coal-Mining Regions, the business of 'promoting regional development', and the business of attracting private capital [Figure 4-4].

Figure 4-4 | The Coal-mining Region Comprehensive Development Plan (*Gangwon* province)



Source: *Gangwon* Province (2006)

In examining the contents of the plan, the tourism-leisure business was the most important part of the plan. The casino was the core of the tourism-leisure business. In June 1998, *Gangwon* Land, the company managing the casino, was established. Though the coal-mining companies were interested in the management of *Gangwon* Land, 51 percent of the stocks of *Gangwon* Land were to be possessed by the public sectors (CIPB, *Gangwon* Province Development Public Corporation, four municipalities) to ensure the public character of Gangwon Land that residents required.

Region-specific industries meant the proper industries for the regional characteristics, such as the cultivation of special crops, the livestock industry, and the processing industry for regional resource. Alternative industries meant manufacturing industries to be built by the attraction of the private capital.

Construction of public infrastructure meant the construction of roads in or between the regions and extension of roads to the areas scheduled for development. Improvement of the environment comprised improvement of housing, construction of waterworks and, sewage facilities.

The financial resources of the plan were as follows:

The business of developing 'revitalization regions' was financed by MITI (from 1998, the Minister of Commerce, Industry and Energy; MOCIE) and the local governments, aiming to construct the infrastructure and improve the environment. Until 2005, the total sum of 540.6 billion *won* was invested in the coal-mining regions.

'Promoting regional development' was the business of the Ministry of Construction and Transportation for the same areas as the 'revitalization regions'. Until 2005, 209.1 billion *won* was invested in this business, which aimed to support the construction of the infrastructure.

Although the above two businesses intended to attract private capital into coal-mining regions by the construction of the infrastructure, the attraction of the private capital was not successful because of the financial crisis of Asia in 1997. If the investment in Land was excluded from the total investment by the private sector, only 447.1 billion *won* was invested until 2005.

The business of developing the coal-mining regions was financed by the Stabilization Fund managed by CIPB. Initially, the business was only for *Taebaek* region. The residents of *Taebaek* region, who could not benefit from the casino because it was built in *Jeongseon* region, held a demonstration to require the government to compensate their loss. At last, they succeeded in getting the government support for the regional development that included a subsidy (100 billion *won* a year) to be paid from the Stabilization Fund until 2010 (the total sum of the subsidy is 1 trillion *won*). Later, this subsidy was paid to other coal-mining regions. Until 2005, 289.7 billion *won* was paid to the coal-mine regions in southern *Gangwon* province (711.3 billion *won* is scheduled to be paid by 2010).

To promote alternative industries in the coal mining regions, CIPB loaned money to the companies that moved into the revitalization regions and to the municipalities that constructed the infrastructure beginning in August 1996. The initial conditions of the loans were generous; the interest rate was 5 percent, the loans for facility funds were up to 20 billion *won*, and the loans for operating funds were up to 2 billion *won*. However, the Asian financial crisis of 1998 worsened the conditions of loans; the interest rate went up to 7 percent, the loans for facility funds were up to 5 billion *won*, and the loans for operating funds were up to 500 million *won*. The total amount of the loans until 2005 was 141 billion *won*.

The Special Law prescribed that up to 20 percent of *Gangwon* Land's profit was to be saved as the fund for development of the coal-mining regions. From 2001, the governor distributed this fund to the revitalization regions upon the deliberation of MOCIE. This fund was invested in the businesses such as promotion of alternative industries, construction of the infrastructure, promotion of education, culture and arts, improvement of residents' welfare, and promotion of the tourist industry. Until 2005, 100.6 billion *won* was invested from the fund. As the profit of *Gangwon* Land increased, the investments of the fund also increased. Until 2010, the sum total of the investment reached 436.9 billion *won*.

As the businesses propelled by the Special Law did not bring the expected results except for *Gangwon* Land, the residents of the coal-mining regions suggested the government to extend the Special Law. Accepting the residents' suggestion, the government organized the task force team, which was composed of the government (MOCIE), *Gangwon* province and the representatives of the residents. At last, the Special Law was revised in March 2005 and its expiration was extended to 2015.

2012 Modularization of Korea's Development Experience
Structural Adjustment Policies of Korea's Coal Industry

Chapter 5

Assessment

1. Effects on the Coal Industry
2. The Role of the Government
3. Socio-economic Effects

Assessment

1. Effects on the Coal Industry

The goals of the rationalization policy were closing inefficient coal mines and building up efficient coal mines. In conclusion, it can be said that the rationalization succeeded with the first objective, but failed with the second objective.

Mine-closing, the core business of the rationalization, ended in 1995. After that, there was no mine-closing until 2001. The final plan of the rationalization aimed at decreasing of 7.6 million tons in anthracite production and 26,624 workers by closing 237 mines under 5,357 'mining performance' until 1996. It also aimed at maintaining 16 million tons of anthracite as the optimum level of production, by building up promising mines. As a result of mine-closing, 334 mines were closed with a decrease of 14.4 million tons of anthracite and 33,422 workers from 1989 to 1995. During the same period, 387.6 billion *won* were paid as the expenses for mine-closing, far exceeding the expected amount of the final plan, set to be 201.5 billion *won*. In 1996, only 11 coal mines with 10,725 workers produced 4.95 million tons of coal. With respect to mine-closing, the rationalization policy exceeded its goals in the final plan.

The structure of the coal industry was also changed significantly. In 1988, just before the rationalization started, 264 mines with under 50 thousand tons of annual output produced 17 percent of the total amount of coal and 15 mines with over 300 thousand tons of annual output produced 54 percent of the total amount of coal. As a result of the rationalization, only one of the remaining 11 mines had the annual output under 60 thousand tons <Table 4-3> and 7 mines stayed with over 300 thousand tons of annual output in 1996. The average production per mine increased to 450 thousand tons per year in 1996, up from 70 thousand tons per year in 1988.

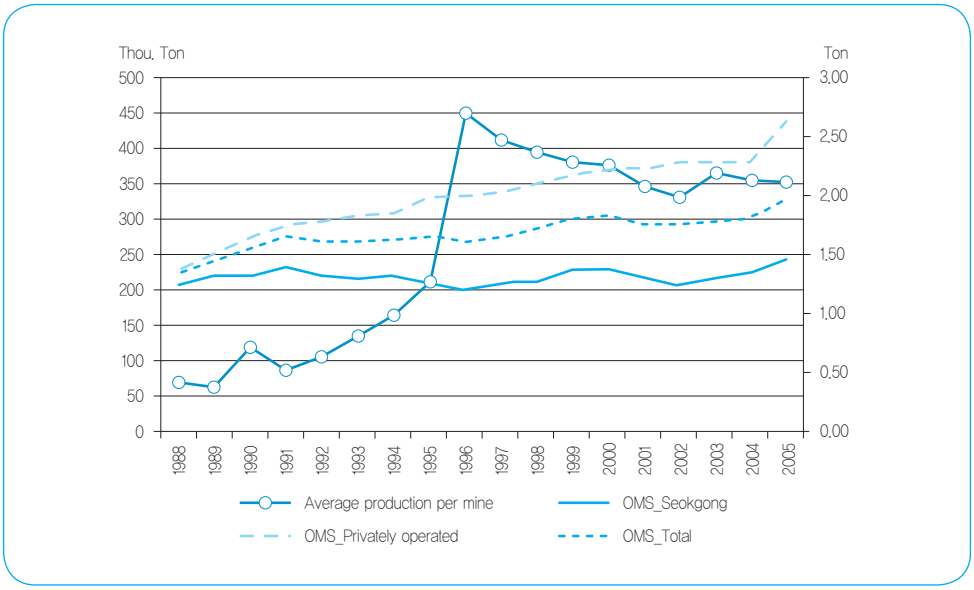
By closing mines, the imbalance of the coal market could be mitigated. The coal stock, which was over 10 million tons in 1988, decreased to 7.1 million tons in 1993. In the past, coal was mainly stocked in consumption areas to rapidly meet changes in briquette consumption. As the demand for briquette was decreasing, the stock in the consumption areas decreased. However, the government stock increased greatly. It meant that the production continued evenly, without anticipating consumption. If mine-closing had not been executed by the government, the coal stock would have increased more rapidly.

As seen above, the rationalization of the coal industry accomplished its aims with respect to mine-closing: decrease in production, closing small and inefficient mines and raising labor productivity. However, building up efficient mines, another aim of the rationalization, did not succeed.

The final plan set the optimum production of coal at 16 million tons per year and suggested policies to build up efficient mines to maintain 16 million tons by raising the productivity. However, production in 1996 was only 4.95 million tons, far less than 16 million tons. Though the government made a new plan to promote the coal production in 1996, the coal production continued decreasing below 4.3 million tons, the optimum production after 2000 set by the new plan. The production has been declining to 3.81 million tons in 2001 and 2.83 million tons in 2005.

Labor productivity improved as a result of closing inefficient small mines. As seen in [Figure 5-1], the average OMS of the privately-operated mines increased to 2.01 in 1996, up from 1.38 in 1988. However, such improvement in OMS was far lower than the goal set by the rationalization plan, 3.3 (See Chapter 4). In particular, the average productivity of the mines operated by KOCOAL improved more slowly than the average productivity of privately-operated mines. It meant the management of KOCOAL, the public corporation, was inefficient compared to that of privately-operated mines.

Figure 5-1 | Average Coal Production and OMS per Mine



Note: OMS (right axis), average production per mine (left axis)
Source: *Yearbook of Coal Statistics*

The rapid contraction of coal production seemed unavoidable because the demand for coal decreased at the faster pace than expected by the government. However, it should be equally noticed that the rationalization plan was lacking in the policies for securing coal demand, such as the construction of a thermal power plant using anthracite and long-term purchasing contracts with consumers. In addition, the government was not eager to support the promotion of efficient mines. The subsidy for production decreased after the rationalization started, as seen earlier in <Table 4-6>.

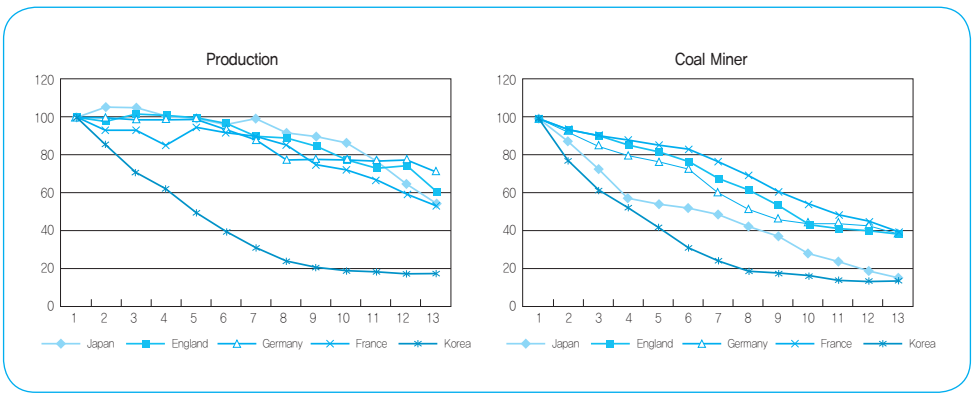
Compared to the experiences of other countries, it took a very short period to adjust structure of the coal industry in Korea. According to [Figure 5-2],[17] 30-40 percent of the production and 60-80 percent of the workers decreased in a little more than ten years in four countries with an exception of Korea. Among the four countries, the decrease of workers in Japan was the most significant.

In Korea, approximately 80 percent of the production and workers were decreased just during the period of seven or eight years. Such a pace was much faster than the Japanese case. Compare tothe other three European countries, the difference was more evident. It is

17. The initial year of Korea is 1988, one year before the rationalization policy started. The initial year of the other four countries is 1960. The numbers on the X axis represent the years passed from the start of the rationalization policies.

also noticeable that the production and workers decreased at the same rapid pace in Korea, while the production in other countries decreased more gradually compare to the workers. This shows that other countries tried to maintain the level of production with a smaller number of laborers by raising the productivity. In contrast, Korea failed to build mines of high productivity.

Figure 5-2 | Change of Production of Coal and Mine Workers in the Five Countries



Note: The number on y-axis represents index. The initial year of Korea is 1988(=100) and the initial year of the other four countries is 1960(=100)
The number on x-axis represents the years passed from the start of the rationalization

Source: Korea (*Yearbook of Coal Statistics*) the other four countries (Chung, 2006)

2. The Role of the Government

2.1. The Dominant Role of the Government

The Korean government played a dominant role in the rationalization of the coal industry. The intervention of the government in the adjustment process of the coal industry was generally observed in other countries because it is not easy to exit from the coal industry where exit barriers are very high as seen in Chapter 1. However, the ways for the government to intervene in the coal industry were different in every country.

Facing the decline of the coal industry caused by the energy revolution – the rapid substitution of oil for coal – that proceeded rapidly from the late 1950s, the developed countries started to enact the adjustment (rationalization) policies.

In the UK, the government nationalized the coal mines with the establishment of the National Coal Board (NCB) in 1946. Though NCB initially tried to increase the production

of coal, its policy turned to 'scrap-down and build-up' following the New Coal Plan announced in 1959. In Germany, the federal government started the rationalization of the coal industry in 1962 and established RAG (Ruhrkohle Aktiengesellshaft) to be in charge of the rationalization in 1969. From the early 1980s, the roundtable conference, in which the state governments, coal companies and labor unions participated, determined the level of optimum production of coal based on the expectation of supply and demand in the coal market.

Unlike the UK and Germany, the Japanese government initiated the rationalization of the coal industry. With the enactment of the Coal Rationalization Law in 1955, the Japanese government established the Coal Industry Maintenance Agency and the Coal Industry Advisory Council; the former was the implementing institution of the rationalization, the main business of which was purchasing and closing the inefficient mines. The latter deliberated the coal industry policies. Approximately from 1960, the Japanese government accelerated the rationalization. In 1960, the Coal Industry Maintenance Agency was reorganized into the Coal Industry Rationalization Agency, and huge subsidies for the adjustment of the coal industry were granted to the coal-mining companies and the workers. At the end of 1959, the Unemployed Coal Miners Special Measurewas enacted and the Unemployed Coal Miner Support Agency (reorganized into the Employment Promotion Agency in 1961) was established. At the end of 1961, the Coal-mining Region Revitalization Law was enacted and the Coal-mining Region Revitalization Agency was established in 1962.

The rationalization of the coal industry in Korea was also initiated by the government in a similar fashion compared to the one carried out by the Japanese government. The Korean government established CIPB as the implementing institution of the rationalization just like the Japanese government established the Coal Industry Maintenance (Rationalization) Agency. The Coal Industry Act played a role as the basic law for the rationalization as the Coal Rationalization Law did in Japan. Financing the rationalization policy was dependent entirely upon the government, as it was in Japan as well. Because the Korean government had played a dominant role in developing and regulating the coal industry since it was established in 1948, the initiative of the government in the rationalization of the coal industry was taken for granted.

The rapid adjustment of the coal industry in Korea owed much to the strong support of the government. CIPB, managing the rationalization from planning to execution, could effectively propel the mine-closing business. However, the rationalization initiated by the government had some problems: one was from the decentralized organization enacting the rationalization policies, and another one was from the subsidy, the main means of support for the coal industry.

2.2. The Decentralized Organization

The rationalization of the coal industry was the issue that comprised not only 'scrap-down and build-up', but also the dismissed workers and the decline of the coal-mining regions. However, there was no headquarters to coordinate various businesses accompanying the rationalization. This absence of headquarters brought about inefficiency in the execution of the rationalization.

First, though the Coal Industry Act provided the legal basis for the rationalization policies such as 'scrap-down and build-up' by the amendment of 1988, it did not comprise the issues concerning the dismissed workers and the coal-mining regions. As a result, systemic policies for such issues could not be executed on a legal basis. Though CIPB provided the subsidy for the stabilization of the dismissed workers' lives, it did not plan for their re-employment. The revitalization of the coal-mining regions was the business of the municipalities.

Secondly, even the business of 'scrap-down and build-up' could not be executed systematically, because it was decentralized into several institutions. CIPB, the main implementing institution of the rationalization, only managed the mine-closing business. The business of building-up belonged to KMPC and the business of price stabilization belonged to KOCOAL. They also had different financial resources from CIPB. As a result, the business of 'build-up' tended to be executed independently without considering the business of 'scrap-down'. The stabilization of the coal market in charge of KOCOAL also had no consideration for 'build-up'.

With the start of the rationalization of the coal industry, it was necessary to re-define or adjust the functions of KOCOAL and KMPC, which were established in the period requiring a stable coal supply and the development of the coal mines. Only by sacrificing the coordinated execution of the rationalization, these institutions could keep exercising jurisdiction over their own businesses after the rationalization started.[18]

2.3. Excessive Dependence upon Subsidy

Subsidy was the most important means to support the coal industry. The subsidy to the coal industry reached its peak of 463 billion *won* in 1998. It accounted for 95.2 percent of the entire financial support of the coal industry <Table 5-1>. The remaining 4.8 percent came from the loans. On the other hand, the financial support for the briquette manufacturers

18. KOCOAL (established in 1962) and KMPC (established in 1967) had exercised jurisdiction on the coal industry since the 1960s, and were much bigger organizations than CIPB in the scale of the capital as well as the number of personnel. In enacting the rationalization of the coal industry, newly established CIPB was not free from the interests of KOCOAL and KMPC.

was mainly provided as loans. The loans to the briquette manufacturers, most of them for summer coal stock, plummeted in around 1993, as the demand for briquette decreased rapidly.

Support by means of subsidy had been criticized before the rationalization started, because it harmed the self-reliance of the coal mines. Just before the rationalization started, even MER recognized the need to change the type of support from direct subsidy to loans, in order to minimize the government intervention and foster the self-reliance of the coal industry (Chapter 3). After the rationalization started in 1989, however, the subsidy increased more. The subsidy to the coal industry was 68.7 billion *won* in 1988, whereas it jumped to 221 billion *won* in 1989, and to 463 billion *won* in 1998. Such heavy dependence on subsidy meant that the rationalization had no longer aimed to foster the self-reliance of the coal industry.

Table 5-1 | Subsidy and Loans for the Coal Industry

(Unit : Million Won, %)

	1988	1990	1992	1994	1996	1998	2000	2002	2004
Coal Mine	111,297	227,830	287,518	457,360	476,791	486,395	394,609	293,114	235,975
Subsidy	68,673 (61.7)	189,557 (83.2)	258,429 (89.9)	439,024 (96.0)	435,783 (91.4)	462,857 (95.2)	357,201 (90.5)	279,787 (95.5)	180,411 (76.5)
Loans	42,624 (38.3)	38,273 (16.8)	29,089 (10.1)	18,336 (4.0)	41,008 (8.6)	23,538 (4.8)	37,408 (9.5)	13,327 (4.5)	55,564 (23.5)
Briquette	233,226	256,172	200,909	124,349	52480	37,936	52,444	48,044	51,653
Subsidy	7,729 (3.3)	44,208 (17.3)	60,263 (30.0)	52,981 (42.6)	38,458 (73.3)	36,491 (96.2)	52,444 (100.0)	48,044 (100.0)	51,653 (100.0)
Loans	225,497 (96.7)	211,964 (82.7)	140,646 (70.0)	71,368 (57.4)	14,022 (26.7)	1,445 (3.8)			
Sum	344,523	484,002	488,427	581,709	529,271	524,331	447,053	341,158	287,628

Source: *Yearbook of Coal Statistics*

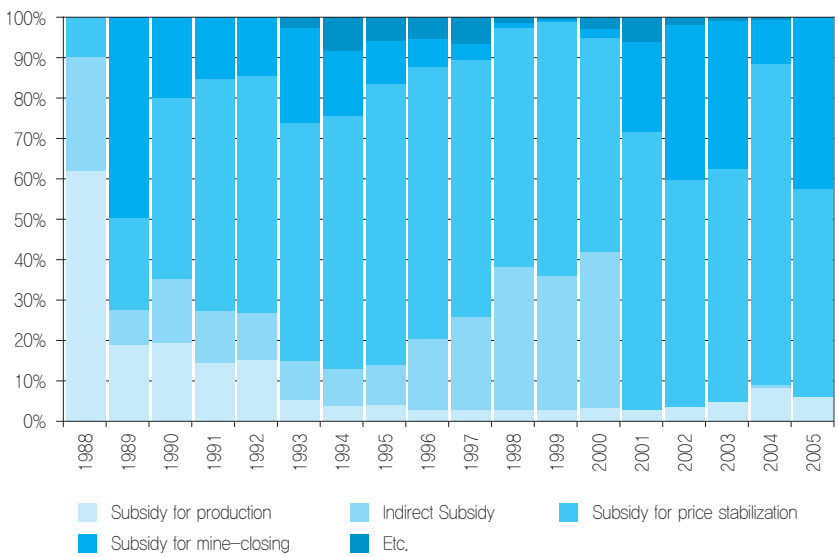
In addition to such an essential problem, there were other problems with the subsidy.

First, the composition of the subsidy did not promote 'build-up', one of the goals of the rationalization. The subsidy to the coal industry comprised four categories of subsidy: production, indirect support, mine-closing, and price stabilization. The subsidy for the production,[19] which was designed to contribute to the building up of efficient mines, decreased after the rationalization started and its share of the total subsidy to the coal

19. Refer to '2. Build-up' in chapter 4.

industry fell to 3-4 percent in the mid 1990s <Table 4-6>, [Figure 5-3]. Such a small portion of the subsidy for the production revealed the government did not have a firm will to build up the promising mines, in spite of declaring 'build-up' as a goal of the rationalization.

Figure 5-3 | Composition of the Subsidy for the Coal Industry



Source: *Yearbook of Coal Statistics*

Secondly, the subsidy for coal price stabilization, the largest part of the subsidy to the coal industry, could not contribute to building up the coal industry because it could not provide any incentives for the coal mines to enhance productivity. The gap between the price controlled by the government and the cost could be compensated by the subsidy.

The stereotyped idea that coal was home-heating fuel for low-income households made the Korean government stick to the low coal-price policy. Since the mid-1980s, however, the coal (briquette) price only had minor influence on the consumer price because the pattern of energy consumption had changed. The effect of income redistribution by the low coal price was less than that by direct subsidy to low-income households.

For the promotion of the coal industry, it was desirable to secure coal demand rather than to control the coal prices directly. The experiences of the developed countries revealed the effectiveness of the policy of securing demand for coal. In Japan, the government allocated certain amount of domestic coal to large consumers such as the thermal power plant and the

steel industry while compensating some part of the gap between the price of imported coal or oil and the price of the domestic coal to the consumers with the subsidy. To compensate the rest of the gap, consumers not only undertook efforts to raise the thermal efficiency, but also required the coal companies to reduce the cost. Similar policies were enacted in Germany and the UK.

3. Socio-economic Effects

3.1. Macro-economic Effects

The rationalization of the coal industry exerted broad effects upon the Korean national economy. Among them, it greatly influenced the government's finance and the energy consumption structure.

The rationalization of the coal industry that lightened the financial burden of the government <Table 5-2> shows the amount of additional subsidy needed without mine-closing. According to <Table 5-2>, the sum of the additional subsidy during 1989~1995 would amount to 2,228.1 billion *won* without mine-closing.[20] The actual additional burden of the government would amount to 1,840.5 billion *won* because the sum of the subsidy for mine-closing must be subtracted (387.6 billion *won*) from the sum of the additional subsidy. It can be interpreted that the government saved 1,840.5 billion *won* by closing mines during the period from 1989 to 1995. If the cost of the government coal stock is taken into consideration, the cost savings the government achieved from mine-closing would be even larger.

20. Assuming that the subsidy is provided based on the decrease in the production, additional subsidy needed in the case of 'without mine-closing' can be calculated. In 1989, for instance, the decrease in the production by mine-closing was 4,787 thousand tons. The subsidy per ton in 1989, calculated by dividing the production in 1989 into the total subsidy in 1989, was 4,343 *won*. If there was nomine-closing in 1989, the subsidy should have been paid to 4,787 thousand tons because there would be no decrease in the production of coal. The additional subsidy can be calculated by multiplying the subsidy per ton by the decrease in the production. In 1989, the additional subsidy is approximately 20.8 billion *won* (4343 *won* per ton × 4,787 thousand tons). In 1990, the decrease in production by mine-closing was 1,943 thousand tons and the subsidy per ton was 7,905 *won*. The additional subsidy in 1990 can be calculated by multiplying the subsidy per ton in 1990 (7,905 *won*) by the sum of the decrease in the production from 1989 (6,286 thousand tons=4787+1943). Ifthe sum of the additional subsidy until 1995is calculated accordingly, it amounts to 2,228.1 billion *won*.

Table 5-2 | Estimated Additional Subsidy in the Case of 'Without Mine-closing'

			1988	1989	1990	1991	1992	1993	1994	1995	Total
Production (thousand tons)			24,295	20,785	17,217	15,058	11,970	9,443	7,438	5,720	111,926
Subsidy (billion *won*)			579	995	1,361	1,869	2,602	2,946	2,892	3,350	16,594
Subsidy per ton (*won*/ton)		A	2,383	4,787	7,905	12,412	21,738	31,198	38,881	58,566	14,826
Decrease in production by mine-closing (thou. tons)	Concerned year	B		4,343	1,943	2,156	2,069	3,107	629	188	14,435
	Sum	C		4,343	6,286	8,442	10,511	13,618	14,247	14,435	
Additionally needed subsidy (billion *won*)	Comparison to the previous year	A*B		208	154	268	450	969	245	110	
	Comparison to the 1988 year	A*C		208	497	1,048	2,285	4,249	5,539	8,454	
Total sum (billion *won*)				208	705	1,753	4,037	8,287	13,827	22,281	22,281

Note: Government subsidy comprises the subsidy for price stabilization and the subsidy for production. The subsidy production includes the subsidy for welfare

Source: CIPB (1997), p.217

The rationalization of the coal industry also influenced the structure of energy consumption. In particular, there was a revolutionary change in the market for home and business heating fuels. As seen in <Table 5-3>, the share of anthracite in home and business energy consumption plummeted to a mere 2 percent in 2005, down from 63 percent in 1985. Such a striking change owed much to the change in the government policy from promotion to the rationalization of the coal industry, even though the basic factor causing the energy consumption structure was 'the energy revolution'. It referred to the substitution of cheaper and more convenient fuels for coal.

The substitution of cheaper fuel for more expensive coal increased the social welfare of the Korean national economy. One report from KEEI calculated the social cost 21 of domestic anthracite and imported coal in 1989 as 46 thousand *won* per ton and 22 thousand *won* per ton, respectively. If the consumption of anthracite was replaced by the consumption

21. The social cost was calculated in such a way; social cost = selling price + government subsidy + inconvenience cost (meaning the additional cost of using inconvenient fuel in comparison with the cost of using more convenient fuel).

of imported coal, the social welfare would have increased by 24 thousand *won* per ton (KEEI 1990). This report also calculated the social cost of diesel oil and briquette. According to the report, the social cost of diesel oil[22] and briquette was 67 thousand *won* and 89 thousand *won* per ton, respectively. The social welfare could have increased by 22 thousand *won* per ton if briquette was replaced by diesel oil. Such an increase in social welfare by the replacement of coal with cheaper energy exceeded the cost of mine-closing, which was 19-22 thousand *won* per ton.

Table 5-3 | Home and Commerce Final Energy Consumption (Oil Equivalent)

(Unit : TOE)

	Total	Petroleum	Anthracite	Electricity	Town Gas	Heat Energy	Other
1985	18,180	3,525	11,400	1,155	69	0	2,031
1990	21,971	8,876	9,027	2,421	777	75	797
1995	29,451	17,632	1,514	4,801	4,607	632	265
2000	32,370	13,492	718	7,891	9,024	1,096	148
2005	36,861	9,437	1,074	12,233	12,503	1,491	123

Source: *Yearbook of Energy Statistics*

3.2. Effects on the Dismissed Workers

The rationalization of the coal industry was accompanied by severe social problems, one of which was the mass unemployment of mine workers. During the period of seven years from 1989 to 1995, the number of mine workers decreased by 33,422, which was 53.7 percent of the workers in 1988 <Table 4-3>. To provide these dismissed workers with new jobs and secure their economic stability should have been one of the aims of the rationalization policy.

As seen before, the government paid 226.3 billion *won* to the dismissed workers during 1989~1995. The average payment per worker was 7,540 thousand *won*, which was the amount equivalent to approximately one year's wage payment.[23]

It is difficult to judge whether such a compensation for the dismissed workers was enough or not. If one considers that CIPB reflected the requirements of the union (FKMWU) and there

22. The social cost of light oil was calculated by converting the price of light oil into the price of coal.

23. As basic support, 6 monthly payments, and, as additional support, 4.5-5.9 monthly payments were paid to the workers. See Chapter 3.

were no outstanding protests by the dismissed workers with the amount of compensation, it could be said the amount of the compensation was acceptable to the dismissed workers.

In contrast to the compensation for unemployment, there was only negligible support for the re-employment of the dismissed workers. CIPB provided some support for the reemployment of the dismissed workers: employment preference to the workers who wished to work in other coal mines, subsidy for job-training fees for new jobs, and low-interest loans to businesses run by workers. During 1989-1995, however, only 1,567 workers received the subsidy for job-training fees. Moreover,only 390 million *won*, which was 0.1 percent of the subsidy for mine-closing, was paid to them. The amount of loans to the workers who tried to run their own businesses was also insignificant as only 1.74 billion *won* was given out to 348 workers. On the other hand, favorable conditions of the loans were 6 percent of interest rate and redemption in 5-year installment plan.

<Table 5-4> shows the employment situation of 31,535 workers dismissed during 1989-1993. They accounted for 95 percent of the entire dismissed workers until 1995. According to <Table 5-4>, only 21.7 percent of the dismissed workers got new jobs and the same portion of the dismissed workers were re-employed in the coal industry. Less than half of the dismissed workers could find employment. Whether the workers who moved out of the coal-mining regions got new jobs or not is uncertain. Even if the workers who moved out of the coal-mining regions were counted as employed, the employed workers were less than 70 percent of the dismissed workers. From this, it seems reasonable to state that the employment policy of the rationalization was not successful.

Table 5-4 | Employment Situation of the Dismissed Workers

(Unit : Person)

	Dismissed workers	Employment				Unemployment	Others
		Re-employment in coal mines	Other industries	Moving-out	Sum		
1989-90	16,487	4,086	3,341	4,163	11,590	1,815	3,079
1991	5,111	1,136	1,208	894	3,238	1,057	816
1992	4,686	1,001	1,253	936	3,190	817	679
1993	5,251	618	1,029	2,047	3,694	1,405	152
Total	31,535	6,841	6,831	8,040	21,712	5,094	4,726
%	100.0	21.7	21.7	25.5	68.9	16.1	15.0

Note: the workers who moved outside of the coal-mining regions are regarded as employed in other places
Source: CIPB,*White Paper,* 1994, p.152

In terms of the kind of the jobs that the dismissed workers got, there is no credible data on their newly gained jobs. However, it can be suspected <Table 5-5> that they flowed into small businesses or the construction industry as unskilled laborers. <Table 5-5> shows the result of questionnaires that asked the workers in what industries they would be employed if they were dismissed by mine-closing. In 1991, 53.6 percent of workers chose commerce & service, which was followed by manual labor (construction) and agriculture & fishery. This result means the dismissed workers who did not have special skills or knowledge had no choice but to find new job opportunities in commerce & service or construction field that did not require skills and knowledge. They could earn only low and unstable income.

Table 5-5 | Preference about New Jobs after Dismissed

	Re-employment in Coal Mine	Commerce·Service	Agriculture·Fishery	Manual Labor	Others & No Reply
1988 (a)	17.7	31.4	12.3	9.0	22.7
1991 (b)	4.3	53.6	10.4	23.8	7.9
(b)-(a)	-13.4	22.2	-1.9	14.8	-14.8

Source : CIPB (1991), p.137,280.

Comparing the result in 1988 to the one in 1991, there are noticeable changes; reemployment in the coal mines decreased strikingly, by 13.4 points. Commerce & service and manual labor (construction) increased largely, by 22.2 points and 14.8 points, respectively. This reveals that the stability of employment and labor conditions in the coal mines had deteriorated while the rationalization was proceeding. For the question, "why do coal mines have difficulties in hiring workers?", the top-three answers were as follows: "the future of the coal industry is uncertain", "the dismissed mine workers avoid reemployment in the coal mines", and "the wage level is low".

As mentioned above, the majority of the dismissed workers did not want re-employment in the coal industry. However, their hope was incompatible with the reality. Although only 4.3 percent of the respondents hoped for re-employment in the coal industry in 1991 <Table 5-5>, 21.7 percent of the respondents were re-employed in the coal industry <Table 5-4> in real. Under the pressure of scarce job opportunities and high barriers against moving-out of the coal-mining regions, the dismissed workers were forced to choose re-employment in the coal industry, against their hope. In particular, the middle-aged andold workers had more difficulties in finding new jobs than the younger workers, who could have taken the advantage of more chances to find new jobs through job-training or education. However, CIPB's employment policy for the dismissed workers was no more than seeking their re-employment in other coal mines. It was obviously far from the ideal solution.

The workers and the labor unions had only played tiny roles in planning and executing the rationalization of the coal industry. They nearly did not take part in protesting for mine-closing, which was directly associated with mass unemployment of the mine workers. As seen in Chapter 4, the workers adopted a 'passive adaptive strategy' to the government policy, rather than a 'protest strategy' against it. They judged the acceptance of the rationalization was in their favor. The silence of laborers in the rationalization in the Korea coal industry contrasted the strong presence of the labor unions in other countries, where persuading the labor unions to accept rationalization was the key to accomplish the rationalization.

The weak labor unions in Korea may explain their passive adaptive strategy. Though the unions of mine workers had been one of the most powerful labor unions, they had cooperated with the management since the beginning of the 1980s. The efforts of CIPB to accommodate the laborer's demands also contributed to softening their attitudes toward the rationalization. CIPB included some requirements of FKMWU into the rationalization plan and promised FKMWU that the rationalization would be executed on the basis of the agreement between the labor and management. However, it might be said that the uncertain future of the coal industry was the most decisive factor, forcing the mine workers to adopt the passive strategy.

3.3. Revitalization of the Coal-mining Regions

The final plan for the rationalization of the coal industry did not entail a concrete plan for the revitalization of the coal-mining regions. Despite the severe impoverishment of the regions affected by mine-closing, the government did not take any effective actions for regeneration of the local economies until 1995.

Residents disappointed with the government initiated the strong residents' movement to demand a special law for the revitalization of the coal-mining regions. At last, the residents attained the 3.3 agreement from the government in March 1995, which was included in the legislation of the Special Law for Support of Coal-mining Regions (Chapter 4.4).

It is an outstanding characteristic of Korea that the residents' movement played a decisive role in the establishment of the revitalization policy. In Japan, the government initiated the legislation of the Coal-mining Region Revitalization Law. Though the local governments represented the local interests through the Coal-mining Region Revitalization Council established by the Ministry of Trade and Industry, they played little role in the legislation of the Law. A strong residents' movement was hardly observed in Japan.

It is not easy to explain the source of such difference between the two countries. However, the histories of the local autonomy in the two countries might provide a clue. In Japan, the local autonomy system that began after World War II, could organize the local

interests and represent them to the central government. However, the local governments lacked competence to initiate the revitalization policy on their own, and they mainly tried to gain more subsidies from the central government through negotiations.

In Korea, the local autonomy was not realized until 1988. The local government, first established by the local election in 1991, was very weak and inexperienced that it could not afford to organize and represent the local interests. Instead of approaching the local governments, the residents, through the strong residents' movement demanded the revitalization policy directly to the national government, and they accomplished their purpose. One must consider that the fever of democratization in Korea at that time fueled the residents' movement.

Despite the success in the legislation of the Special Law, the residents were lacking in competence to manage or supervise the businesses of the revitalization. As a result, the revitalization policy was advanced by the initiative of the government (central and local). Residents could not play a significant role in the execution of the revitalization policy.

Did the revitalization policy actually 'revitalize' the coal-mining regions? Maybe the answer is no. Some results seem to show that the policy was not successful, though the comprehensive assessment of the policy is not possible yet.

First, the population of the coal-mining regions continued decreasing <Table 5-6>. The population of the four coal-mining regions decreased greatly during the period from 1988 to 1995, when mine-closing proceeded rapidly. The population in 1995 was 269 thousand, which only accounted for 61 percent of the population in 1988, which was 441 thousand. The depopulation of the coal-mining regions continued after the revitalization policy started in 1995. The population in 2005 was only 78.8 percent of 1995. The number of enterprises and workers in 2005 also failed to reach the level of 1995. The decline of the coal-mining regions did not halt in spite of the huge support from the government.

Table 5-6 | Population and Number of Undertakings in the Coal-mining Regions

(Unit: Thousand Person, Thousand, %)

Year		*Gangwon* Province	*Taebaek-shi*	*Samcheok-shi*	*Youngweol-gun*	*Jeongseon-gun*	Sum of the coal-mining regions
1988	Population	1,731	115	132	74	120	441
1995	Population	1,530 (100.0)	65 (100.0)	90 (100.0)	53 (100.0)	61 (100.0)	269 (100.0)
	undertakings	101 (100.0)	4 (100.0)	6 (100.0)	3 (100.0)	4 (100.0)	16 (100.0)
	Population engaged in undertakings	405 (100.0)	18 (100.0)	24 (100.0)	12 (100.0)	13 (100.0)	66 (100.0)
2000	Population	1,559 (101.9)	57 (88.0)	82 (91.4)	48 (90.7)	51 (82.8)	238 (88.5)
	undertakings	110 (109.3)	4 (105.0)	6 (99.5)	3 (104,1)	4 (101.5)	17 (102.2)
	Population engaged in undertakings	406 (100.2)	15 (84.1)	21 (90.4)	12 (103.4)	13 (105.9)	62 (94.0)
2005	Population	1,521 (99.4)	53 (81.1)	73 (81.6)	42 (78.2)	44 (72.6)	212 (78.8)
	undertakings	116 (115.4)	4 (99.3)	5 (94.4)	3 (99.3)	3 (96.3)	16 (97.0)
	Population engaged in undertakings	437 (108.0)	17 (94.6)	20 (85.1)	12 (98.2)	15 (116.1)	63 (95.9)

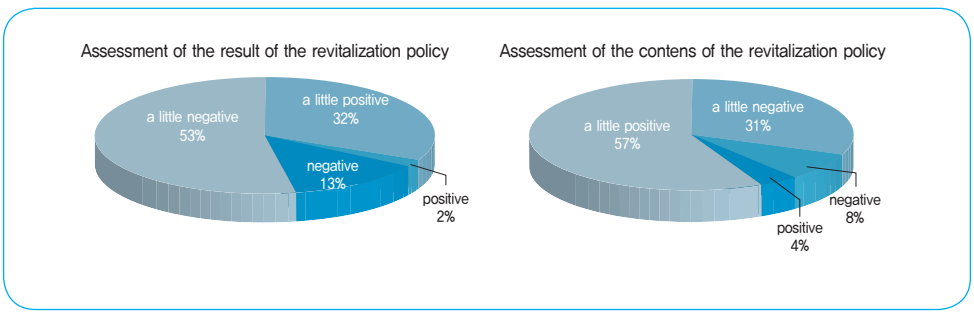
Source: Gangwon Province, *Yearbook of Statistics*

Secondly, the residents' assessment of the result of the revitalization policy was not positive. According to the survey of *Gangwon* province, 60 percent of the respondents were negative about the result of the revitalization policy, while 60 percent of the respondents were positive about the contents of the policy [Figure 5-4]. The residents' expectation for the policy was not realized.

The failure owed partially to the revitalization plans themselves. With the backdrop of the strong residents' movement, the local governments competed in suggesting revitalization policies, and the central government generously accommodated the demands. As a result, there were many projects lacking in feasibility or financial back-up. In addition, there were many overlapping projects without the coordination among the local governments. Those were executed recklessly.

In addition to such a general defect, there were further mistakes in executing the policy. Though the infrastructure in the coal-mining regions was greatly improved by the rationalization policy, the promotion of the tourist business and the alternative industries was not successful because the local governments failed to attract the capital from outside. The lack of a road-network, connecting the coal-mining regions and the metropolitan areas, discouraged the outside companies from investing in the coal-mining regions. The Asian financial crisis, arriving at the starting point of the revitalization plan, was another factor negatively affecting the attraction of the outside capital.

Figure 5-4 | The Residents' Assessment of the Result and the Contents of the Revitalization Policy (*Gangwon* province)



Source: *Gangwon* province(2006).

Lastly, despite the local governments' efforts to attract the outside capital such as providing low-interest-rate loans and deregulation in business, as well as the improvement of the infrastructure, they could only attract small and medium sized companies. Among the companies invited into the regions by giving various favors, there were many companies with vulnerable financial bases. Their enterprises were often suspended, so various preferences and subsidies offered to them were useless. In contrast to their eagerness to attract outside capital, the local governments were not interested in the promotion of region-specific businesses, in which the residents participated. As a result, the businesses initiated by the residents tended to be neglected in the revitalization policy.

While the businesses of the revitalization were dwindling, the casino can be assessed as a successful case. As the casino succeeded in making profits, the revenue of the casino played an important role as a financial resource for the revitalization policy. In addition, the casino brought jobs to the region by increasing demand for services related to the casino, developing trade in the region and increasing the purchase of the local products, and increasing the local tax revenue. The public sector had 51 percent of the shares of *Gangwon* Land, a good strategy to secure public control.

However, it should be noticed that the casino accompanied side effects such as addiction to gambling and crimes. With respect to the security of the community and healthy lives of the residents, it could be said that the casino deteriorated the environment of the coal-mining regions, though it played an important role in supplying the seed money for the revitalization of the coal-mining regions,

In addition, the casino weakened the residents' movement that gave birth to the casino. The conflicts among the coal-mining regions around the distribution of the revenue from the casino, location of the casino, and business plan of the casino damaged the cooperation of the regions. Though they tried to recover the cooperation by the establishment of resident committees in coal-mining regions, the conflicts were not solved and the cooperation finally ended. Although the residents succeeded in the establishment of the Special Law and the casino, they failed to coordinate their local interests.

2012 Modularization of Korea's Development Experience
Structural Adjustment Policies of Korea's Coal Industry

Chapter 6

Implications

Implications

The coal industry in Korea, which had played an important role in supplying cheap fuel to people under price control and the government support, underwent the rapid structural adjustment in the late1980s. The change was accompanied by the backdrop of the structural change of energy consumption and the briquette's loss of price competitiveness. From the experience of the coal industry in Korea, some implications for the structural adjustment policy can be suggested.

First, the role of the government is very important in the structural adjustment of the coal industry. It basically comes from the industrial characteristics of the coal industry, with very high exit barriers. In general, high exit barriers are common to mining industries, such as copper-mining and iron-mining industries, where the government's role to lower exit barriers to facilitate the shift of resources from the declining mining-industry to a productive industry is very important.

In Korea, the government had played a dominant role in developing and regulating the coal industry since its establishment in 1948. The government's initiative in the rationalization of the coal industry was taken for granted. In particular, the Korean government could execute mine-closing efficiently and rapidly by concentrating the businesses related to mine-closing to CIPB under the supervision of MER. However, building-up efficient mines, which was another aim of the policy, was not successful as it was executed by another institution, KMPC, without any close cooperation with CIPB. The absence of headquarters coordinating the mine-closing and building up was a critical defect of the adjustment policy of Korea.

Second, the adjustment policy of the coal industry should be taken into consideration with the problems accompanying the adjustment process, such as the unemployment of mine-workers and the decline of the coal-mining regions. Though the adjustment policy

provided the subsidy for the stabilization of the dismissed workers' lives, it did not prepare plans for re-employment or training of the dismissed workers. As a result, the dismissed workers, most of them being unskilled laborers, could not avoid working in other coal mines or remaining unemployed in the coal-mining regions.

For the declining coal-mining regions, the Korean government initially had vague plans only. Only after the local residents of the coal-mining regions protested to the government with large-scale demonstrations, the government took serious action on the revitalization of the coal-mining regions.

The lack of re-employment and revitalization plans in the adjustment policy means that the workers and the residents bore more of the social cost accompanying the adjustment process. Such an inequality not only brought the impoverishment of the workers and the residents, but also social instability as seen in the fierce residents' movement demanding the revitalization policy from the government. As a result, the government paid much more subsidy to the coal-mining regions than if it had made plans for the revitalization of the coal-mining regions at the beginning of the adjustment policy.

Third, the rapid adjustment in the Korean coal industry owed much to the workers' cooperation with the government policy. The workers in Korea adopted a 'passive adaptive strategy' to the government policies, rather than a 'protest strategy' against them. Judging the acceptance of the adjustment was in their favor. The silence of the laborers in the adjustment of the Korea coal industry strikingly contrasted the strong presence of the labor unions in other countries, where the stubborn resistance of the unions was the largest obstacle to the adjustment of the coal industry. The weakness of the labor unions in Korea may explain their passive adaptive strategy. The union of mine workers, which had been one of the most powerful labor unions, have been cooperating with management from the beginning of the 1980s.

However, it should be stressed that the government made efforts to accommodate the workers' demands. The government included the demands of the labor union, FKMW, in the adjustment policy and executed mine-closing on the basis of the labor-management agreement. Such efforts of the government helped soften the resistance of the workers and avoid labor disputes.

Fourth, the adjustment policy should take into consideration the interests of the residents of the coal-mining regions and establish an institution where the residents could take parts in planning and executing the policy. Without the participation of the residents, the policy tended to sacrifice the residents' interests and welfare, and it seemed inappropriate to the regional circumstances.

The adjustment policy, which took no consideration of the interest of the residents on the initial stage, collided with the strong residents' protest and demanded the government to correct its policy.

In this process, it is very noticeable that the resident's movement played a decisive role in the establishment of the revitalization regions in Korea. It may be said that the residents' movement was a special phenomenon in Korea, where the wave of democratization had just swung across the country and the local autonomy system had just started. However, such an experience in Korea shows that any adjustment policy that ignores the residents' interests cannot avoid paying the price afterwards. In particular, the absence of well-organized local autonomy system or representative institutions of residents may trigger the resistance of the residents, which could develop into a mass movement undermining social stability.

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Appendix 1
Production, Consumption and Stocks of Anthracite and Number, Labours and OMS of Coal Mines

Unit: 1000 Ton, No., Person, Ton

	Anthracite				No. of coal mines	Labours	OMS		
	Production	Import	Consumption	Stocks			KOCOAL	Private	Total
1951	162	0	159	227	-	-	0.05	-	-
1952	577	0	593	390	-	-	0.24	-	-
1953	867	0	923	393	-	-	0.33	-	-
1954	889	0	1,069	334	-	-	0.40	-	-
1955	1,308	0	1,495	369	-	-	0.42	-	-
1956	1,815	0	1,853	424	-	-	0.55	-	-
1957	2,441	0	2,219	475	-	-	0.58	-	-
1958	2,671	0	2,500	329	-	-	0.59	-	-
1959	4,136	0	3,869	398	-	-	0.82	-	-
1960	5,350	0	4,822	653	-	-	0.86	-	-
1961	5,884	0	6,028	487	-	-	0.92	-	-
1962	7,444	0	7,216	1,163	-	-	0.91	-	-
1963	8,844	0	8,617	1,404	-	-	0.93	-	-
1964	9,622	0	9,428	1,598	-	-	0.98	-	-
1965	10,248	0	10,346	1,206	128	-	1.02	-	0.95
1966	11,613	0	11,769	1,051	145	-	1.07	-	0.97
1967	12,436	0	11,956	2,219	155	-	1.00	-	1.00
1968	10,242	0	10,569	1,892	127	-	0.95	-	1.02
1969	10,273	0	11,359	1,105	129	-	0.97	-	1.05
1970	12,394	0	11,831	1,668	155	36027	0.98	1.12	1.07
1971	12,785	0	11,991	2,463	160	39478	0.90	1.15	1.06
1972	12,403	0	12,363	2,542	136	37408	0.87	1.15	1.06
1973	13,571	0	14,736	1,377	160	34573	1.16	1.29	1.25
1974	15,263	0	14,959	1,681	189	42573	1.18	1.27	1.24
1975	17,593	0	15,944	3,329	239	45642	1.15	1.23	1.21
1976	16,427	0	16,782	2,974	226	46095	1.14	1.14	1.14
1977	17,268	0	17,804	2,438	191	48734	1.12	1.14	1.13
1978	18,054	646	17,953	3,185	173	51631	1.11	1.23	1.20

	Anthracite				No. of coal mines	Labours	OMS		
	Production	Import	Consumption	Stocks			KOCOAL	Private	Total
1979	18,208	2017	18,820	4,590	201	53,098	1.11	1.23	1.20
1980	18,624	2691	20,830	5,075	196	56,173	1.10	1.20	1.15
1981	19,865	4293	21,413	7,820	219	60,302	1.02	1.25	1.21
1982	20,116	2292	20,865	9,363	349	62,310	1.07	1.18	1.15
1983	19,861	813	21,670	8,367	346	59,923	1.10	1.22	1.19
1984	21,370	804	24,154	6,387	347	63,618	1.15	1.24	1.22
1985	22,543	2333	25,339	6,426	361	67,136	1.18	1.23	1.22
1986	24,253	3914	26,927	8,170	361	68,861	1.21	1.27	1.26
1987	24,273	2782	26,326	9,595	363	68,491	1.20	1.28	1.26
1988	24,295	1670	25,641	10,774	347	62,259	1.25	1.38	1.35
1989	20,785	927	22,799	10,048	332	47,934	1.33	1.50	1.46
1990	17,217	958	20,979	8,013	143	38,101	1.33	1.65	1.56
1991	15,058	1129	17,181	8,272	170	32,561	1.40	1.76	1.65
1992	11,970	400	13,075	7,725	115	26,021	1.33	1.78	1.61
1993	9,443	124	10,074	7,107	70	19,461	1.29	1.83	1.61
1994	7,438	232	6,924	7,723	45	14,925	1.32	1.86	1.63
1995	5,720	146	5,485	8,508	27	11,735	1.24	1.99	1.65
1996	4,951	27	4,502	8,937	11	10,725	1.20	2.01	1.62
1997	4,514	0	3,769	9720	11	9,723	1.24	2.03	1.66
1998	4,361	0	3,842	10269	11	8,576	1.28	2.10	1.71
1999	4,197	0	3,853	10737	11	8,214	1.37	2.18	1.80
2000	4,150	0	4,158	10774	11	8,207	1.38	2.23	1.83
2001	3,817	0	4,027	10576	11	7,169	1.29	2.22	1.77
2002	3,318	0	3,808	10101	10	6,624	1.23	2.29	1.75
2003	3,299	0	3,944	9527	9	6,602	1.30	2.27	1.78
2004	3,191	0	3,886	8894	9	5,876	1.35	2.29	1.81
2005	2,832	0	4,466	7388	8	5,736	1.47	2.63	1.96
2006	2,824	0	4,717	5551	7	5,940	1.51	2.71	1.99
2007	2,886	0	4,254	4231	7	5,797	1.67	2.70	2.08
2008	2,773	10	4,260	2797	7	4,987	1.72	2.89	2.17
2009	2,519	190	3,309	2226	6	4,462	1.95	2.79	2.26
2010	2,084	170	2,698	1853	5	4,050	1.82	2.86	2.18
2011	2,084	100	2,365	1720	5	3,768	1.89	2.99	2.30

Source: *Yearbook of Energy Statistics*

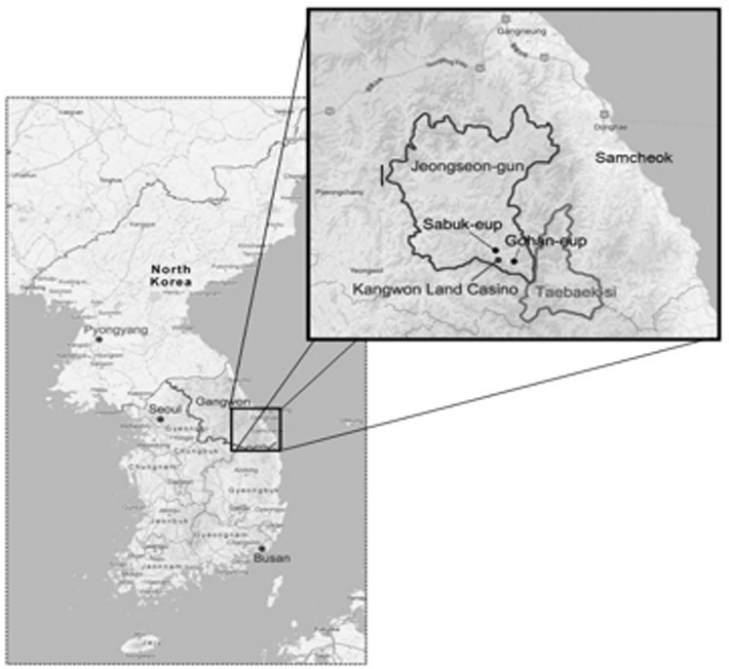
Appendix 2
Subsidy and Loans for the Coal Industry

(Unit: 1000 Won)

	Coal Mine						Briquette					
	Subsidy						Loans	Sum	Subsidy	Loans		Sum
	Subsidy for Production	Indirect Subsidy	Subsidy for Mine-closing	Subsidy for Price Stabilization	Etc.	Sub-total				Summer Coal Stock	Sub-total	
1980	20,164	20,310		650		41,124	9,554	50,678	5,700	45,200	45,200	50,900
1981	32,645	22,378		1286		56,309	12,124	68,433	8,136	68,112	68,112	76,248
1982	29,793	33,858		2,692		66,343	18,395	84,738	7,884	87,600	87,600	95,484
1983	26,980	34,461		2,548		63,984	17,950	81,934	7,912	89,034	89,034	96,946
1984	27,733	35,300		3,623		66,656	21,337	87,993	9,635	118,283	118,283	127,918
1985	35,286	29,764		5,556		70,606	23,409	94,015	9,813	179,351	179,450	189,263
1986	38,887	23,661		5,561		68,109	27,767	95,876	9,993	218,770	219,557	229,550
1987	44,614	22,687		7,011		74,312	47,241	121,553	8,268	234,998	236,942	245,210
1988	42,697	19,527		6,449		68,673	42,624	111,297	7,729	223,983	225,497	233,226
1989	41,884	19,540	113,362	47,083		221,869	43,063	264,932	26,555	215,790	220,438	246,993
1990	37,342	30,687	37,504	84,024		189,557	38,273	227,830	44,208	208,335	211,964	256,172
1991	35,382	31,912	36,844	137,822		241,960	30,532	272,492	52,915	225,415	228,607	281,522
1992	40,332	30,360	37,100	150,637		258,429	29,089	287,518	60,263	139,310	140,646	200,909
1993	26,174	43,569	109,943	276,297		455,983	24,392	480,375	61,356	109,831	111,022	172,378
1994	19,075	41,293	75,908	292,121	10,627	439,024	18,336	457,360	52,981	70,990	71,368	124,349
1995	16,970	41,025	43,833	281,519	36,620	419,967	18,593	438,560	50,008	25,691	26,173	76,181
1996	14,231	75,643	29,312	293,617	22,980	435,783	41,008	476,791	38,458	13,850	14,022	52,480
1997	14,540	104,811	18,409	289,291	23,072	450,108	60,007	510,115	40,363	4,178	6361	46,724
1998	14,455	153,676	6,051	260,550	28,125	462,857	23538	486,395	36,491	1063	1445	37,936
1999	14,068	143,549	1,247	269,668	4381	432,913	8539	441,452	50,159	0	1344	51,503
2000	12,379	141,246	8,149	193,558	1869	357,201	37,408	394,609	52,444	0	0	52,444
2001	7,678	0	56,750	178,046	9,789	252,263	7,776	260,039	44,534	0	0	44,534
2002	7,678	0	103,331	153,136	15,642	279,787	13,327	293,114	48,044	0	0	48,044
2003	12,769	0	91,952	144,310	4,293	253,324	8,438	261,762	59,472	0	0	59,472
2004	15,322	642	19,907	142,336	2,204	180,411	55,564	235,975	51,653	0	0	51,653
2005	17,322	0	115,886	140,072	662	273,942	93,843	367,785	100,410	0	0	100,410

Source: *Yearbook of Coal Statistics*

Appendix 3
Coal-mining Regions in *Gangwon* Province



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