Special Feature

The Development of a Control Policy over the Coal Industry and the Management of the Coal Mining Industry in Wartime Colonial Korea*

Lim Chaisung

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Introduction

This study analyzes the coal production expansion policy implemented by the Government-General of Joseon (Chosēn), during the wartime period and the impact which this policy had on the management of coal mining companies. In addition, a review of the actual state of coal production and consumption, as well as of the historical origin of the Korean coal industry that emerged after liberation, is also presented.

Failure to ensure a stable supply of energy can seriously impact the industry's industrial and economic activities. The present study focuses on the fact that the energy crisis was not a phenomenon that first emerged after the Pacific War, but in fact one that had already begun during wartime. The inability to ensure a smooth supply of coal from Kyushu, Japan and China inevitably impacted the Korean economy. In this regard, the Government-General of Joseon (Chōsen) responded to this denouement by implementing the Coal Production Expansion Plan designed to greatly increase coal production in Korea.

Various means, including subsidies, the introduction of laborers, and the control of the distribution of materials, were used to ensure the large-scale production of coal. The fostering of coal development in the southern part of Korea that was undertaken as part of this plan contributed to overcoming the energy crisis that emerged after liberation when North Korea blocked all transmission of energy to the South. However, these measures proved insufficient to ensure the continued development of the coal industry after liberation. In this regard, not only was there a limited amount of coal reserves and a limited number of coal mines in South Korea, but there was also during the final period of the war an overarching emphasis on short-term increases in coal production through the input of non-skilled laborers and excessive mining. To this end, the increase of coal production that occurred during wartime can be regarded as having simultaneously achieved results and been laden with inherent limitations.

Existing studies on the Korean coal industry during the war have so far

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yielded results that have been well behind those achieved by studies on colonial industrialization. Using materials prepared by the Government-General of Joseon, Ayukawa Nobuo (2000) revealed that Japanese capital pursued large-scale development during wartime that revolved around the introduction of coal mining tools and management methods. Moreover, it also oversaw the rationalization of coal mining tools and the introduction of machinery. However, the Korean foreman, in his capacity as middle management, was the party at the center of the transitions in terms of the management of labor. Ayukawa's study fails to take into account crucial elements from the standpoint of the industrial organization theory. Here, one can identify the coal policy put in place by the Government-General of Joseon, the reorganization of company relations as part of efforts to address the manner in which the wartime economy was unfolding, as well as the impact which such factors had on individual companies.[2] As a result, his study fails to properly explain the changes that took place during wartime, and instead emphasizes the transitional characteristics of the bodies responsible for the management of miners through a comparison with Japan. In addition, the unique natural conditions of Korea were not considered.

For her part, Kim Eun-jeong (2007) conducted a study on the process through which imperial Japan exploited Korea's coal industry during the time frame that spanned from the final period of the Daehan Empire to the end of the colonial era. In particular, Kim pointed out that the Government-General of Joseon had concentrated on increasing coal production and coal distribution controls during wartime. Under such circumstances, rigorous limitations were placed on the consumption of coal amongst the general population. Koreans, who were regarded by large-scale Japanese capitalists as a source of labor that could be exploited, became seasonal, low-wage laborers, a denouement which the author sees as having led to the development of the labor movement. Although Kim's study focused on colonial rule, it did not properly explain the impact which the energy shortages that occurred during wartime had on the coal industry, or the implications of this situation on the history that unfolded

2. In this regard, Masahiro Shimotani (1990) stressed the fact that companies responded to the changes in the external environment characterized by the following progression: 'autonomous-control system -> control associations system -> munitions companies system' by actively reorganizing their company structure and inter-company relations.

in the post-war era. These limitations of the existing studies can be traced back to their inability to highlight the Government-General's distribution of resources in colonial Korea. In other words, these studies have not focused on the limitations of the market mechanisms in terms of the distribution of resources, the industrial reorganization that was implemented under these limited conditions, and the shock which such moves caused for the pertinent companies.

Park Giju (2009, 2010) analyzed the development of the coal industry during the colonial period from the standpoint of the policy history of the Government-General of Joseon. According to Park, the Government-General of Joseon actively imposed distribution controls during wartime, thus accentuating the move away from autonomous-control by the market (companies) and towards forced control by the government. Park interpreted the coal policy of the Government-General of Joseon as being part of what he referred to as developmental governance. In particular, Park argued that the leading role played by the Government-General of Joseon ensured that, unlike the zigzag-style coal controls that were imposed in Japan, Korea enjoyed consistent coal industry controls. However, there is little evidence to support Park's assertion that coal industry controls were consistently strengthened in Korea. Japan's wartime economy was implemented in an ad hoc manner that was heavily impacted by such events as the outbreak of the Sino-Japanese War, Germany's invasion of Poland, the German-Soviet War, and the outbreak of the U.S.-Japan War. To this end, Korean wartime economy was also heavily impacted by these events. Of course, the fact that Korea did not have any cabinet system and that its economy was also smaller than Japan's lends itself to the conclusion that the Government-General of Joseon was better placed to establish its control over the Korean economy. Nevertheless, the claim that the coal industry control policy was implemented in a consistent manner can be regarded as somewhat of an overstatement. For example, the subsidy policy implemented as an incentive to cope with the worsening management conditions affecting coal mining companies, the implementation of the pool pricing system, and the increase in anthracite coal production within Korea, as well as the promotion of the consumption of anthracite coal occasioned by the rapid decrease of marine transport capacity, can be regarded as the response of the Government-General of Joseon to unexpected circumstances.

As such, existing studies have failed to address many of the key issues.

Above all, these existing studies have analyzed the development process of the coal industry during wartime from the common vantage point of the early 1930s, while failing to attach proper importance to the characteristics of the wartime economy. In this regard, the present study seeks to reveal the actual state of the control policy implemented by the Government-General of Joseon to cope with the energy crisis, as well as the management of coal mining companies, by analyzing the implementation of the coal production expansion plan, production at the individual coal mine level, and the distribution and consumption structure that was put in place for the coal that was produced.

The First Coal Production Expansion Plan and the Actual State of Individual Coal Mines

The Drawing Up of the First Coal Production Expansion Plan and the Contents Thereof

The demand for coal in Korea increased alongside the advancement of colonial industrialization in the 1930s. As part of this process, while existing coal mines were expanded in Daebu, Gangdong, Samsin, Gangseo, Yongdam, Gambuk, Daemunsan, and Ganggye, new ones sprung up in Samdeung and Bongcheon. Meanwhile, mines were also developed in the southern areas of Korea, including the Hwasun Coal Mine and the Iyang Coal Mine founded in Guam. Coal mines also began to be developed in earnest in Samcheok and Yeongwol in 1935. Thus, the coal industry developed nationwide, from the northern to the southern regions of Korea, with the production of anthracite and bituminous coal respectively surpassing respectively the one million ton mark in 1936. This process was further accelerated after the outbreak of the war. From 1931 to 1938, coal production in Korea increased three-fold; meanwhile, Japan experienced a two-fold increase over the same period (Otsuka 1939).

The Government-General of Joseon reviewed the possibility of meeting the great demand for coal that existed at the time by implementing a plan for the supply and demand for coal. As can be seen in Table 1, the Government-General of Joseon in effect prepared a five-year plan for the supply and demand for coal in December 1937. A look at the year 1936 that immediately preceded the outbreak of the war reveals that while lignite and anthracite coal were being

produced in Korea, the majority of which was then exported, high thermal capacity bituminous (black) coal was being imported from Kyushu in Japan, Manchuria, and Northern China. In this regard, a greater amount of anthracite coal was being exported than set aside for domestic consumption. This situation had less to do with the industrial structure of Korea than the fact that most of Korea's coal reserves consisted of anthracite. Taking a look at the

Table 1. The supply and demand for coal in Korea

(unit: 1,000 tons)

	Item	1936	1937	1938	1939	1940	1941
Demand	**Demand in Korea**	**3,112**	**3,629**	**4,536**	**5,168**	**6,424**	**8,349**
	Bituminous coal	1,160	1,303	1,647	1,922	2,315	2,520
	Anthracite coal	451	587	989	1,168	1,791	2,524
	Japanese coal	884	973	1,005	1,037	1,088	1,248
	Manchurian & N. Chinese coal	617	766	895	1,041	1,230	2,057
	Exported within the empire	**560**	**611**	**970**	**1,351**	**1,498**	**1,671**
	Bituminous coal	26	40	40	10	10	10
	Anthracite coal	534	571	930	1,341	1,488	1,661
	Export	**40**	**40**	**40**	**40**	**40**	**40**
	Bituminous coal	40	40	40	40	40	40
	Total	**3,716**	**4,280**	**5,546**	**6,559**	**7,962**	**10,060**
Supply	**Production in Korea**	**2,215**	**2,541**	**3,646**	**4,481**	**5,644**	**6,755**
	Bituminous coal demand in Korea	1,160	1,303	1,647	1,922	2,315	2,520
	Exported within the empire	*70*	*80*	*80*	*50*	*50*	*50*
	Subtotal for bituminous coal	*1,230*	*1,383*	*1,727*	*1,972*	*2,365*	*2,570*
	Anthracite coal demand in Korea	451	587	989	1,168	1,791	2,524
	Exported within the empire	*534*	*571*	*930*	*1,341*	*1,488*	*1,661*
	Subtotal for anthracite coal	*985*	*1,158*	*1,919*	*2,509*	*3,279*	*4,185*
	Imported within the empire	**884**	**973**	**1,005**	**1,037**	**1,088**	**1,248**
	Import	**617**	**766**	**895**	**1,041**	**1,230**	**2,057**
	Total	**3,716**	**4,280**	**5,546**	**6,559**	**7,962**	**10,060**

Source: The Government-General of Joseon (1937).

Notes: 1. Coal employed in conjunction with naval vessels (Fuel Division, Mining Department) was deleted from both the supply and demand columns.

2. While the year 1936 is based on actual production results, the year 1937 is based on estimated production results.

consumption of coal by usage purpose found in Table 2, we can see that, leaving aside the heating category, the most significant consumption took place in conjunction with railways, followed by iron and steel, electricity, and the ceramic industry. Most of the coal used within the heating category was locally produced lignite. By the time 1941 rolled around, the consumption of coal was expected to increase 2.7-fold, with the greatest amount of coal to be consumed in the iron and steel rather than heating and railway categories. This prediction, of course, reflected the intention at the policy level to increase iron and steel production in Korea. In addition, heavy emphasis was also placed on

Table 2. The demand for coal in Korea by usage purpose

(unit: 1,000 tons)

	1936	1937	1938	1939	1940	1941
Iron and steel industry	380	480	730	780	990	1,720
Electricity	258	324	305	290	406	856
Railways	818	938	1,050	1,182	1,324	1,506
Ceramic industry	232	295	368	488	649	787
Textile industry	81	105	175	255	290	295
Raw materials for coal briquettes	134	144	156	168	182	196
Raw materials for artificial petroleum	147	210	490	600	900	1,000
Chemical industry	141	155	170	193	198	213
Pulp industry	30	68	74	79	84	89
Food industry	40	42	44	47	50	53
Gold mining	40	45	60	65	70	75
Onsite consumption	30	35	40	45	50	60
Heating - baths	500	550	600	660	730	800
Other	281	238	274	316	501	699
Total	3,112	3,629	4,536	5,168	6,424	8,349

Source: The Government-General of Joseon (1937).

Notes: 1. The briquettes used by railway organizations were included in the railway category.
2. The fuel needed to generate electricity in coal mines was included in the electricity category.
3. The coal used in brewing factories such as those manufacturing beer were included in the food industry category.
4. The raw materials for artificial petroleum refer only to the amounts used for direct coal liquefaction and low temperature carbonization.
5. An exact estimation of the coal used for heating purposes in the year 1936 was difficult to bring about, and some of the coal used for this purpose was included as part of the coal for small industries.
6. Although it includes some errors, the table is nevertheless presented as is.

the production of raw materials for artificial petroleum. The Government-General of Joseon intended to use the lignite produced in Korea to produce artificial petroleum.

To maintain these coal consumption levels, the Government-General of Joseon set for itself the production of 6.755 million tons of coal as its goal. This amount was three times greater than the 2.215 million tons of coal production in 1936. This five-year coal production plan developed by the Government-General of Joseon was integrated into the first Production Expansion Plan (1938-1941), with an established higher production goal of 7.0 million tons by 1941. In particular, the Government-General of Joseon planned to rapidly increase the production of anthracite coal to 4.185 million tons by 1941, a total that was much greater than the 2.57 million tons of bituminous coal slated to be produced. The plan called for the export within the empire of 1.661 million tons of the anthracite coal produced. Furthermore, as far as the bituminous (black) coal to be consumed in Korea was concerned, the Government-General of Joseon favored increasing the import of bituminous (black) coal from Manchuria and Northern China over Japan.

The implementation of this five-year plan required the securing of large-scale capital, labor force, and materials (Government-General of Joseon 1937). With regard to the management of industrial funds, the Government-General of Joseon planned to invest 36.573 million yen in fixed capital from 1937 to 1941, the majority of which was to emanate from investment funds, and to invest 6.232 million yen as working capital. As production was focused on anthracite coal, two-thirds of these funds were to be invested in the latter. As far as labor was concerned, the plan called for 1,064 technicians and 22,641 laborers to be deployed by the end of 1936, with another 1,220 technicians and 30,752 laborers added by 1941. Two-thirds of the technicians and laborers were to be assigned to the task of anthracite coal production. This anthracite coal-first policy reflected the nature of Korean coal reserves. Anthracite coal had lesser thermal capacity than the bituminous (black) coal imported from within the empire.

As far as material procurement was concerned, the Government-General of Joseon planned, by 1941, to increase the 349,000 *seok* of wood, 4,678 tons of iron and steel materials needed to make rails and pipes, and the 222 tons of explosives needed to conduct the mining process, that were expected to be produced in 1937 to 909,000 *seok*, 21,470 tons, and 1,061 tons respectively. In

addition, the available drilling equipment, coal conveyors and compressors that constituted implements essential for the mining and conveying of coal were slated for increase every year. A closer look at the machinery employed reveals that 135 inclined shaft conveyors, 109 horizontal conveyors and line shaft conveyors, 380 electric drills, 818 air rock drills, 8 coal cutters, 121 armored-face conveyors, 79 air compressors, 269 drainage containers, 258 fans, 14,250 safety lamps, 13,545 flashlights, and 22 coal freight trains were used during the period spanning from 1938-1941.

Let us now take a look at the actual results of the Coal Production Expansion Plan.

Implementation of the First Five-year Plan at the Individual Coal Mine Level

Table 3. The Coal Production Expansion Plan in Korea and the actual results thereof

(unit: 1,000 tons, %)

	Year	Bituminous coal production			Anthracite coal production			Total		
		Planned	Actual	Performance ratio	Planned	Actual	Performance ratio	Planned	Actual	Performance ratio
1st 5-yr plan	1938	1,727	1,666	96	1,919	1,595	83	3,646	3,261	89
	1939	2,226	2,262	102	2,509	2,909	116	4,735	5,171	109
	1940	2,600	2,639	102	4,200	3,457	82	6,800	6,096	90
	1941	2,900	2,854	98	4,100	3,948	96	7,000	6,802	97
2nd 5-yr plan	1942	3,000	2,730	91	4,100	3,931	96	7,100	6,661	94
	1943	3,200	2,430	76	4,500	4,159	92	7,700	6,589	86
	1944	3,000	2,587	86	5,100	4,530	89	8,100	7,117	88
	1945	4,530			6,100			10,630		
	1946	4,730			6,710			11,440		

Source: The Government-General of Joseon (1943a, 1944); Kim U-geun (1952)

Notes: 1. The difficulties associated with achieving these goals led to the following amendments being made to the second five-year plan: a total of 7.10 million tons of coal in 1943, consisting of 2.90 million tons of bituminous coal and 4.20 million tons of anthracite coal; a total of 7.10 million tons of coal in 1944, composed of 2.60 million tons of bituminous coal and 4.50 million tons of anthracite coal; and a total of 9.35 million tons of coal in 1945, consisting of 3.46 million tons of bituminous coal and 5.89 million tons of anthracite coal.

2. The actual production of coal in 1944 was based on Kim U-geun (1952)'s study.

Let us now compare planned and actual coal production totals. While coal production from 1938 to 1939 (Table 3) essentially met the planned

Table 4. The annual coal output of major coal mines

(unit: 1,000 tons)

Type	Name of coalfield	Estimated coal reserves (10,000 tons)	Name of coal mine	Company name	Year						
					1932	1934	1936	1937	1938	1939	1940
Anthracite coal	North Pyeongan province	49,154	Yongdeung	Daedong Mining Co.		29	57	33	157	166	201
			Yongdam	Joseon Anthracite Coal Mine Co.		44	27	37	70	92	121
			Bongcheon	Bongcheon Anthracite Coal Co.		50	35	29	138	129	175
			Joyang	Joyang Coal Mining Co.						14	58
			Pyeongyang	Imperial Office of Fuel for the Navy	146	147	155	122	144	161	
	South Pyeongan province	30,000	Heuknyeong	Joseon Anthracite Coal Co.						121	391
			Deoksan	Joseon Anthracite Coal Co.					88	114	131
			Gangdong	Joseon Anthracite Coal Co.	132	178	146	201	231	285	285
			Wontan	Joseon Anthracite Coal Co.			42	52	77	85	74
			Samsin	Joseon Anthracite Coal Co.	109	173	122	110	156	149	125
			Jeongbaek	Joseon Anthracite Coal Co.	32	22	21	22	20	18	18
			Gambuk	Joseon Anthracite Coal Co.			26	25	29	30	28
			Daebo	Joseon Anthracite Coal Co.	44	51	59	63	82	120	151
			Gangseo	Joseon Anthracite Coal Mining Co.	106	132	126	126	109	109	71
			Daemunsan	Joseon Anthracite Coal Mining Co.	30	46	61	48	47	36	14
	Muncheon	1,391	Muncheon	Joseon Anthracite Coal Co.	19	34	46	44	38	53	64
	Samcheok	29,810	Samcheok	Samcheok Development Co.						135	626
	Hwasun	958	Hwasun	Jeonnam Mining Co.			16		43	63	92
			Guam	Namseon Coal Mining Co.			15	21	49	81	88

Bituminous coal	Aoji	3,000	Aoji	Joseon Coal Mining Co.	4	36	271	318	321	178	431
	Gogeonwon	5,000	Seungnyang						12	45	53
			Gogeonwon	Bukseon Coal Mining Co.		24	81	68	103	145	227
	Eunseong	700	Pungin	Sinhwa Mining Co.					51	135	159
	Hoenyeong	11,320	Hwapung	Iwamuragumi Co.						15	33
			Gungsim	Gungsim Coal Mine Co.					35	69	100
			Gyerim	Joseon Coal Mine Cooperative			67	138	119	100	99
			Yusan	Iwamura Mining Co.	31	106	167	169	218	171	192
		2,000	Hungye	Fuji Coal Mining Co.	2		40	40	68	58	105
	Nanam	1,759	Nanam	Nanam Coal Mining Co.					8	7	5
	Saenggiryeong	2,240	Saenggiryeong	Saenggiryeong Mining Co.	36	38	47		68	106	202
			Jueul	Joseon Nitrogen Fertilizer Co.					83	113	123
	Daemundong	232	Yonghyeon	Ilseon Mining Co.	8	29	31	30	31	94	183
	Junam		Hoemun	Hoemun Coal Mining Co.						90	44
	Myeongcheon Gilju	9,000	Showa	Showa Coal Mining Co.	28	21	13		7	11	12
			Gocham	Eishoku Mining Co.	4					7	13
			Bukseon						7	11	
	Hamheung	10	Hamheung	Joseon Coal Mine Cooperative	33	41	40	26	22	39	41
	Anju	100	Anju	Meiji Mining Co.	66	57	60	57	65	60	97
	Bongsan	500	Sariwon	Meiji Mining Co.	16	74	715	180	229	250	314

Source: Policy Planning Division, Policy Planning Department, Japan Coal Development Co. (1941).

objectives, the year 1940 saw regional coal production totals that did not meet the plans for that specific time frame. In particular, the expansion of coal production was not stable as the plans had called for. Rather, serious fluctuations were reported. One of the reasons for these fluctuations was the

Table 5. Comparison of the coal-mining facilities and equipment required in Korea and Japan to produce 100,000 tons of coal

		Korea		Japan		Korea/Japan (%)	
		Number	KW	Number	KW	Number	KW
Compressor	Less than 35KW	0.9	1.8	0.3	0.5	300	360
	35-100KW	1.4	9.4	0.8	5.5	175	171
	Over 100KW	0.2	2.3	0.5	5.5	40	42
	Total	2.5	13.5	1.6	11.5	156	117
Drill and cutter		24.6		25.5		96	
Coal conveyor	Less than 35KW	2.4	4.8	4.6	9.3	52	52
	35-100KW	2.0	13.2	1.4	9.0	143	147
	Over 100KW	0.5	6.1	1.2	14.0	42	44
	Total	4.9	24.1	7.2	32.3	68	75
Drainage facility	Less than 35KW	9.3	18.6	3.0	6.1	310	305
	35-100KW	0.3	2.1	1.0	6.2	30	34
	Over 100KW		0.3	0.7	8.9	0	3
	Total	9.6	21.0	4.7	21.2	204	99
Ventilation facility	Less than 10KW	5.2	4.1	4.1	3.3	127	124
	10-35KW	1.2	2.3	0.4	0.7	300	329
	35-100KW	0.1	1.0	0.3	1.8	33	56
	Over 100KW			0.2	2.4	0	0
	Total	6.5	7.4	5.0	8.2	130	90
Mechanized coal preparation plant	Less than 200 tons	0.3	4.4	0.2	2.8	150	157
	200-300 tons	0.1	2.4	0.1	2.9	100	83
	300-1,000 tons			0.1	4.1	0	0
	Over 1,000 tons			0.1	14.8	0	0
	Total	0.4	6.8	0.5	24.6	80	28

Source: Policy Planning Division, Policy Planning Department, Japan Coal Development Co. (1941).

Notes: 1. In the case of Korea, the relevant information was based on data prepared by the Government-General of Joseon at the end of 1939. Meanwhile, in the Japanese case, data prepared by the Ministry of Commerce and Industry at the end of 1938 was employed.
2. Compressors: Attention should be drawn to the fact that there were big differences between the compressors based on their capacities.
3. Drills and cutters: While 275 cutters were installed in Japan, there were none in Korea.
4. Coal conveyors: While there were 1,591 coal conveyors in Japan, the details surrounding their capacity are sketchy.

fact that the overall coal production goal increased significantly from 2.509 million tons in 1939 to 4.20 million tons in 1940. Let us take a good look at individual coal mines.

A look at the output of major coal mines found in Table 4 shows that the bituminous coal mines exhibited comparative stability. However, the output of anthracite coal, especially at the mines possessed by the Joseon Anthracite Coal Co. and the Joseon Anthracite Coal Mining Co. hardly increased. In this regard, while the planned and actual production (performance ratio) of coal by the Joseon Anthracite Coal Co. was 800,000 tons and 734,000 tons (92%) respectively in 1938; it reached 1.0 million tons and 1.11 million tons (111%) in 1939; 1.36 million tons and 1.315 million tons (97%) in 1940; 2.060 million tons and 1.602 million tons (78%) in 1941; and 2.360 million tons and 1.594 million tons (68%) in 1942 (The Committee for the Compilation of the Memoirs of the Joseon Anthracite Coal Company 1988b). As one can see from these figures, the increase in the output of existing coal mines began to slow after 1940.

This slowing of the upwards trend in coal production was the result of the fact that although large amounts of investment goods were needed to develop deep-seated anthracite coalfields, such delivery was not carried out in accordance with the five-year plan. According to the memoirs of the workers who worked for the Joseon Anthracite Coal Co., materials were smoothly supplied up until mid-1940. However, from mid-1940 coal freight trains began to return in an increasingly infrequent manner and the arrival of large pit props was delayed. As a result, there emerged a shortage of mining timber reserves, and in particular timber that was highly in demand such as those that were 6 *cheok* (1 *cheok*=30.3 cm) 5 *chon* (1 *chon*= 3.03 cm) and 6 *cheok* 2 *chon* in size. (The Committee for the Compilation of the Memoirs of the Joseon Anthracite Coal Company 1988a). The shortage of such materials thus proved to be the main factor which impeded the mechanization of coal mines and the expansion of coal production.

Let us compare the level of mining equipment employed in Japan and Korea based on Table 5. Above all, one finds that the gap between Korea and Japan for each piece of equipment or facility is quite limited. In fact, Korea had a greater number of facilities and equipment. In other words, Korea boasted a large number of small-sized facilities. This trend is especially evident in the case of the coal preparation plants. In terms of capacity (KW), Korea's equipment

and facilities only reached 28% of Japan's totals. More to the point, Korea was well behind Japan in terms of compressors with a capacity of over 100 KW (42%), conveyors with a capacity of over 100 KW (44%), drainage facilities with a capacity of 35-100 KW (34%), and drainage facilities with a capacity of in excess of 100 KW (3%). There were no ventilation facilities with a capacity of 35-100 KW, or mechanized coal preparation plants capable of handling over 300 tons. Although basic mechanization was implemented with regards to mining and conveying coal, drainage and ventilation, we can conclude from the fact that the coal mines were in general smaller than Japan that no large-scale coal mines were operated in Korea.

A look at the technological level of coal mines in Table 6 reveals that the majority of mining processes were not mechanized, and that the main method employed was the room and pillar method. In particular, the Joseon Anthracite Coal Mining Co. only employed drills in its Heuknyeong Coal Mine. Meanwhile, Samcheok Development Co. and Daedong Mining Co., both of which were opened later on, employed a long wall mining method which was based on mechanical power. In terms of the coal conveying process, while some coal mines featured a mechanical power system, the majority employed winches in inclined shafts. As far as coal preparation was concerned, various methods such as manual coal preparation, mechanical coal preparation, and metal net coal preparation, were employed. In this regard, although the Joseon Anthracite Coal Mining Co. boasted a relatively long history, it nevertheless employed manual methods in conjunction with processes ranging from coal mining and conveying to coal preparation. On the other hand, the mechanization process was greatly advanced in areas such as Samcheok, Daedong, and Bongcheon. These facts, along with the contents of Table 5, lend themselves to the conclusion, that unlike Japan, the development of coal mines in Korea revolved around small-scale facilities and equipment. An obvious technical gap between coal mines in Korea is also evident.

However, these gaps cannot be explained based solely on the backwardness of the Korean coal industry (Ayukawa 2003). As evidenced by the gap between the coal mines, clear differences existed in terms of the potential coal deposits in individual mines. In the case of Korea, coal cutters could not be used because the majority of the coal was produced in powdered coal form. Furthermore, the coal mines located to the south of Pyeongyang, where the biggest anthracite coal mines in Korea were located, were characterized by the

presence of many pockets within the coal seams, thus making it impossible to employ the long wall mining method.

As a result of these factors, it became important to secure the basic materials and machines called for in the coal production expansion plan in a manner that took into account potential coal deposits, and then to carry out the actual expansion of coal production by appropriately assigning additional labor. However, difficulties also sprung up with regard to the securing of the required labor. The absence of key materials and inability to ensure the smooth provision of the freight trains needed to transport the coal were identified as the main cause of the drop in coal production during a meeting that took place between bituminous coal producers and a representative from the Fuel Department of the Government-General of Joseon in Nanam, Hambuk Province on December 3, 1940 (Joseon Mining Association 1941a). In addition, individual companies suffered from a shortage of miners. While the number of mineworkers employed by the coal mines within Korea rapidly increased from 29,977 workers in 1938 to 44,137 in 1939 and 53,493 in 1940, the coal mining companies nevertheless continued to complain of insufficient labor. For example, the conclusion was reached that the shortage of labor would result in the production at the Aoji Coal Mine being about 20% lower than what had originally been planned.

In addition, during a meeting of anthracite coal producers to discuss the implementation of measures to ensure the proper supply of coal mine workers that was held on December 17 of that same year, the conclusion was reached that many people in the southern areas of Korea preferred to go to Japan because the coal mines there paid higher wages. Moreover, the workers were of the mindset that rather than applying for work in the coal mines in Korea, one should apply for those in Japan as this made it possible to see the world. Thus, one could work at a coal mine for half of the year or one full year and then visit Tokyo and Osaka. (Joseon Mining Association 1941b). In other words, while mines in Japan were attracting skilled miners, especially in terms of their foremen, Korean mines had an increasingly difficult time meeting their labor requirements. Furthermore, the labor recruitment system implemented during wartime made it even more difficult to secure mine workers. Recruiting only took place in five or six provinces, and the recruiting period only lasted for two months. In addition, as labor recruitment was based on the issuance of permits

Table 6. The technological level of anthracite coal mines (as of the end of 1940)

Producer	Name of coal mine	Major mining method	Actual state of coal mining machinery	Coal conveying facility		Inclined shaft			Coal preparation method
				Facing	Sublevel	Winch (HP)	Depth	(Tunnel)	
Jeonnam Coal Mining Co.	Guam Coal Mine	Sublevel caving	None	Hand-pushed coal wagon	Hand-pushed coal wagon	50HP	Vertical 140m		Manual coal preparation
	Hwasun Coal Mine	Room and pillar	none	Ascending pipe	Carriage drive	Total 85HP	42-73m		Manual coal preparation
Nissan Chemical Industries	Eunseong Anthracite Coal Mine	Room and pillar	Hand mining	Gutter	Hand-pushed coal wagon	none	152-184m	Horizontal tunnel	Large-volume manual coal preparation
Samcheok Development Co.	Samcheok Coal Mine	Long wall mining (forward, backward)	Use of Japanese-style mining equipment	Shute	Coal wagon	2000HP	200m	Horizontal tunnel	Mechanized coal preparation
Daedong Mining Co.	Yongdeung Mine	Sublevel caving	23 R3Ps			20HP	150m	Inclined tunnel	Mechanized coal preparation
	Gowon Coal Mine	Long wall mining	100HPair compressor	Steel container	Hand-pushed coal wagon, winch				Manual, large-volume
Bongcheon Anthracite Co.	Bong-cheon Anthracite Coal Mine	Open pit mine= Room and pillar mining	9 drills	Carrier	Hand-pushed coal wagon	un-known	unknown		Both mechanized and manual methods
Joseon Anthracite Coal Mining Co.	Gangseo Coal Mine	Room and pillar	none	Hand-pushed coal wagon	winch	Total 440HP	70-300m	Inclined tunnel	Metal net coal preparation
	Yongdam Coal Mine	Room and pillar	none	Hand-pushed coal wagon	Hand-pushed coal wagon	30HP	150-160m		Metal net coal preparation
	Wontan Coal Mine	Room and pillar	none	Shute	Hand-pushed coal wagon	Total 245HP	73-130m		Manual coal preparation

Joseon Anthracite Coal Mining Co.	Daebo Coal Mine	Room and pillar	none	Shute	Hand-pushed coal wagon	Total 365HP	33-143m		Manual coal preparation
	Wontan Coal Mine	Room and pillar	none	Shute	Hand-pushed coal wagon	Total 245HP	73-130m		Manual coal preparation
	Daebo Coal Mine	Room and pillar	none	Shute	Hand-pushed coal wagon	Total 365HP	33-143m		Manual coal preparation
	Deoksan Coal Mine	Room and pillar	none	Shute	Hand-pushed coal wagon	Total 300HP	Around 100m		Manual coal preparation
	Samsin Coal Mine	Irregular room & pillar stopping and extended long wall mining	none	Small coal wagon, shute	0.7ton- coal wagon, hand-pushed coal wagon, endless winch	Total 365HP	92-230m		Manual coal preparation
	Jeongbaek Coal Mine	Room and pillar	none	Carrier, coal wagon	Hand-pushed coal wagon	Total 100HP	vertical 126m		Manual coal preparation
	Deok-cheon Coal Mine	none	none	-	Hand-pushed coal wagon	-	-		-
	Sinchang Coal Mine	Long wall mining	none	Shute	Hand-pushed coal wagon	Total 500HP	44-48m		Manual coal preparation
Joyang Mining Co.	Joyang Coal Mine	Room and pillar	none	Coal wagon, gutter, rail	Mainly 1-ton wagon	Total 175HP	unknown		

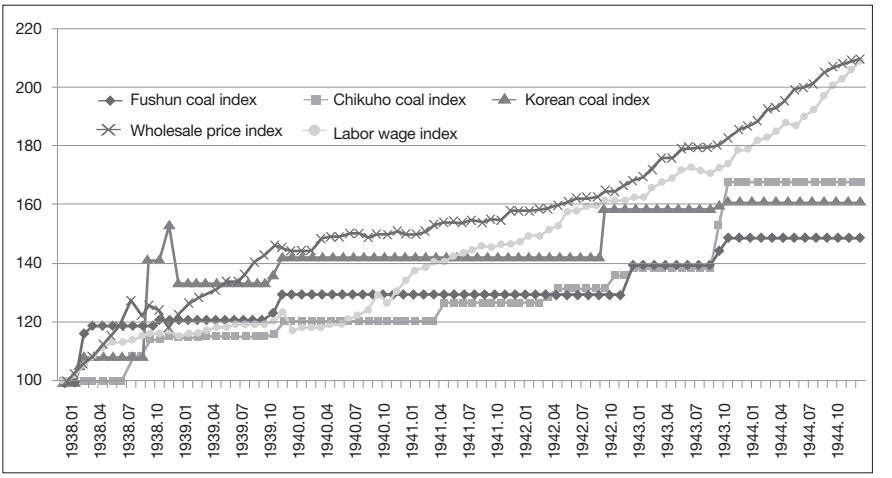
Source: Policy Planning Division, Policy Planning Department, Japan Coal Development Co. (1941).

for laborers rather than a reporting system, the use of the existing connection-based recruitment mechanism, which had shown a low turnover rate, could not be implemented properly (The Government-General of Joseon 1943b). As such, the labor recruitment policy of the Government-General of Joseon created problems as far as coal mining companies' recruitment of mineworkers was concerned.

Coal Mine Subsidization Policy and the Coal Consumption Structure

The Worsening of Coal Mine Management and the Subsidization Policy

Figure 1. The price of basic coal in Korea (price index per ton, January 1938 = 100)



Source: The Bank of Joseon (monthly basis)

Notes: 1. Fushun coal (egg coal) and Chikuho coal (egg coal) were used until the end of 1942. Fushun coal (lump coal), Chikuho coal (special level), and Korean coal (level 3) were used from 1943 onwards.

2. Wholesale prices and wages were based on data from the Gyeongseongbu.

The shortage of materials and labor had an impact on the management of coal mining companies via price related factors. Proving this correlation without a shadow of a doubt requires access to specific materials pertaining

to coal mining and wage indexes. However, as such data is difficult to obtain, let us compare wholesale prices, wages, and coal prices in Seoul. Of course, price controls were imposed on such wholesale prices and wages. As we can see from Figure 1, the price of the three different coal products exhibited serious fluctuations prior to 1939. However, prices were stabilized when price control measures were implemented in April 1939. In accordance with the reply submitted by the Fuel Price Policy Committee, the official price started to be implemented in conjunction with coal, briquettes, and charcoal in October 1938 as part of the price control policy (*Donga Ilbo*, October 16, 1938). In this regard, while Korean coal experienced a rapid increase in price during the second half of 1938, it was subsequently adjusted to bring it back to a more acceptable level.

A look at the process through which coal price controls were implemented reveals that the Government-General of Joseon decided to integrate bituminous and anthracite coal producer associations, as well as those pertaining to coal importers, into one organization. To this end, the Joseon Coal Association was established as the body responsible for matters related to the implementation of the production and distribution of coal, including the introduction of the materials and laborers needed to expand coal production, the surveying of coal demand, and the establishment and implementation of a coal import plan (*Pyeongyang Maeil Sinmun*, March 25, 1939). The Joseon Coal Association was organized in early April following negotiations led by the Hambuk Coal Mining Co. on behalf of bituminous coal companies and the Joseon Anthracite Association, acting on behalf of anthracite coal companies. The Joseon Coal Association was designed to simultaneously carry out the functions of the Japanese Coal Mining Association and Showa Mining Company.[3]

The emergence of electricity shortages in Japan in 1939 as a result of a lack of water had the effect of increasing the demand for coal. In response to this denouement, the Government-General of Joseon, based on the 'Act on

3. The Japanese Coal Mining Association was an association of coal mining companies which was formed prior to the outbreak of war. It represented the common interests of the coal mining companies. The Showa Mining Company was established to cope with the rapid decrease in demands following the emergence of the Great Depression by helping to stabilize the market and maintain coal prices. During the war, it served as an independent body which controlled the private sector (Hokkaido Coal-Mining & Steamship Company 1958).

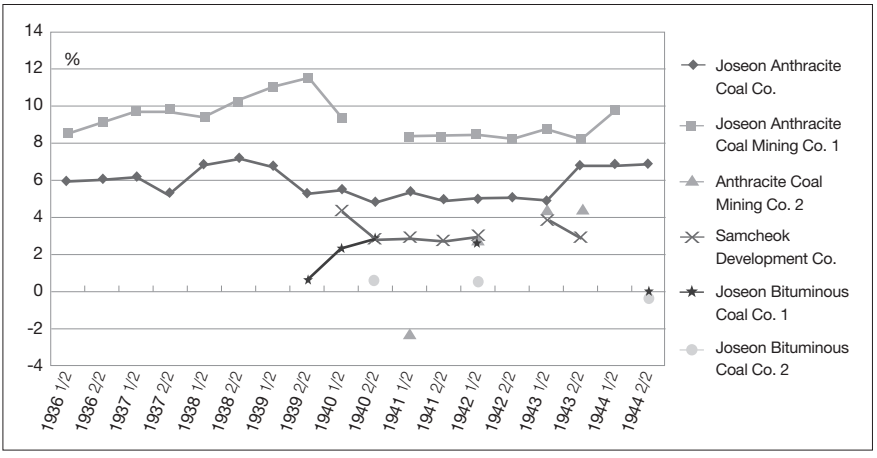
Temporary Measures for Export and Import Commodities, etc.,' adopted in November 1939 the Regulations Governing the Control of Coal Distribution in Korea (The Government-General of Joseon 1939; Bureau of Productive Industries (殖産局), Government-General of Joseon 1939; Sanada 1940). As a result of these regulations, the discretionary sale of coal products became prohibited as part of strengthened controls over the sale and use of coal. Producers and merchants who did not belong to distribution organizations designated by the Government-General of Joseon had to obtain permits from the Government-General of Joseon before they could engage in the sale of coal products. In addition, they also had to obtain written sales instructions. Furthermore, those who on average used more than 100 tons of coal per month had to apply with the Government-General of Joseon for permission. For their part, the control organizations had to submit coal distribution plans on behalf of the distribution organizations to the Government-General of Joseon for approval 60 days before the actual implementation of such plans.

Of course, the body which controlled these distribution organizations was the Joseon Coal Association. Four associations (Joseon Anthracite Coal Association, Joseon Bituminous Coal Association, Inland Coal Transport Association, and Coal Importers Association) were designated as distribution organizations. In accordance with the Ordinance on Key Product Trade Associations, the four associations were merged into one overarching trade association; meanwhile, the Joseon Coal Association was also altered to become the Joseon Coal Trade Association (*Donga Ilbo,* May 26, 1940). In March 1941, the ten provincial coal distribution control associations and the members of the Joseon Coal Trade Association were integrated into one body under the leadership of the Joseon Coal Trade Association (Joseon Mining Company 1939, 1941a). As such, the previous practice of resources distribution based on market mechanisms was abandoned in favor of planned distribution based on the directives of the Government-General of Joseon.[4]

4. Here, autonomous market mechanisms should not be taken to mean a free competition market, but rather an oligopolistic or monopolistic market. Cartels existed in all parts of the Japanese empire, including Japan, Joseon, and Manchuria, after the Showa Depression. It is a well-known fact that cartels were encouraged by national bodies, including the Government-General of Joseon, during the 1920s-1930s (Hokkaido Coal-Mining & Steamship Company 1958; Park 2008). However, the regulative power of these cartels was rooted in the private sector's desire to

On the contrary, the wholesale price of the items over which the Government-General of Joseon exercised weak control exhibited a continuous upwards trend (Figure 1). Especially outstanding was the rapid rise in the price of the machinery and timber essential for coal production. While wage increases were relatively under control during the Sino-Japanese War, they rapidly surpassed increases in wholesale prices during the 1940s. Of course, one can see that coal prices increased at the end of 1939, during the second half of 1942, and the second half of 1943. However, there was no elastic adjustment similar to what occurred in the case of wholesale prices and wages. As such, coal production inputs and outputs found themselves subject to the so-called price scissor phenomenon. As a result, the management of coal mining companies inevitably became more complicated.

Figure 2. The profit rates of coal mining companies



Source: Samcheok Development Co. (quarterly basis); Joseon Anthracite Coal Co. (term basis); Joseon Anthracite Coal Mining Co. (term basis); Joseon Bituminous Coal Co. (term basis)

Notes: 1. Profit rate = profit for the term ÷ paid-in capital. In the case of Joseon Anthracite Coal Mining Co. 2, this was based on (profit for the term – subsidies) ÷ paid-in capital.

2. In the case of the Joseon Anthracite Coal Co., the 27th business term was omitted because it lasted only three months, from January to March in 1940, and the profit rate dropped abnormally.

Let us take a look at the profit rates of leading coal companies in Korea such as the Joseon Anthracite Coal Co., Joseon Anthracite Coal Mining Co.,

guarantee its profits rather than the specific directives (price and distribution) of the state.

and the Samcheok Development Co. found in Figure 2. In the aftermath of the outbreak of the Sino-Japanese War, the demand for coal continued to rapidly increase, and this even during the off season when coal consumption should have dropped. The steady increase in the price of coal resulted in the gradual improvement of coal mining companies' bottom line up until the 1930s. While no clear price scissor phenomenon is visible in Figure 1, the profit rate of all three of these companies dropped by the time the 1940s rolled around. It was during this period that the price scissor phenomenon began to be further entrenched (Figure 1). The seemingly exceptional case of the Joseon Bituminous Coal Co. will be discussed later on. The business report published by the Samcheok Development Co. (second half of 1940) pointed out that in spite of production and sales figures, the company's profits had in fact declined because of an increase in coal prices stemming from rising mining costs such as the rapid spike in wages and the cost of mine posts. The business report published by the Joseon Anthracite Coal Co. (second half of 1940) stated that the company's failure to make resonable profits had resulted in limiting the expansion of production.

The coal industry naturally responded to the deterioration of the business

Table 7. The coal production expansion subsidies offered by the Government-General of Joseon

	Year	1940	1941	1942	1943
Subsidy for production increase	Subsidy provided (yen)	1,548,994	1,187,720	852,811	
	Amount (tons)	1,032,808	643,875	969,120	
	Subsidy per ton (yen)	*1.53*	*2.00*	*0.88*	
	Number of coal mines	28	23	26	
Coal purchase price compensation	Subsidy provided (yen)	2,295,253	5,365,000	6,992,000	5,633,000
	Amount (tons)	1,790,663	4,079,921	5,252,581	2,355,920
	Subsidy per ton (yen)	*1.28*	*1.31*	*1.33*	*2.39*
	Number of coal mines	19	25	40	48
Funds for the new coal mine development	Subsidy provided (yen)	105,260	104,650	170,240	
	Length of the developed coal mine (m)	4,759	3,458	7,038	
	Subsidy per 1m (yen)	*22.12*	*30.26*	*24.19*	
	Number of coal mines	19	16	12	

Source: The Government-General of Joseon (1943a)

Notes: 1. Although there are errors involved, the original data is presented.

2. The subsidies provided for 1943 refer to the amount issued for coal outputs from January to June 1943.

3. The subsidies to encourage coal production and coal purchase price compensation were integrated from 1943.

environment by trying to seek ways to enhance the price of coal that included demands for an increase in the official price. However, the Government-General of Joseon had different ideas about this situation. Its desire to restrain the increase in coal prices was rooted in the fact that such an increase could lead to inflation. This is evidenced by the fact that coal price increases were restrained from 1939 onwards. The Government-General of Joseon also decided to provide subsidies to coal mining companies as an incentive to facilitate the expansion of production. To this end, the Government-General of Joseon enacted the Regulations Regarding the Provision of Subsidies to Encourage the Expansion of Coal Production in November 1940.

First, let us look at the subsidies used to encourage the expansion of coal production (Table 7). Subsidies were provided in cases where companies that produced an annual coal output that exceeded 10,000 tons were able to expand their coal production by an additional 1,000 tons a year. Thus, subsidies were provided when certain coal production expansion goals were met. Second, as far as coal purchase price compensation was concerned, production subsidies began to be provided once the production conditions were judged less than ideal. In this regard, coal purchase price compensation was provided alongside the subsidies designed to encourage the expansion of coal production in 1943. Third, funds were also provided for the development of new coal mines. In addition, in order to improve the overall quality of coal, subsidies for coal-preparation facilities (budget of 487,500 yen in 1943) were from 1943 onwards provided to coal mines that intended to install such coal-preparation facilities.

In order to analyze the effects of these subsidies, let us zero in on the Joseon Anthracite Coal Mining Co. 2 and Joseon Bituminous Coal Co. 2 found in Figure 2. As the subsidies were included in the income statements of both companies, it becomes possible to calculate the profit rate prior to the provision of the subsidies by deducting the latter from the profit for the term. As a result of this exercise, it becomes evident that both companies not only exhibited very low profit rates, but even recorded negative figures in some years. This can be construed as a result of the fact that coal mining companies profit rates during the early 1940s were based in large part on the guaranteed profits that stemmed from the subsidies. The important role played by subsidies in coal companies' bottom lines is evidenced by the fact that although such funds were not included in their income statements, they routinely

submitted applications for subsidies.

Examples of Coal Consumption during the Second Sino-Japanese War (1937 -1945)

As a result of this support at the policy level, coal production levels recovered to reach 97% of the planned production amounts in 1941. Nevertheless, the actual coal consumption in Korea continued to be limited by its dependency on supplies from abroad. A comparison of the planned production levels in Table 1 and actual production outputs in Table 8 reveals that both the demand and supply of coal within Korea was suppressed because of an inability to secure the necessary coal from Manchuria and North China. Coal consumption was only 7.047 million tons or 1 million tons less than the planned production levels in 1941. In this regard, anthracite coal consumption did not even reach 2.0 million tons (Table 9).

The serious shortage of bituminous coal spurred the government to impose consumption controls within Korea on April 24, 1941 (Joseon Mining Company 1941b). The Joseon Coal Trade Association collaborated with the National Federation for the Spiritual Mobilization of Korea in a campaign to promote awareness of the national fuel policy and detailed methods to save fuel that involved mediums such as newspapers, public exhibitions, and pamphlets. Furthermore, officials in charge of the fuel policy implemented on-the-spot training and lectures designed to facilitate the improvement of fuel combustion. Nevertheless, having identified a potential 600,000 ton shortage in terms of bituminous coal during the audit process for the second half of 1941, the Government-General of Joseon found itself having to implement in its distribution plan consumption controls that limited usage within individual fields by an average of 16% while continuing to place the emphasis on core materials (The Government-General of Joseon 1941).

A comparison of actual industrial consumption (Table 9) and planned demand (Table 2) reveals that coal consumption in the steel industry, as well as the oil refining and artificial petroleum industry, did not increase to the extent that had been predicted in terms of planned demand. Coal consumption in the electricity and ceramics industries was also much lower than the planned demand. On the other hand, coal consumption in the chemical and briquette

Table 8. The supply and demand for coal in Korea during 1939-1941

(unit: 1,000 tons)

			1939			1940			1941		
			Bituminous	Anthracite	Total	Bituminous	Anthracite	Total	Bituminous	Anthracite	Total
Demand	Regional demand	Onsite consumption	107	36	143	90	49	139	92	55	147
		government, special purpose	946	32	978	1,348	92	1,440	1,475	47	1,522
		Heating, kitchen, bath etc.	407	10	417	523	16	539	509	78	587
		Production-oriented consumption	2,965	1,252	4,217	2,988	1,423	4,411	3,035	1,756	4,791
		Subtotal	4,425	1,330	5,755	4,949	1,580	6,529	5,111	1,936	7,047
	Exported within the empire (Japan)		10	1,001	1,011	4	1,467	1,471		1,128	1,128
	Export	Manchuria	8		8	8	7	15	43	60	103
		Central China					81	81		141	141
		Subtotal	8		8	8	88	96	43	201	244
	Total		4,443	2,331	6,774	4,961	3,135	8,096	5,154	3,265	8,419
Supply	Coal production		2,262	2,909	5,171	2,843	3,459	6,302	2,868	3,943	6,811
	Imported from within the empire	Japan	1,115		1,115	1,000		1,000	1,100		1,100
		Sakhalin	141		141	385		385	384		384
		Taiwan				20		20			
		Subtotal	1,256		1,256	1,405		1,405	1,484		1,484
	Import	Manchuria	366		366	286		286	372		372
		North China & Mongolia	323		323	482		482	547		547
		Indochina		47	47		29	29		13	13
		Subtotal	689	47	736	768	29	797	919	13	932
	Coal storage increase		-236	625	389	55	353	408	117	691	808
	Total		4,443	2,331	6,774	4,961	3,135	8,096	5,154	3,265	8,419

Source: Statistics Office of the Coal Distribution Corporation's Coal Bureau (1949:251) .

Note: The sum of the data is different from that found in Table 4.

industries proved to be higher than the projected demand. This widespread denouement was the result of the fact that the actual expansion of coal production in Korea did not reflect the numbers called for in the relevant plan, and a smooth supply of coal from the outside could not be ensured.

In the case of anthracite coal, measures were taken to increase local consumption. In June 1941, the decision was made to implement measures designed to raise the anthracite coal consumption rate to 60% of overall coal consumption (Joseon Mining Company 1941c). In July of 1941, measures that revolved around setting the use of anthracite coal in conjunction with the combustion apparatus as the precondition for the granting of permits for the establishment of new factories were adopted (Joseon Mining Company 1941d). As the majority of anthracite coal consisted of powdered coal, the decision was made on September 16, 1941 to greatly increase the production of coal tar pitch and round briquettes so as to facilitate the consumption of anthracite coal (Joseon Mining Company 1941e).

Although coal production increased, the lack of synchronicity in terms of the coal supply-demand structure at the regional level rendered it necessary to deliver the needed coal from the outside. As such, steps had to be taken at the policy level to increase the demand for anthracite coal. This situation became even more pronounced after the transportation of coal via marine routes was decreased as a result of the emergence of the Pacific War between the United States and Japan.

The Second Coal Production Expansion Plan and the 'Exclusive Purchase and Sale' System

The Second Coal Production Expansion Plan and the Establishment of the Joseon Coal Corporation

The Government-General of Joseon established the second Production Expansion Plan, which was to run from 1942 to 1946 (Table 3). While planned coal production in 1941 was projected at 7.0 million tons (6.80 million tons were actually produced), a goal of 7.10 million tons, which marked a 100,000 ton increase over the previous year, was set in 1942. By increasing coal production in existing mines and developing new ones, it was hoped that overall coal production

Table 9. Coal consumption in Korea at the individual industry level during 1939-1941

(unit: 1,000 ton)

	1939				1940				1941			
	Bituminous	Anthracite	Total		Bituminous	Anthracite	Total		Bituminous	Anthracite	Total	
			Sum	%			Sum	%			Sum	%
Steel	715	75	790	13.7	693	93	786	12.0	795	136	931	13.2
Gas · Coke	46		46	0.8	51	1	52	0.8	45	1	46	0.7
Electricity	63	336	399	6.9	78	361	439	6.7	60	397	457	6.5
Shipbuilding, machinery and metal ind.	28		28	0.5	33	1	34	0.5	28	1	29	0.4
Ceramics	349	238	587	10.2	365	205	570	8.7	319	260	579	8.2
Chemical industry	478	141	619	10.8	576	150	726	11.1	520	229	749	10.6
Textile industry	154	76	230	4.0	179	108	287	4.4	158	134	292	4.1
Food industry	111	33	144	2.5	91	35	126	1.9	61	42	103	1.5
Salt industry	38		38	0.7	44	10	54	0.8	27	18	45	0.6
Privately-owned railroads	327		327	5.7	325	2	327	5.0	320	12	332	4.7
Mining	85	36	121	2.1	78	33	111	1.7	73	36	109	1.5
Oil refining and artificial petroleum	448	2	450	7.8	338	2	340	5.2	486	2	488	6.9
Briquettes	53	315	368	6.4	81	422	503	7.7	89	488	577	8.2
Heating, kitchen, bath and others	407	10	417	7.2	523	16	539	8.3	509	78	587	8.3
Vessel sewage	70		70	1.2	56		56	0.9	54		54	0.8
Consumption at the production area	107	36	143	2.5	90	49	139	2.1	92	55	147	2.1
Government offices	878	22	900	15.6	1,252	41	1,293	19.8	1,362	17	1379	19.6
Special use	68	10	78	1.4	96	51	147	2.3	113	30	143	2.0
Total	4,425	1,330	5,755	100	4,949	1,580	6,529	100	5,111	1,936	7,047	100

Source: Statistics Office of the Coal Distribution Corporation's Coal Bureau (1949:252)

Note: The coal consumption of national railroads was included in the government offices section.

could reach 11.44 million tons by 1946. In this regard, the Guadalcanal Campaign initiated in August 1942 had the effect of bringing about a great increase in the amount of anthracite coal that had to be produced during the period in which the second plan was implemented. As the Guadalcanal Campaign involved the requisitioning of all large-scale vessels, concerns emerged about the impact of the anticipated absence of vessels for private sector purposes. It was in response to such concerns that the 'emergency management of the overland transport system during wartime' (October 1942) was established (Lim Chai-sung 2005:105-112). This system was designed to limit the use of marine transportation capacity by having the coal transported within Japan be moved on railways rather than by ship, and replacing the coal which Korea usually shipped in from Japan and Sakhalin with coal from Northern China. The onset of such overland transport methods greatly complicated the task of shipping bituminous (black) coal in from Kyushu, Japan.

However, despite the implementation of this second Production Expansion Plan, actual industrial performance continued to decline. A comparison of the rate of increase in coal production at the individual company level in 1941 and 1942 involving 24 bituminous coal companies and 13 anthracite coal companies reveals that, with the exception of certain companies (5 bituminous coal and 3 anthracite coal companies), an increase rate that was lower than that of 1941or even running as a negative increase rate was recorded in 1942 (Bureau of Productive Industries, the Government-General of Joseon 1943b). Thus, the expansion of coal production had reached its limit. While labor productivity had increased from 97.9 tons in 1937 to 114.1 tons in 1938 and 117.2 tons in 1939, it subsequently decreased from 105.0 tons in 1940 to 101 tons in 1942 and 85 tons in 1943 (The Government-General of Joseon, *Trends in the Korean Coal Industry*, 1944). This situation can be attributed not only to the increasingly unfavorable outlook on the war front, but also to the worsening of production conditions, such as the rapid increase in production costs, labor shortages, large-scale reductions in terms of the allocation of materials, and difficulties associated with the delivery of spot goods and transport. In particular, the onset of the transport of materials produced on the Mainland via Korea put more pressure on the railroad system, which in turn made it increasingly difficult to ensure adequate coal transport capacity levels. As such, the implementation of the 'original second plan' had reached an impasse, and the coal production plan was readjusted downwards

from 10.63 million tons to 9.35 million tons in 1945.

This situation naturally resulted in coal mining companies having an increasingly hard time from a management standpoint. While production costs averaged 17.35 yen per ton during the first half of 1943, average sales revenue was estimated at only 14.56 yen per ton, thus implying an average loss of 2.79 yen per ton (The Government-General of Joseon 1943a). As the government provided coal companies with an average of 2.51 yen per ton as production compensation, the latter were able to avoid an excessive deficit. From the government's standpoint, the ignoring of the financial difficulties faced by these coal mining companies would have not only resulted in the failure to achieve production goals, but also shaken the very foundation of the coal industry.

In addition to low production, problems also emerged within the distribution sector. The Government-General of Joseon had already attempted to improve the methods in which coal was controlled. It had reviewed two proposals regarding the establishment of a control company and the enforcement of association bodies as part of efforts to implement a quasi-state coal management structure. The first involved the establishment of the Joseon Coal Sales Company (provisional title) as the body responsible for the purchase of all the coal produced in Korea (Joseon Mining Company 1942a). However, given the position of the Joseon Coal Association, the proposal to establish the Joseon Coal Sales Company was withdrawn. Meanwhile, the suggestion to rationalize the management of the coal industry based on the reorganization of the Joseon Coal Association was adopted. Accordingly, the Joseon Coal Trade Association, which was a public corporation, integrated the four organizations under its control into a single organization named the Joseon Coal Trade Control Association in 1942. This new body was to be responsible for the unified management of production distribution, imports, transport, technology and materials (Joseon Mining Company 1940:39, 1941a:54).

However, looking at the coal distribution structure at the time, one sees that provincial coal distribution control associations were established under the auspices of the national control association. These were tasked with carrying out the direct sale and resale that had heretofore been conducted by members of the association such as wholesalers and trading companies. As can be seen in Table 10, 142 business entities belonged to the provincial coal distribution control associations in charge of coal distribution. Of course, some of these entities did business on a national scale based on nationwide

marketing networks. Mikuni Corporation and Mitsui & Co. Ltd. operated in six and four provinces respectively. Meanwhile, Umene Co., Joseon Coal, and Nakamura Co. operated in three provinces. Ten of these entities, including the Marrusan Co. and Kii Co., operated in two provinces. There were also 102 local businesses that were active in one province alone. Therefore, there were approximately 127 businesses that engaged in coal distribution within Korea. Although these businesses carried out coal distribution based on the directives emanating from the Joseon Coal Association, the distribution process became difficult to control when these entities swayed from the scope of 'self-control.'

Table 10. Coal distribution control associations' sales by province

(unit: 1,000 ton)

	1941			1942			Members in the association
	Direct sales	Resale	Total	Direct sales	Resale	Total	
Gyeonggi	972	97.3	1,069	1,180	97.3	1,277	25
Jeonbuk	19		19	28	1.4	29	6
Jeonnam	21		21	37	0.1	37	11
Gyeongbuk	22		22	36	0.7	37	10
Gyeongnam	105	6.1	111	118	7.3	125	8
Hwanghae	11	0.7	11	11	4.6	16	11
Pyeongnam	174	7.8	182	205	11.8	217	14
Pyeongnam	52	5.4	58	65	9.5	74	2
Hamnam	124	2.4	126	148	3.5	152	13
Hambuk	384	90.7	475	363	74.0	437	42
Total	1,885	210.2	2,095	2,191	210.2	2,402	142

Source: Bureau of Productive Industries, the Government-General of Joseon (1943b)
Note: Among the 142 businesses/individuals are ones with businesses in two or more provinces.

The establishment of a corporation equivalent to the Japan Coal Corporation was identified as the best means to resolve the problems associated with the production and distribution of coal. The Japan Coal Corporation purchased the coal from coal mines at producer prices ('production costs + reasonable profit') and sold them to the public based on consumer prices. In other words, the Japan Coal Corporation promoted price stabilization for the producers by guaranteeing reasonable prices and provided consumers with coal at stable prices (Hokkaido Coal-Mining and Steamship Company 1958). In August 1942, or after the establishment of the Joseon Coal Trade Control

Association, the Government-General of Joseon's Bureau of Productive Industries made the decision to establish a joint coal sale company to coordinate the gap in terms of Japanese, Korean and Manchurian coal (Joseon Mining Company 1942b). The passage of the Joseon Coal Distribution Control Act in June 1943 effectively dissolved the Joseon Coal Trade Control Association. Thereafter, the Joseon Coal Corporation was established based on 10 million yen of capital stock in August 1943, and started to engage in the purchase and sale of coal from October 1943. The Joseon Coal Corporation intended to harmonize the goals of price control and production expansion by introducing an 'exclusive purchase and sale' system and adopting pool price mechanisms. At the same time, the Joseon Coal Corporation was also in charge of the basic duties related to the strengthening of the adequate distribution of coal and the promotion of the production thereof; doing away with the confusion surrounding coal prices; the purchase and sale of coal; imports and exports within the empire; the securing of funds and investments for the coal industry; trading and the introduction of coal materials; and coal transport related programs (Bureau of Productive Industries, the Government-General of Joseon 1943).

General Affairs, Control, and Production Departments were organized within the Joseon Coal Corporation to handle these tasks, and branch (Gyeonseong, Pyeongyang, Tokyo, and Singyeong) and sales offices (Busan, Cheongjin, Sinuiju, Rajin, Hamheung, Okamatsu, and Beijing) were established where deemed necessary.[5] While one-third of the corporation's capital stock emanated from financial institutions, the other two-thirds came from stakeholders. Although private investment was involved, the Joseon Coal Corporation was a government entity. To this end, the fact that the Oriental Development Company and other similar bodies invested in this entity makes clear the intention of the Government-General of Joseon. The president of the Joseon Coal Corporation was appointed by the Governor-General of Joseon to a five-year term of office. Although the three members of the board of directors (with four-year terms of office) were selected at the general meeting

5. In addition, sales officials were dispatched to Incheon, Yeosu, Jinnampo, Manpojin, Wonsan, and Janggagu (The Government-General of Joseon 1943a; Productive Industry Bureau of the Government-General of Joseon 1943b).

Table 11. The Joseon Coal Corporation's capital delivery and usage plan

(unit: 1,000 yen)

Capital plan					Business funds							
Accounting period	Funds needed	Capital stock		Loan payable (cumulative total)	Construction & facility costs	Capital consumption	Working capital for coal & materials purchase		Floating capital & investment		Total	
		Paid	Unpaid				Additional	Cumulative total	Additional	Cumulative total	Additional	Cumulative total
1	12,729	2,500	7,500	10,229	162	204	5246	5,246	7,117	7,117	12,729	12,729
2	13,094			10,594	120	-13	258	5,504		7,117	365	13,094
3	15,628			11,128		25	509	6,013	Capital plan	Business funds	534	13,628
4	17,475			14,975		104	3,685	9,698	Capital stock	Loan payable (cumulative total)	Construction and facility costs	Capital consumption
5	17,492			14,992		33	-16	9,682		7,175	17	17,492
6	18,324			15,824		9	823	10,505		7,175	832	18,324
7	17,958			15,458		32	-398	10,107		7175	-366	17,958
8	19,044			16,544		-14	1,100	11,207		7,175	1,086	19,044
9	18,847			16,347		17	-272	10,935	58	7,233	-197	18,847
10	19,843			17,343		-4	1,000	11,935		7,233	996	19,843
11	19,639			17,139		21	-225	11,710		7,233	-204	19,639
Total	19,639			17,139	282	414	11,710	11,710	7,233	7,233	19,639	19,639

Source: Bureau of Productive Industries, the Government-General of Joseon (1943b)

Note: The annual accounting periods span from April to September and October to March of the following year. Thus, there were 11 accounting periods from April 1943 – September 1948.

Table 12. Joseon Coal Corporation's business plan

(unit: 1,000 yen)

Accounting period	Income			Expenses (branch offices et al.)	Offset profits	Balance carried over	Gross profits	Reserves for deficit recovery	Reserves for dividend equalization	Stake-holder dividends	Reserve for income tax	Balance carried forward to the following term
	Fees & interest	Government subsidies	Total									
1	1,018		1,018	897	121		121	10	3	75	25	8
2	1,046		1,046	888	158	8	166	13	4	75	33	41
3	1,136		1,136	973	163	41	204	14	4	75	34	77
4	1,251		1,251	1,227	24	77	101	2	1	75	5	18
5	1,249	94	1,343	1,260	83	18	101	7	2	75	17	
6	1,299	125	1,424	1,314	110		110	9	3	75	23	
7	1,279	159	1,438	1,328	110		110	9	3	75	23	
8	1,352	133	1,485	1,375	110		110	9	3	75	23	
9	1,363	140	1,503	1,393	110		110	9	3	75	23	
10	1,417	133	1,550	1,440	110		110	9	3	75	23	
11	1,422	147	1,569	1,459	110		110	9	3	75	23	

Source: Bureau of Productive Industries, the Government-General of Joseon (1943b)

Note: 1. The appropriated retained earnings for deficit recovery had to 8% or higher of the offset profits.

2. The reserves for dividend equalization were to be 2% or more of the offset profits

of stakeholders, they nevertheless needed to obtain permission from the Governor-General of Joseon. The two auditors (with three-year terms of office) were appointed during the general meeting of stakeholders. The corporation was of course managed based on clear directives and constant oversight. However, as far as the securing of funds was concerned, it could, based on the approval of the Governor-General of Joseon, collect corporate bonds whose yield was five times higher than the initial outlay. Furthermore, it enjoyed reductions and exemptions in terms of corporate income, capital interest, and temporary investment taxes, and 6% in guaranteed dividends up until the fifth business year.

The business plan of the Joseon Coal Corporation (Tables 11 and 12) makes it clear that almost all the funds were expected to come in the form of loans that could be used as working capital for the purchase of coal and materials, floating capital, and facility investment. With regard to the balance of payment, the decision was made to use the revenue emanating from fees such as the control fees (15 *jeon* per ton), sales fees applied to coal mining materials (5% of the sale price of coal mining equipment and 2% of the sale price of labor materials), and the interest garnered from investment (dividends of the Japan Coal Corporation, and interest from the loans for coal storage) to cover the administrative expenses. As one can see from the control fees, the coal sale price was set by adding 15 *jeon* to the pool price of every ton of coal that was purchased. As far as the amount of coal that was to be handled, the plan was to start with 5.34 million tons during the first business term (April-September 1943) and then increase by 500,000-600,000 tons during each term to eventually reach 6.665 million tons during the eleventh business term (March –September 1948).

In addition to the pool pricing system, coal purchase price compensation was also provided to the coal mining companies. This had an immediate effect on their financial bottom lines. For instance, while the Samcheok Development Co. did not achieve its goals for both coal production and sales during the second half of 1943, a promise by the Joseon Coal Corporation that it would buy all the coal it produced during the following period if it could double its output caused many to conclude that 'its outlook is good' (Samcheok Development Co. first half of 1943). In order to heighten the coal production rate, the Fuel Department established within the Government-General of Joseon's Bureau of Mining and Industry implemented a 'coal price recommendation system' similar to the one that had been implemented in

Japan (Joseon Mining Company 1944b). The significant decrease in the gap in terms of the profits earned by mining companies in Japan as a result of the imposition of price controls from 1943 onwards resulted in a price guarantee policy being introduced to stimulate production through the provision of incentives. Under the Materials Mobilization Plan, the scale of the guaranteed production incentives was determined based on the amounts produced by individual mining companies. When mining companies achieved the targeted production, the Japanese government provided them with, as a form of special price guarantee, funds equivalent to 5% of labor costs (this rose to 10% of the labor costs when it achieved production that was 10% higher than the targeted amount) (Hokkaido Coal-Mining and Steamship Company 1958:541-542). The adoption of the super-priority system under the wartime economy resulted in the strengthening of the provision of incentives in Korea. To this end, it is necessary to pay attention to the fact that coal production increases began to occur when the Government-General of Joseon began to supplement rather than quash mining companies' efforts to accrue profit.

In the midst of the implementation of coal production and distribution controls, the annual emergency production expansion campaign was carried out from September to October 1943. The Government-General of Joseon convened a meeting of the Central Council for the Ensuring of Coal Production in January 1944. This meeting, which was attended by those involved with the Joseon coal industry, revolved around a review of possible measures to foster the expansion of coal production (Joseon Mining Co. 1944a). Nevertheless, as previously mentioned, coal production in fact decreased in 1943. In this regard, the coal supply-demand plan for 1944 forecast the production and consumption of 2.60 and 6.035 million tons of bituminous coal respectively. As such, a shortage of 3.435 million tons of bituminous coal was expected. On the other hand, 4.50 and 3.367 million tons of anthracite coal were expected to be produced and consumed. Thus, a surplus of 1.133 million tons of anthracite coal was anticipated (The Government-General of Joseon 1944). Although coal in excess of 3.618 million tons was to be imported in order to assuage this shortage, the determination was made that it would nevertheless not be possible to meet the demand for coal.

The Government-General of Joseon responded to this situation by implementing the munitions production responsibility system from 1944 onwards. Here, the intention was to get coal mining companies to meet their production forecasts by designating munitions companies and resolving the

difficulties associated with coal production (Joseon Anthracite Coal Co., first half of 1944). Thereafter, the subsequent application of the Munitions Companies Law in Korea resulted in many enterprises being designated as munitions companies and receiving preferential treatment. Such treatment included being given priority in terms of the distribution of materials and labor and promises that their labor force would not be mobilized for war (Joseon Anthracite Coal Co., second half of 1944). While the Joseon Anthracite Coal Co., Samcheok Development Co., Joseon Bituminous Coal Co., Yuseon Mining Co., Japan Mining Co., Joseon Petroleum, Joseon Nitrogen Fertilizer Co., and Joseon Artificial Petroleum Co. were designated as munitions companies in December 1944, the Meiji Mining Co., Daedong Mining Co., and Bongcheon Anthracite Coal Co. received the same designation in April 1945. A look at the Production Expansion Plan for the Yen Block in 1944 reveals that while coal production in Korea and Manchuria increased, production in Japan, China, and Mongolia experienced a downward phenomenon (Hokkaido Coal-Mining and Steamship Company 1958:376). However, the ongoing shortage of the necessary materials made it difficult to even maintain existing facilities. The desire to recklessly expand coal production over the short term had the inevitable effect of leaving mining facilities in a terrible condition (Day and Zimmermann, Inc. 1949:12).

The Actual State of Coal Consumption during the Pacific War

Bituminous coal began to be increasingly imported as part of efforts to overcome the shortage of coal occasioned by the slowdown in coal production in Korea. The decrease in coal that was shipped in from areas that had been heavily dependent on marine transport capacity such as Japan and the southern part of Sakhalin during 1942-1944 was in part offset by the increase in the import of coal from Manchuria and North China, which went from 519,000 tons to 2.157 million tons during that same period (Table 13). To facilitate consumption of the anthracite coal produced in Korea, a meeting of the Committee for the Enforcement of the Use of Anthracite Coal was held on February 23, 1943, at which time ten measures to strengthen the anthracite coal usage, such as the adoption of anthracite coal as the fuel used for railways,

were adopted.[6] The growing difficulty ensuring the necessary supply and demand for coal in 1944 led to the implementation from April to May in 1944 of the emergency campaign to strengthen fuel management during wartime as part of wider efforts to limit coal consumption (Investigation Division of the Bank of Joseon 1944:14-17; Joseon Railway Association 1975:214-218). In keeping with the goals of this campaign, the fuel facilities for bituminous coal were modified to become facilities for anthracite coal. For their part, power plants, railroads, and factories had to use a mixed fuel made up of anthracite and bituminous coal.

Table 13. The coal supply and demand structure in wartime Korea

(unit: 1,000 ton)

	1942			1943			1944		
	Bitum. coal	Anth. coal	Total	Bitum. coal	Anth. coal	Total	Bitum. coal	Anth. coal	Total
Production	2,731	3,931	6,662	2,430	4,153	6,583	2,587	4,530	7,117
Import within the empire	1,521	0	1,521	1,228	0	1,228			868
Import	512	7	519	1,677	5	1,682			2,157
Export within the empire	0	933	933	0	966	966		248	248
Export	0	281	281	0	175	175		159	159
Coal consumption in Korea	4,764	2,724	7,488	5,335	3,192	8,527			8,891

Source: Lim Chaisung (2005:119); Japan Coal Association (1950); Kim U-geun (1952).

Notes: 1. Although some errors were found, the original materials are presented as is.

2. Coal production in 1944 (bituminous coal, anthracite coal and total) was estimated based on the Monthly Report of the Development Bank.

6. The ten measures were: 1) improvement of the public perception of anthracite coal; 2) change of the fuel used for railways; 3) change of the fuel used in regular and munitions factories; 4) increase in the production of briquettes; 5) change of the fuel used for households; 6) priority given to the distribution of the materials and apparatus needed to alter fuel sources; 7) education of direct users of anthracite coal, such as housewives, servants, and the stokers employed in factories; 8) reorganization of fuel research institutions; 9) strengthening of transportation capacity; and 10) increase of anthracite coal production (Kino 1943a:8-10; Kino 1943b; Joseon Mining Co. 1943b).

Table 14. Coal consumption in Korea at the individual industry level for the period 1942-1944

(unit: 1,000 ton)

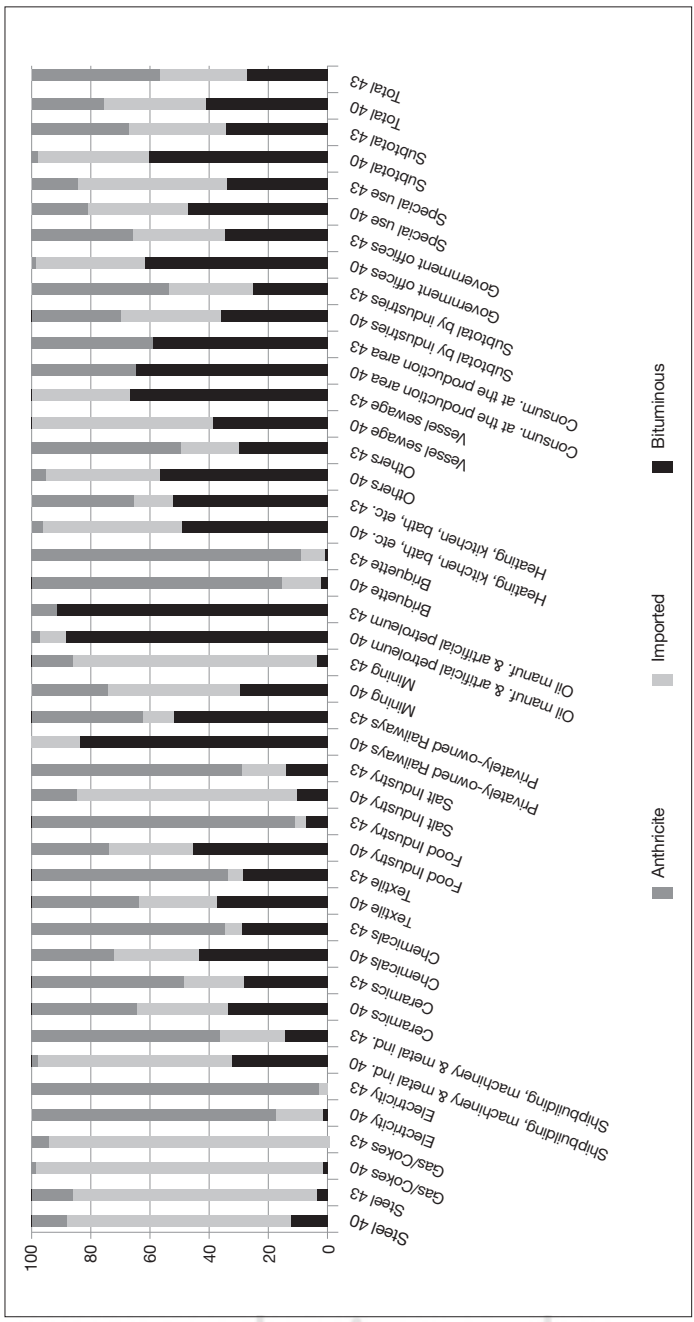
	1942						First half of 1943						1944	
	Bituminous			Anthracite	Total		Bituminous			Anthracite	Total			
	Coal prep.	Import	Sum		1,000 ton	%	Coal prep.	Import	Sum		1,000 ton	%	1,000 ton	%
Steel	118	1,044	1,162	159	1,320	16.4	32	745	777	120	897	19.3	1,784	19.3
Gas · coke	0.2	75	75	2.4	78	1.0	0.0	64	64	3.6	68	1.5	155	1.7
Electricity	10	18	28	359	387	4.8	0.2	7	7.4	213	220	4.7	235	2.5
Shipbuilding · machinery · metal	4.5	22	27	6.6	34	0.4	4.4	7	11	20	31	0.7	64	0.7
Ceramics	160	172	331	272	603	7.5	106	75	181	188	369	8.0	534	5.8
Chemical	245	144	388	268	656	8.1	114	25	139	261	400	8.6	599	6.4
Textile	77	44	121	166	288	3.6	49	10	59	112	171	3.7	371	4.0
Food and beverage	11	9	20	50	70	0.9	3	1	3.8	30	34	0.7	103	1.1
Salt manufacture	6.7	14	21	35	55	0.7	5	6	11	26	36	0.8	29	0.3
Private railroad	244	68	311	44	355	4.4	97	21	118	69	187	4.0		
Mining	25	39	64	49	113	1.4	15	9	23	27	50	1.1	128	1.4
Oil refining · artificial petroleum	599	12	611	41	652	8.1	311	0	311	29	340	7.3	634	6.8
Briquette	1.5	57	59	667	726	9.0	2	48	50	473	523	11.3	710	7.7
heating · cooking · bathing	319	199	518	49	568	7.0	100	26	126	66	192	4.1	427	4.7
Others	3.6	3	6.4	2.1	8.5	0.1	2	2	4.0	4.0	8.0	0.2		
Fuel for vessels	37	5	41	0.0	41	0.5	14	7	21	0.0	21	0.5		
Consumption at the prod. area	89	0	89	65	154	1.9	44	0	44	30	74	1.6	246	2.7
Sum by industry	1,948	1,924	3,872	2,235	6,107	75.6	897	1,054	1,951	1,672	3,623	78.1	6,019	65.0
Government	833	901	1,734	82	1,816	22.5	315	295	609	317	926	20.0	3,238	34.9
Special use	58	65	123	27	150	1.9	30	46	76	14	90	1.9		
Subtotal	892	965	1,857	109	1,966	24.4	345	341	686	331	1,016	21.9	3,238	34.9
Total	2,840	2,889	5,729	2,344	8,073	100.0	1,242	1,395	2,636	2,003	4,639	100.0	9,258	100

Source: Bureau of Productive Industries, the Government-General of Joseon (n.d.); Ju Jae-yeong (1953:17)

Note: 1. As a small amount of anthracite coal was imported, it is omitted to separate it from Korean coal.

2. The government section for 1944 included the coal consumed by the government and in conjunction with munitions, private railroads, vessels, and others. The amount of coal consumed for transportation purposes alone amounted to 2.999 million tons.

Figure 3. Comparison of the anthracite and bituminous coal consumption ratio by industry in 1940 and the first half of 1943



Source: Bureau of Productive Industries, the Government-General of Joseon (n.d.)

As far as coal consumption was concerned, the Government-General of Joseon sought to maintain a balance in terms of the supply and demand for coal by employing a two-pronged approach that included the setting of priorities with regards to distribution and consumption regulations. During 1942-1943, a period in which coal production in Korea decreased, more coal was distributed to the steel and briquette manufacturing industries than any other industry (Table 14). Meanwhile, the amount of coal distributed for such ends as heating, cooking, and bathing decreased. Although the demand for heating naturally decreased from April-September, this trend continued into 1944. Here, it should be pointed out the purported drop in the ratio of coal consumed by industries has much to do with the fact that the coal consumed by modes of transportation such as private railroads and vessels was included in the government consumption category. The amount of coal consumed for transportation purposes, with the national railroads leading the way, reached 32.4%, or one-third of the overall total. This was followed by 19.3% in the case of the steel industry, 7.7% for the briquette manufacturing industry, 6.4% for the chemical industry, 6.9 % for the coal liquefaction industry, and 5.8% for the ceramics industry. As such, the majority of coal was consumed by industrial sectors such as railroads during wartime.

The ratio of overall coal made up by Korean bituminous coal, imported bituminous coal, and Korean anthracite coal (Figure 3) only experienced a slight change, going from 40.6%, 35.4%, and 23.1% respectively in 1940 to 36.8%, 35.8%, and 27.3% in 1941 and 35.2%, 35.8%, and 29.0% in 1942. Meanwhile, there was practically no change in the ratio of imported coal. There was however a clear move away from Korean bituminous coal and towards Korean anthracite coal. This decisive change occurred in conjunction with the move towards overland transportation methods. The rapid increase in anthracite coal consumption from 1943 onwards resulted in the above consumption ratios moving to 26.8%, 30.1% and 43.2% respectively. Although it is not possible to clearly identify the consumption ratio of anthracite coal in 1944, it is estimated that it accounted for over 50% of all the coal that was consumed. As far as the use of imported coal is concerned, although Korean coal replaced imported coal, this amounted only to 5% of the total. That being said, in many of the cases in which Korean bituminous coal had previously been used, the latter was replaced by anthracite coal. Nevertheless, the inherent characteristics of Korean anthracite coal, such as low thermal power, low volatility, and a powdered nature, ensured that the ability to fundamentally replace

imported coal with Korean anthracite coal was limited.

The collapse of the Japanese imperial zone proved to be a great shock that shook the coal production and consumption structure to its core. The immediate post-liberation era was rocked by an energy crisis that was occasioned by the impossibility of obtaining coal from the north of Korea and China following the division of the nation into North and South Korea (Lim 2008).

Conclusion

Two separate Production Expansion Plans were established and implemented with regards to the coal mining industry during wartime. However, the inability to secure materials and human resources on the scale needed to achieve the goals of these plans made it effectively impossible to overcome the coal shortages. As the bituminous (brown coal) and anthracite coals produced in Korea boasted low thermal power and coking properties, Korea found itself having to import the black coal required by industrial sectors such as the steel, gas and coke manufacturing industries from outside of Korea. However, the state of the wartime economy in Japan resulted in the supply of black coal becoming limited, which in turn rendered it necessary to coordinate the supply and demand for coal within Korea proper. It was at this juncture that the Joseon Coal Association (or Joseon Coal Trade Association) emerged as an autonomous body responsible for controlling the supply and demand for coal. Four entities established under the auspices of the association were responsible for overseeing the actual implementation of the distribution of coal based on sales directives emanating from the Government-General of Joseon. However, the shortage of input factors such as materials and labor, and the coal price increases that emerged due to these problems, functioned as elements of instability that negatively impacted coal mining companies' ability to manage their companies.

Despite increases in the price of input factors, coal sale prices were nevertheless curbed through the implementation of a low pricing policy. As a result, coal mining companies' bottom lines worsened, and they found themselves increasingly unable to achieve reasonable profits. Stunned by the denouement, the coal mining companies actively petitioned for higher coal prices. However, as the increase in the price of coal was connected to wider inflation in terms of prices, the Government-General of Joseon adopted a

subsidy policy that was designed to serve as an incentive for coal mining companies to increase their coal production. As such, the Government-General of Joseon sought to facilitate the expansion of coal production by guaranteeing coal mining companies reasonable profits.

However, the loss of marine transportation capacity occasioned by the onset of the Pacific War between the United States and Japan led to the implementation of an emergency overland transport wartime management system, the import of coal from Manchuria and North China, and increased consumption of anthracite coal. Meanwhile, the import of coal from Japan was curbed. However, after reaching its peak in 1941, coal production consequently began to decrease in Korea. This was accompanied by growing evidence of the emergence of obstacles that negatively impacted coal mining companies' ability to manage their businesses. The input of unskilled labor was increasingly emphasized as coal mining companies failed to ensure the materials they required. Furthermore, the implementation of a subsidy policy failed to prevent the advent of a price scissor phenomenon as coal mining companies' bottom lines continued to worsen. Meanwhile, the private sector continued to petition for higher coal prices. In addition, the Government-General of Joseon found itself hard-pressed to inspect the 127 businesses and wholesalers that belonged to the association.

An attempt was made to rectify the situation by establishing a monopolistic corporation under state control called the Joseon Coal Corporation. This new entity effectively replaced the Joseon Coal Trade Control Association that had served as a coal control body responsible for the private sector. A pool pricing system and coal purchase price compensation program were implemented through the Joseon Coal Corporation. Thus, the coal industry's identification as the subject of the super-priority policy resulted in the formation of a state body that was not only involved with the supply and demand for coal, but also facilitated coal production by guaranteeing reasonable profits to the private coal mining companies. A coal price recommendation system, munitions production responsibility system, and the Munitions Companies Law were implemented from 1944 onwards. The coal mining companies which were designated as munitions companies received preferential treatment as well as profit guarantees from the Government-General of Joseon.

Based on this mode of operation, anthracite coal production was increased and the consumption of anthracite coal was emphasized. Meanwhile, the

production of Korean bituminous coal decreased amidst the exhaustion of coalfields and a shortage of facilities. In this regard, Korean bituminous coal boasted a much larger substitution effect in conjunction with Korean anthracite coal than it did with imported coal. In other words, the characteristics of Korean mines in terms of their coal reserves meant that the import of coal from abroad for industries such as steel and gas/coke manufacturing was always going to be a necessity. As part of the subsequent efforts to increase anthracite coal production, the production of such coal began to be implemented in the south of Korea. However, the limited amounts of coal produced in the southern area of Korea ensured that South Korea experienced a much more serious energy crisis than North Korea after liberation. The vested mines were directly operated by the United States Army Military Government in Korea (USAMGIK). This trend continued with the foundation of the Korea Coal Corporation following the establishment of the Republic of Korea. In other words, the state controls over coal production, consumption and distribution that had been established during the Japanese colonial period were further strengthened after liberation.[7] This mechanism became the basis of the coal industry in South Korea until private coal mining companies began to develop in the late 1950s.

As such, coal production, distribution, and consumption policy was essentially crafted as a response to the worsening of the state of the supply and demand for coal. This resulted in the Government-General of Joseon's strengthening of its control over the Korean economy as the trade of coal based on market mechanisms was replaced by a state-directed preliminary distribution system. However, one should focus on the fact that this was designed to aid coal mining companies' pursuit of reasonable profits in a manner that ensured that their bottom lines did not worsen rather than to quash their pursuit of profits.

References

Ayukawa, Nobuo. 2003. Shokuminchi Chōsen ni okeru sekitansangyō: saitankikō to kōfu tōkatsu o chūshin ni 植民地朝鮮における石炭産業:

7. For an in-depth analysis of the reorganization of the coal industry after liberation, see Lim (2008).

採炭機構と鉱夫統轄を中心に [The coal industry in colonial Korea: with a special focus on coal mining equipment and miners supervision]. *Ōsaka Keidai Ronshū* 大阪経大論集 [Journal of Osaka University of Economics] 54 (2), July.

Bank of Joseon. (monthly basis). *Chōsenginkō Chōsageppō* 朝鮮銀行調査月報 [Investigation Report of the Bank of Joseon].

Committee for the Compilation of the Memoirs of the Joseon Anthracite Coal Company, The (朝無社社友会回顧録編集委員会). 1988a. *Chōsen muentan kabushikikaisha kaikoroku* 朝鮮無煙炭株式会社回顧録 [Memoirs of Joseon Anthracite Coal Co.].

____. 1988b. *Chōsen muentan kabushikikaisha kaikoroku saishūhen* 朝鮮無煙炭株式会社回顧録最終編 [Memoirs of Joseon Anthracite Coal Co., last volume].

Day and Zimmermann, Inc. 1949. Preliminary memorandum relating to Day and Zimmermann, Inc., Advance Survey Mission and its program while in Korea. March 15. p.12, RG 469, Entry 80, Box No.36.

Donga Ilbo. 1939.

Government-General of Joseon, The. 1937. *Chōsen sekitanjukyū gokatoshikeikaku* 朝鮮石炭需給五箇年計画 [The 5-year plan for the supply and demand for coal in Korea]. December.

____. 1939. *Kenpō* 官報 [The Gazette]. December 1.

____. 1941. Shōwa 16nen 11gatsu dai 77kai teikoku gikai setsumei shiryō 昭和16年11月　第77回帝国議会説明資料 [Explanatory materials for the 77th Diet]. Vol. 2 of *Chōsen sōtokufu teikokugikai setsumei shiryō*朝鮮総督府　帝国議会説明資 [Explanatory materials presented before the Imperial Diet by the Government-General of Joseon]. Fuji Shuppan.

____. 1943a. Shōwa 18nen 12gatsu dai84 kaimondōshiki gikai setsumei shiryō 昭和18年12月　第84回問答式議会説明資料 [Explanatory materials for the 84th Diet]. Vol. 8 of *Chōsen sōtokufu tekoku gikai setsumei shiryō* 朝鮮総督府　帝国議会説明資料 [Explanatory Materials presented before the Imperial Diet by the Government-General of Joseon]. Fuji Shuppan.

____. 1943b. *Shōwa 18nendo Chōsen ryokudōgijutsu tōkei chōsa kekka hōkoku* 昭和18年度朝鮮労働技術統計調査結果報告 [Report on the statistical investigation of Joseon labor and skills].

____. 1944. Shōwa 19 nen 12 gatsu dai 86 kai teikoku gikai setsumei shiryō

昭和19年12月第86回帝国議会説明資料 [Explanatory materials for the 84th Diet]. Vol. 10 of *Chōsen sōtokufu teikoku gikai setsumei shiryō* 朝鮮総督府　帝国議会説明資料 [Explanatory materials presented before the Imperial Diet by the Government-General of Joseon]. Fuji Shuppan.

____. annual. *Chōsen kōgyō no sūsei* 朝鮮鉱業の趨勢 [Trends in the Korean coal industry].

Hara, Akira and Shiro Yamazaki. 1996. Vol. 1 of *Seisanryokkakujū keikakushiryō daiichi maki* 生産力拡充計画資料 [Production expansion plan documents]. Modern Materials Publishing.

Hokkaido Coal-Mining and Steamship Company. 1958. *Sekitan kokka tōseishi* 石炭国家統制史 [The history of coal control by the State].

Investigation Division of the Bank of Joseon. 1944. Nichimanshi zaikai ihō 日満支財界彙報 [Business community Bulletin]. March.

Joseon Anthracite Coal Co. (朝鮮無煙炭株式会社). biannual. *Eigyō Hōkokusho* 営業報告書 [Business Report]

Joseon Anthracite Coal Mining Co. (朝鮮無煙炭鉱株式会社). biannual. *Eigyō Hōkokusho* 営業報告書 [Business Report].

Joseon Bituminous Coal Co. biannual. (朝鮮有煙炭株式会社). *Eigyō Hōkokusho* 営業報告書 [Business Report].

Japan Coal Association. 1950. *Sekitan tōkei sōran* 石炭統計総覧 [Collection of coal statistics].

Joseon Mining Association. 1941a Chōsen yūentan no shuttanjōkyō nit suite no zadankai 朝鮮有煙炭の出炭状況についての座談会 [Meeting to discuss the state of bituminous coal production in Korea]. *Chōsen Kōgyōkaishi* 朝鮮鉱業会誌 [Journal of the Joseon Mining Association] 24 (2), February.

____. 1941b. Tankō ryokudōsha no jūsoku taisaku ni kan suru muentan kōgyōsha no zadankai 炭鉱労働者の充足対策に関する無煙炭工業者の座談会 [Meeting of anthracite coal businesses to discuss the supply of mine workers]. *Chōsen Kōgyōkaishi* 朝鮮鉱業会誌 [Journal of the Joseon Mining Association] 24 (2), February.

Joseon Mining Co. 1939. Sekitanun o kaiso 石炭連を改組 [Reorganization of the coal association]. *Chōsen Kōgyō* [Joseon Coal Industry] 6 (11), November.

____. 1940. Shuttanzenbu o kaiagejun kokka kanri o okonau 出炭全部を買上げ準国家管理を行う [The quasi-state management of coal production and purchase]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 7 (4), April.

____. 1941a. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 8 (5), May.

____. 1941b. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 8 (6), June.

____. 1941c. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 8 (8), August.

____. 1941d. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 8 (9), September.

____. 1941e. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 8 (11), November.

____. 1942a. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 9 (5), May.

____.1942b. Jūyō kōgyō nisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 9 (12), December.

____. 1943a. Chōsen kōzan no tokushujijō ni moto ki kōbutsu bukka hikiagekei kinyō朝鮮鉱山の特殊事情に基き鉱物物価引上緊要 [The special circumstances surrounding the Joseon coal industry: urgent need to raise coal prices]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 10 (2), February. 63.

____. 1943b. Muentan riyōkyōkaiinkai shushi 無煙炭利用強化委員会趣旨 [The objectives of the committee to promote the of anthracite coal]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 10 (10), November.

____. 1943c. Chōsen sōtokufu muentan riyōkyōkaiinkai kitei 朝鮮総督府無煙炭利用強化委員会規程 [The regulations of the committee to promote anthracite coal use by the Government-General of Joseon]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 10 (10), November.

____. 1944a. Jūyōkōgyōnisshi 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 11 (2), February.

____. 1944b. *Jūyōkōgyōnisshi* 重要鉱業日誌 [Critical coal industry log]. *Chōsen Kōgyō* 朝鮮鉱業 [Joseon Coal Industry] 11 (3), March.

Joseon Railway Association. 1975. *Chōsen kōtsū kaikoroku unyuhen* 朝鮮交通回顧録 運輸編 [Memoirs of Korean Traffic: Transportation].

Ju, Jae-yeong. 1953. Hanguk tanjeoni dangmyeonhan munje [The current issues of Korean coalfields]. Investigation Division of the Korean Coal Corporation's Planning Department. *Journal of the Coal Industry* 1. February.

Kim, U-geun. 1952. Kankoku sekitan kōgyō no jittai to tenbō 韓国石炭鉱業の実態と展望 [The actual state of the Korean coal industry and the future thereof]. *Sangyōginkō Chōsageppō* 産業銀行調査月報 [Monthly report of the Bank of Development] 7 (2), May.

Kim, Eun-jeong. 2007. *Iljeui Hanguk seoktan saneop chimtal yeongu* [The exploitation of the Korean coal industry by imperial Japan], Ph.D dissertation, Graduate School of Ewha Womans University.

Kino, Fujio. 1943a. Chōsen sekitan jijō 朝鮮石炭事情 [The status of the Korean coal industry]. In *Muentan dokuhon* 無煙炭読本 [Anthracite coal manual], Research Center for Joseon Anthracite Coal Use (朝鮮無煙炭利用研究所), ed., Joseon Industry and Economy Co.

____. 1943b. Chōsen no nenryōjijō ni tsuite 朝鮮の燃料事情について [The fuel situation in Korea]. *Chōsen Kōgyō* 朝鮮鉱業 [Korean Coal Industry] 10 (3), March.

Otsuka, Kiyoshi. 1939. Sekitanjukyū ni tsuite 石炭需給に就て [A study on the supply and demand for coal]. *Chōsen Kōgyō* 朝鮮鉱業 [Korean Coal Industry] 6 (5), May.

Lim, Chaisung. 2005. *Senji keizai to tetsudō unei: "Shokuminchi" Chōsen kara bundan kankoku e no rekishiteki keirō o saguru* 戦時経済と鉄道運営:「植民地」朝鮮から分断韓国への歴史的経路を探る [A wartime economy and railroad management: The historical path from 'colonial' Joseon to divided Korea]. University of Tokyo Press.

____. 2008. Haebang hu seoktan saneopui jaepyeongwa gwisok tangwangui unyeong: 1945-1950 [The reorganization of the coal industry and the management of vested mines after liberation: 1945-1950]. *Asea Yeongu* 134. December.

Park, Gi-ju. 2009. Singminjigi Joseonui seoktan sugeup gujowa jeongchaek [The coal supply-demand structure and policy in colonial Korea]. *Daedong Munhwa Yeongu* 67.

____. 2010. Jeonsigi singminji Joseonui seoktan jeungsangwa baegeup tongje [Coal production expansion and distribution controls in wartime Korea]. *Daedong Munhwa Yeongu* 71.

Policy Planning Division, Policy Planning Department, Japan Coal Development Co. (日本石炭株式会社企画部企画課). 1941. *Chōsen sekitankōgyō jijō kenkyū* 朝鮮石炭鉱業事情研究 [The state of the Korean coal mining industry]. November.

Bureau of Productive Industry, the Government-General of Joseon. 1939. Chōsen sekitan haikyū tōseikisoku 朝鮮石炭配給統制規則 [Regulation of Coal Distribution Controls in Korea]. *Chōsen Kōgyōkaishi* 朝鮮鉱業会誌 [Journal of Joseon Mining Association] 22 (12), December.

_____. 1943a. *Chōsen sekitan kabushikikaisha setsuritsu shuisho* 朝鮮石炭株式会社設立趣意書 [The objectives behind the establishment of the Joseon Coal Corporation].

____. 1943b. *Chōsen sekitan kabushikikaisha jigyō keikakusho* 朝鮮石炭株式会社事業計画書 [Business plan for the Joseon Coal Corporation]. March.

____. n.d. *Sangyō betsu yūmutan betsu senzanyu inyū betsu sekitan shōhiryōhyō* 産業別有無炭別鮮産輸移入別石炭消費量表 [Coal consumption by industry, anthracite and bituminous coal type, and import from coal mines].

Pyeongyang Maeil Sinmun, March 25, 1939.

Samcheok Development Co. quarterly. *Eigyō Hōkokusho* 営業報告書 [Business Report].

Sanada, Hideo. 1940. Chōsen tanseki haikyō tōsei kisoku kaisetsu 朝鮮石炭配給統制規則解説 [Explanation of the regulations regarding the control of coal distribution in Korea]. *Chōsen Kōgyōkaishi* 朝鮮鉱業会誌 [Journal of Joseon Mining Association] 23 (3), March.

Shimotani, Masahiro. 1990. *Senjikeizai to nihonkigyō* 戦時経済と日本企業 [Japanese companies under the wartime economy]. Showado.

Statistics Office of the Coal Bureau of the Coal Distribution Corporation. 1949. *Nihon sekitan kabushikikaisha senji sekitan tōkeishū* 日本石炭株式会社戦時石炭統計集 [Wartime coal statistics of the Japan Coal Corporation].

Dr. Lim Chaisung (limcs@snu.ac.kr) is interested in the wartime economies of Northeast Asia and the establishment of the cold war system as a result of the wars. He studied economic history of the region focusing on railroads and the coal industry. His major achievement is *A Wartime Economy and Railroad Management: The Historical Path from Colonial Korea to Divided Korea* (University of Tokyo Press, 2005). He is an assistant professor at Institute for Japanese Studies in, Seoul National University.

Abstract

This study analyzes the coal production expansion policy developed by the Government-General of Joseon (Chosēn) during the wartime period and the impact which this policy had on the management of coal mining companies. On two separate occasions, a coal production expansion plan was put in place to foster the development of large-scale coalfields. However, because of a lack of materials and labor, coal production failed to meet the established targets. Furthermore, as colonial Korea mainly boasted anthracite coal, authorities were forced to import bituminous (black) coal from abroad. In order to ease this imbalance between the supply and demand for coal, strict controls were implemented by the Joseon Coal Association. However, the Government-General of Joseon introduced widespread subsidy measures to help coal mining companies that found themselves faced with worsening operational conditions amidst a growing discrepancy between the price of inputs and outputs (scissor phenomenon). Nevertheless, faced with an inevitable decrease in production, the Government-General of Joseon, having reached the conclusion that it had become impossible to increase coal production based on the promotion of existing wholesalers, established the Joseon Coal Corporation as an implement through which to install a pool pricing system, and as a mechanism to supplement increases in the cost of purchasing coal. Thereafter, the Munitions Companies Law was applied to the major coal mining companies. As such, although coal trading, which had heretofore been based on market mechanisms, became based on a state-controlled planned distribution system, this course of action was implemented as a means to supplement the pursuit of profits within the coal mining field.

Keywords: wartime economy, Coal Production Expansion Plan, overland transportation, Joseon Coal Corporation, scissor phenomenon, subsidy measures

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