

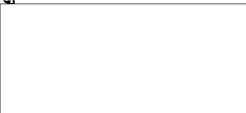
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SOURCE Uzol, No 12, 1940.

THE PROBLEM OF GEOGRAPHICAL DISTRIBUTION OF USSR COAL CONSUMPTION

Data on the Main Administration of Coal Sales, People's Commissariat of Coal Industry, on the distribution of coal consumption refers to the total deliveries, excluding deliveries to the People's Commissariat of Transportation (NKPS), the People's Commissariats of Maritime Fleet and River Fleet, and various undistributed consumers, or to 60.2 percent of total 1938 deliveries and to 59.0 percent of total 1939 deliveries. The greatest part (32.34 percent of the total 1939 coal consumption) among the consumers not distributed according to regions is taken by railroad transport (NKPS), data on which is collected and processed not according to regions but according to railroad systems.

The following table shows the general characteristics of the coal consumption in railroad transport and the connections between railroad transport and the various fuel bases in 1939:

	Percent of NKPS Consumption Supplied by Basin	Percent of Basin's Deliveries Taken by NKPS
Donbass	57.60	30.90
Moscow Basin	.57	3.08
Kuzbass	17.90	39.05
Kizel	3.48	36.08
Chelyabinsk and Bogoslovskiy mines	2.05	15.00
Central Asia	.40	17.53

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	Percent of NKPS Consumption Sup- plied by Basin	Percent of Basin's Deliveries Taken by NKPS
Karaganda	6.50	55.85
Cheremkhovo	6.90	69.62
Chernovskiy mines	2.21	82.90
Artemovsk coal	1.55	39.43
Suchan	0.31	20.57
Tavrisharka	.37	72.29
Spitsbergen	.07	9.68
Others	.09	--
Total (avg)	100.00	32.34

However, this purely quantitative characterization still does not give the complete picture, since the large share of NKPS in the consumption, for instance, of Chernovskiy and Cheremkhovo coals, is of a local character and is efficient. The considerably smaller share of the railroads in the consumption of Donets coals is nonetheless connected with their exceedingly wide penetration into very remote regions.

The following table gives some representation of the role of Donets coals in railroad transport:

	Systems Using Only Donets Fuel	Systems Using Over 95% Donets Fuel	Both Groups Together	Other Sys- tems Using Donets Fuel (avg 30.3%)	Systems Not Using Donets Fuel
No of RR systems	17	6	23	5	15
Their share of total coal consumption by NKPS (in %)	38.55	16.55	55.1	9.1	35.8

Among the 23 railroad systems operating exclusively or almost exclusively on Donets coal are the October and Yaroslavl' systems (100 percent), the Kirov System (96 percent), and the Northern System (85 percent), lying to the north of Moscow; the Belorussian and Western systems (100 percent), lying to the west of Moscow; the Lenin System (98.5 percent) and the Gor'kiy System (66.4 percent), lying to the east of Moscow; all of the Moscow railroad center and the 11 railroads converging on it; many systems to the east of the Donets Basin in the Volga direction (Stalingrad System -- 100 percent, Southeastern System -- 97.5 percent, and Ryazan'-Urals System -- 98.5 percent). Thus, it is clear that railroad transport causes a huge proportion of the long hauls of Donets fuel, and that for the whole European part of railroad transport Donets coal is almost the sole or in any case the dominant type of fuel.

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The role of Kuznetsk coal in the fuel supplying of railroad transport is shown by the following table:

	<u>RR Systems Using Only Kuzbass Coal</u>	<u>RR Systems Using More Than 90% Kuzbass Coal</u>	<u>Other RR Sys- tems Using Kuzbass Coal (Avg of 45.2%)</u>
No of RR systems	1	2	7
Their share of total coal consumption by NKPS (in %)	3.96	4.91	19.58

Quantitatively speaking, relatively little of the railroad systems' consumption is Kuzbass coal; however, its distribution (for this group of consumers) is exceedingly great and exceeds that of Donets coal. Most of the coal goes to the west and southwest.

All of the huge territory lying between the Kuznetsk Basin, the Urals, the Volga, and the Central Asia republics uses as railroad fuel Kuznetsk coal with a known quantity of Urals, Karaganda, and Donets coals, as shown by the following table:

Consumption by Specific Railroad Systems of Coal from Principal Coal Basins

<u>Systems</u>	<u>Kuzbass</u>	<u>Urals</u>	<u>Karaganda</u>	<u>Donbass</u>	<u>Total (%)</u>
Lenin	75.2	10.3	5.1	9.4	100
Kuybyshev	45.5	--	48.6	5.9	100
Omsk	51.5	--	48.5	--	100
Kaganovich	30.4	69.6	--	--	100
South Ural	13.5	39.3	47.2	--	100
Orenburg	50.8	--	49.2	--	100
Tashkent	79.5	--	--	--	79.5
Gor'kiy	--	33.6	--	66.4	100

The radius of distribution of Cherekhovo coals (in the west, where they meet with the Kuznetsk coals and in the east, where they meet with the Transbaykal coals) and Chernovskiy coals (in the west, where they meet with the Cherekhovo coals and in the east, where they meet with the Far East coals) going for the needs of railroad transport is also very great, again for geographical reasons in spite of their relatively small share in the total consumption by NKPS.

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Thus, for the basic types of USSR coals, for various reasons, railroad transport is a large consumer, determining to a considerable degree the radius of coal hauls and influencing the length of coal hauls, this is primarily and particularly of Donets coal. From this it follows that reduction of the length of coal hauls, and primarily of the length of hauls of Donets coals, requires the rationalization of the fuel consumption of NKPS.

The situation with the consumption of coals in the river and maritime fleets is almost analagous. (It must be remembered that the consumption of coal alone is being considered, without taking into account the consumption by these categories of consumers of other types of fuel, such as liquid fuel, wood, etc.)

The question of the distribution of consumption of coking coals, in a somewhat special position because (1) there is a relatively small number of large consumers in a fixed location, and (2) the distribution of consumers of coking coals is determined not only by the distribution of fuel bases but also by many other factors of state and economic significance.

The general scale of consumption of coals for coking and the participation of various basins are characterized by the following data:

<u>Year</u>		Total for People's Commissariat of Coal In- dustry				
		<u>Donbass</u>	<u>Kuzbass</u>	<u>Kizel</u>	<u>Karaganda</u>	
1938	Percent of basin's coal coked	22.8	28.3	29.1	17.6	15.8
	Basin's share in coking (%)	100.0	77.25	18.2	2.35	2.2
1939	Percent of basin's coal coked	22.5	28.8	28.56	15.13	12.96
	Basin's share in coking (%)	100.0	77.0	18.74	2.1	2.16

The radius of distribution of coals for coking is relatively limited, as shown in the table below (1939). (It is to be noted that some part of the already prepared coke -- that from the Kemerovo Plant in the Kuznetsk Basin and from various Ukraine plants -- in its turn is transported around the country and in some cases is carried for a considerable distance; this however, does not change the general picture to any great degree.)

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<u>Coking Regions</u>	<u>Total for People's Commissariat of Coal In- dustry (%)</u>	<u>Percent of Producing Regions' Coking Coal Coked by Coking Regions</u>			
		<u>Donbass</u>	<u>Kuzbass</u>	<u>Kizel Basin</u>	<u>Karaganda</u>
Leningrad	0.97	1.26	--	--	--
Rostov Oblast	0.25	0.34	--	--	--
Crimean ASSR	1.86	2.40	--	--	--
Ukrainian SSR	73.82	96.00	--	--	--
Novosibirsk Oblast	12.35	--	65.40	--	--
Ural region	10.75	--	34.60	100.00	100.00
Total	100.00	100.00	100.00	100.00	100.00

These figures show that, with the exception of the Kuznetsk coals, one third of which are coked in the Urals, and the Karaganda coals, which are coked completely in the Urals, all the other coals are coked more or less near the place where they are mined.

The gap between the centers of coking-coal production, the coking centers, and the pig-iron-producing centers which exists at present is shown by the following data (1939 figures for coal, 1937 figures for pig iron):

Percentages of Areas

	<u>Total</u>	<u>Volga and Center Region</u>	<u>Urals</u>	<u>West Siberia</u>	<u>Crimea and North Caucasus</u>	<u>Ukrainian SSR</u>	<u>Other Areas</u>
Coking-coal mining	100.00	--	2.10	18.74	--	77.0*	2.16**
Coking of coal	100.00	--	10.75	12.35	2.11	73.82	--
Pig-iron smelting	100.00	8.0	18.20	10.20	2.9	60.70	--

* Entire Donbass

** Karaganda

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The following table shows the share of the various basins in the fuel supplying of the country, excluding transport and coking:

	<u>Percent</u>
Donbass	54.43
Moscow Basin	16.20
Kuzbass	9.19
Kansk Basin	.24
Kizel coal	3.45
Chelyabinsk coal	6.79
Bogoslovskiy coal	1.80
Yegorshino, Poltavo-Bredy	.34
Karaganda	2.75
Lenger, Central Asia	1.98
Cheremkhovo	1.02
Chernovskiy, Tarbagatay	.40
Artemovsk coals	.86
Suchan	.32
Sakhalin	.23
	<hr/> 100.00

The above table includes the consumption of all coals of each basin, independently of the radius of consumption. The geographical distribution of this part of coal production, i.e., excluding transport and coking, is shown (in percent) in the following table (all coal in the natural form, without being translated into equivalent fuel):

<u>Region</u>	<u>Coal Basins</u>			
	<u>Total</u>	<u>Donbass</u>	<u>Kuzbass</u>	<u>Karaganda</u>
Total	100.00	100.00	100.00	100.00
Murmansk	.23	.42	--	--
Leningrad and Leningrad Oblast	5.52	10.20	--	--
Moscow and Moscow Oblast	13.20	14.20	--	--

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<u>Region</u>	<u>Coal Basins</u>			
	<u>Total</u>	<u>Donbass</u>	<u>Kuzbass</u>	<u>Karaganda</u>
Tula and Ryazan' oblasts	10.66	.56	--	--
Ivanovo, Yaroslavl', Gor'kiy and Tartar ASSR	2.65	3.74	4.70	--
Kursk, Orel, Voronezh, Tambov oblasts	3.07	5.55	--	--
Saratov, Kuybyshev, Stalingrad oblasts	2.39	4.30	.54	--
Rostov and Krasnodar oblasts	2.92	5.36	--	--
Ukrainian SSR and Crimea	29.36	54.20	--	--
Smolensk Oblast and Belorussian SSR	.51	.58	--	--
Chelyabinsk, Sverdlovsk, Perm' oblasts and Bashkir ASSR	16.50	--	31.20	45.70
Novosibirsk and Altay oblasts	4.36	--	47.50	--
Kazakh SSR	2.02	--	6.05	37.60
Turkmen, Uzbek and Kirgiz SSR	1.74	--	.25	--
Far East (Primors'kiy and Khabarovsk) krays	1.51	--	--	--

The distribution of coal carried over long distances is divided among the following areas: (1) Leningrad and Leningrad Oblast; (2) Moscow and Moscow Oblast; (3) a group of the central oblasts of the RSFSR; and (4) the Urals. To release these regions from dependence on fuel brought in over long distances is a large task; the solution of this task would benefit the whole economy.

A review of the conditions of supplying coal to these regions leads to the following considerations:

Leningrad Oblast should receive its own fuel and power base. Alongside the full development of local hydroelectric power and peat production, the basic support should be made in the forced development of the Gdovsk shale deposit, which has considerable reserves of oil shale.

The entrance into the USSR of the Estonian SSR, where oil shale production was about 2 million tons in 1939, creates new favorable conditions for the strengthening of local fuel supplying for Leningrad and Leningrad Oblast.

The coal supplying of Moscow and Moscow Oblast, where there is a large fuel base, the Moscow Basin, is shown in the following tables (in percent):

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Distribution of Consumption of Donbass and Moscow Coal in the Moscow Area

	<u>Excluding Tula Oblast</u>			<u>Including Tula Oblast</u>		
	<u>Moscow City</u>	<u>Moscow Oblast</u>	<u>Total</u>	<u>Moscow City</u>	<u>Moscow Oblast</u>	<u>Tula Oblast</u>
Donbass coal	77.5	22.5	100.0	75.6	21.9	2.5
Moscow coal	4.2	95.8	100.0	1.5	33.6	64.9

Distribution of Coal Supply to Moscow Area

	<u>Moscow City</u>	<u>Moscow Oblast</u>	<u>Total without Tula Oblast</u>	<u>Tula Oblast</u>	<u>Total with Tula Oblast</u>
Total	100.0	100.0	100.0	100.0	100.0
Donbass coal	96.5	24.8	58.6	2.0	33.7
Moscow coal	3.5	75.2	41.4	98.0	66.3

As a result of the realization of the decisions taken at the 18th Party Congress to increase coal production in the Moscow Basin during the Third Five-Year Plan by 270 percent, or almost 100 percent above the average for the USSR, the geographical distribution of the consumption of Moscow coals should change as shown in the following table:

<u>Area</u>	<u>1938 %</u>	<u>1942 (planned) %</u>	<u>1942 in Comparison with 1938</u>
Moscow City	1.70	14.90	2,910.00%
Moscow Oblast	35.00	25.56	193.00%
Tula Oblast	58.10	46.52	182.00%
Ryazan' Oblast	2.30	1.87	272.00%
Ivanovo Oblast	1.10	3.03	705.00%
Vcronezh Oblast	.20	.29	1,240.00%
Orel Oblast	.20	4.33	121 times
Tambov Oblast	.10	1.71	345 times
Smolensk Oblast	1.30	1.78	346%

Supplying the Urals with coals for coking has been shown above. The supplying of the Urals with the remaining coals is shown in the following table (1939 data for Chelyabinsk, Perm', Sverdlovsk, and Chkalov oblasts, and the Bashkir ASSR, in percent of the total expressed in weight):

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Sources of Supply

	<u>Total</u>	<u>Kuzbass</u>	<u>Kizel</u>	<u>Chel- yaba</u>	<u>Bogo- slovka</u>	<u>Yegorshino and Pol- tavo-Bredy</u>	<u>Kara- ganda</u>	<u>Total</u>
Excluding coking	100.0	17.6	20.1	39.8	10.5	2.0	10.0	42.6
Coking	100.0	60.3	19.5	--	--	--	20.2	57.4
Total	100.0	29.6	19.9	28.5	7.6	1.5	12.9	100.0

The task of improving the fuel supplying of the Urals requires the replacement of the Kuznetsk and Karaganda coals in electric power production by local Ural coals. In the consumption of coals for coking, there must be an increase in the role of Kizel and Karaganda coals, especially the latter.

Decisions of the 18th Party Congress call for a 210-percent increase in Ural coal production during the Third Five-Year Plan (as against a general increase of 90 percent for the USSR).

The following table shows the distribution of the consumption of Kuznetsk and Karaganda coals in the Urals in comparison with Ural coals (in percent):

<u>Consumer</u>	<u>Kuzbass</u>	<u>Kara- ganda</u>	<u>Kizel</u>	<u>Chelyaba</u>	<u>Bogoslovka</u>
People's Commissariat of					
Electrical Industry	--	29.5	35.4	62.6	19.7
Ferrous Metallurgy (excluding coking)	61.2	36.1	12.4	13.7	46.1
Nonferrous Metallurgy	13.0	17.1	--	3.4	3.3
Chemical Industry	4.2	--	45.6	--	.6
Construction Materials Industry	5.6	2.6	.6	1.7	2.3
Machine Building Commissariats	4.4	3.2	--	11.9	22.3
Others	11.6	11.5	6.0	6.7	5.7
Total	100.0	100.0	100.0	100.0	100.0

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Consumption by the more important consumers -- People's Commissariat of Ferrous Metallurgy, People's Commissariat of Nonferrous Metallurgy, and machine building people's commissariats -- of Kuznetsk and Karaganda coals in comparison with Ural coals is as follows:

<u>Coals</u>	<u>C O N S U M E R S</u>		
	<u>People's Commissariat of Ferrous Metallurgy (without coking)</u>	<u>People's Commissariat of Nonferrous Metallurgy</u>	<u>Machine Building Commissariats</u>
Kuznetsk and Karaganda coals	53.0	70.0	13.5
Ural coals	47.0	30.0	86.5
Total	100.0	100.0	100.0

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