

1969/

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INTELLIGENCE MEMORANDUM

DEVELOPMENTS IN SOVIET INLAND TRANSPORT
1958

CIA/RR IM 59-9

24 June 1959

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CENTRAL INTELLIGENCE AGENCY

Office of Research and Reports

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DEVELOPMENTS IN SOVIET INLAND TRANSPORT*

1958

Summary

In 1958, inland transport in the USSR continued to meet the needs of the growing economy, and freight traffic increased by about 8 percent compared with 1957. The average annual rate of growth in ton-kilometer performance during 1950-58 was 10.4 percent, although the figure has been smaller in recent years.

Of the 1,489 billion ton-kilometers (tkm) performed by all types of inland transport in the USSR in 1958, railroads accounted for more than 87 percent; motor vehicles, for less than 5 percent; inland waterway shipping, for 6 percent; and petroleum pipelines, for 2 percent. The growth of rail and motor traffic during 1956-58 was somewhat greater than had been anticipated originally under the superseded Sixth Five-Year Plan (1956-60), but the increase in traffic handled by inland waterway shipping and petroleum pipelines was less than had been planned. The original goals of the Sixth Five-Year Plan for inland waterway shipping and petroleum pipelines have been revised downward under the Seven Year Plan (1959-65). Nevertheless, whereas the railroads are expected to handle only 80 percent of the total inland transport load in 1965, the share of petroleum pipelines is scheduled to increase to 8 percent. Motor vehicles and inland waterway shipping each will handle about 6 percent of the total load, which is expected to reach about 2,256 billion to 2,306 billion tkm in 1965. In the US the volume of intercity freight transport in 1957 amounted to about 1,800 billion tkm. On the basis of the average annual increase of 3.5 percent achieved during 1950-57, the volume of such traffic in the US should reach about 2,370 billion tkm by 1965.**

The USSR continues to emphasize the modernization and improvement of the existing rail network, whereas extensions of the network are being held to a minimum, generally taking place in areas of new industrial development. Improvements and extensions of the rail network, however, are barely keeping pace with increasing requirements on some lines.

* The estimates and conclusions contained in this memorandum represent the best judgment of this Office as of 15 May 1959.

** For information concerning the comparability of US and Soviet traffic data, see the third footnote, p. 3, below.

The electrification of railroads in the USSR is proceeding rapidly, and the original goal of the superseded Sixth Five Year Plan for converting 8,100 kilometers (km) during 1956-60 should be fulfilled ahead of schedule. Dieselization, however, is lagging. The share of railroad freight traffic handled by electric and diesel traction is scheduled to increase from 26 percent of the total in 1958 to between 85 and 87 percent in 1965.

In 1958 the USSR expanded its highway network, acquired more efficient and versatile trucks, and continued the consolidation of motor transport organizations. The Seven Year Plan includes an ambitious program of road construction upon which the further expansion of motor transport in the USSR largely depends.

Soviet inland waterway shipping acquired some new equipment in 1958, but the emphasis remains on the introduction of new methods of handling freight traffic.

During 1957-58 the USSR placed in service several relatively long petroleum pipelines, and current construction of pipelines remains concentrated on arteries connecting the Volga-Ural region (Economic Regions VI and VIII)* with new refining centers in the Central Region (VII), the Ukraine (III), Belorussia (IIb), and East Siberia (XI). The construction of petroleum pipelines must be stepped up, however, if pipelines are to handle the share of traffic planned for them by 1965.

I. Introduction.

Because Soviet planners adopted 1958 as the base year for measuring the achievements of the new Seven Year Plan (1959-65), the accomplishments of that year are of particular interest. Moreover, now that 3 years of the superseded Sixth Five Year Plan (1956-60) have passed, it is possible to examine the progress toward the achievement of many of the original goals for 1960 under the Sixth Five Year Plan.

In 1958 the volume of freight traffic handled by the inland transport system** of the USSR amounted to about 1,489 billion tkm, an increase of 8 percent compared with 1957. Railroads accounted for more than 87 percent of the total, continuing to dwarf the other means of

* The term region in this memorandum refers to the economic regions defined and numbered on map 27052 (7-58), USSR: Political-Administrative Divisions and Economic Regions, March 1958.

** Including railroads, motor vehicles, inland waterway shipping, and petroleum pipelines but excluding air freight.

transportation, but this figure is scheduled to decline to 80 percent by 1965. The volume of traffic handled by petroleum pipelines is scheduled to increase from 2 percent in 1958 to 8 percent in 1965. The ton-kilometer performance of inland transport in the USSR, by carrier, 1950, 1957, 1958, and 1965 Plan, is shown in Table 1,* and the volume of freight originated by such transport during the same years is shown in Table 2.**

The magnitude of Soviet figures on inland transport traffic can be judged by a comparison with data for the US, where the volume of intercity freight traffic by these modes of transportation*** amounted to about 1,800 billion tkm in 1957. On the basis of the average annual rate of increase of 3.5 percent experienced during 1950-57, it may be estimated that the volume of such traffic in the US will amount to 2,370 billion tkm by 1965.

II. Railroads.

In 1958, Soviet railroads accounted for about 1,302 billion tkm and originated about 1,616 million metric tons.† Compared with 1957, these figures represented an increase of 7 percent in ton-kilometers and 9 percent in tons originated.

In 1959 the volume of freight originated by Soviet railroads is scheduled to increase by 5.9 percent to approximately 1,711 million tons. In 1960, therefore, the volume of such freight should approximate the goal of 1,832 million tons established under the superseded Sixth Five Year Plan (1956-60). Ton-kilometer performance, which is††

* Table 1 follows on p. 4.

** Table 2 follows on p. 5.

*** For strict comparability with this figure on US intercity traffic, the Soviet total for 1958 should be reduced to 1,422 billion tkm because about 67 billion tkm of the total of 67.6 billion tkm of motor vehicle traffic are estimated to be strictly local traffic and therefore not within the category of intercity traffic. Similarly, the more comparable Soviet figure for 1965 would be from 2,134 billion to 2,194 billion tkm, inasmuch as from 112 billion to 122 billion tkm of the total of 130 billion tkm of motor vehicle traffic are estimated to be strictly local traffic and therefore not within the category of intercity traffic. Although these comparisons are valid for the modes of transportation mentioned, it should be noted that the totals do not present the entire domestic transport output for the countries compared, because they do not include traffic performed by coastwise and intercoastal shipping, US shipping on the Great Lakes, and Soviet shipping on the Caspian Sea. The volume of US traffic in these categories is many times that of the USSR.

† Tonnages are given in metric tons throughout this memorandum.

†† Text continued on p. 6.

Table 1

Ton-Kilometer Performance by Inland Transport in the USSR, by Carrier
1950, 1957-58, and 1965 Plan

Carrier	Billion Ton-Kilometers				Percent of Total			
	1950 ^{a/}	1957 ^{b/}	1958	1965 Plan	1950	1957	1958	1965 Plan
Railroads	602.3	1,212.8	1,302.0 ^{c/}	1,800 to 1,850 ^{c/}	89.5	88.1	87.5	79.8 to 80.2
Motor vehicles	20.1	61.7	67.6 ^{c/}	130 ^{c/}	3.0	4.5	4.5	5.8 to 5.6
Inland waterway shipping	45.9	76.4	85.5 ^{c/}	140 ^{c/}	6.8	5.5	5.7	6.2 to 6.1
Petroleum pipelines	4.9	26.6	33.8 ^{d/}	186 ^{e/}	0.7	1.9	2.3	8.2 to 8.1
Total	<u>673.2</u>	<u>1,377.5</u>	<u>1,488.9</u>	<u>2,256 to 2,306</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

- a.
- b.
- c.
- d. This figure is 127 percent of that in 1957.
- e. This figure is 5.5 times that in 1958.

Table 2

Tons Originated by Inland Transport in the USSR, by Carrier
1950, 1957-58, and 1965 Plan

Carrier	Million Metric Tons				Percent of Total		
	1950 a/	1957 b/	1958	1965 Plan	1950	1957	1958
Railroads	834.3	1,487.7	1,616.0 c/	2,372 d/	29.8	21.4	21.3
Motor vehicles	1,859.2	5,216.4	5,700.0 e/	10,000 to 11,000 f/	66.4	75.1	75.2
Inland waterway shipping	91.5	159.2	178.3 g/	N.A.	3.3	2.3	2.3
Petroleum pipelines	15.3	80.9	94.7 h/	N.A.	0.5	1.2	1.2
Total	2,800.3	6,944.2	7,589.0	N.A.	100.0	100.0	100.0

a.

b.

c. A figure of 1,605 million metric tons was reported in a Soviet railroad journal, but this figure apparently included wide-gauge railroads only and was assumed to represent 99.33 percent of the total, as it had in 1957.

d. This figure was computed from the ton-kilometer goal and the planned maximum average haul of 780 kilometers.

e. This figure was computed from reported ton-kilometers performed and estimated average length of haul in 1958.

f.

g. This figure is 112 percent of that in 1957.

h. This figure is 117 percent of that in 1957.

scheduled to amount to about 1,364 billion tkm in 1959, certainly will exceed the original goal for 1960 of 1,374 billion tkm. The goal for 1965 under the Seven Year Plan (1959-65) is 1,800 billion to 1,850 billion tkm.

The principal reason for the overfulfillment of the original goal for ton-kilometer performance in 1960 will be the failure to reduce the average length of haul to the extent planned. In 1958 the average length of haul, which had been growing instead of diminishing as planned, decreased for the first time since 1949 from the record high of 815 km in 1957 to about 806 km. This decrease resulted mainly from a reduction of 195 km in the average haul of grain. Reductions also were reported to have taken place in the average hauls of coal, ore, and mineral construction materials.

In 1959 the average length of haul by Soviet railroads is scheduled to be reduced another 9 km to about 797 km. Nevertheless, it is obvious that there can no longer be any hope of reducing the length of the average haul to 750 km in 1960, as envisaged under the superseded Sixth Five Year Plan. The goal for 1965 under the new Seven Year Plan is 780 km.

The electrification of Soviet railroads has been continuing at a rapid pace and is ahead of schedule. In 1958, 1,759 km of line were converted to electric traction, a figure exceeding by 4.5 percent the 1,684 km planned for 1958 and by 29 percent the 1,360 km actually electrified in 1957. Goals for electrification also were exceeded in 1956 and 1957, so that it appears that the original goal of the superseded Sixth Five Year Plan will be achieved ahead of time. About 2,000 km are scheduled to be electrified in 1959, leaving less than 2,000 km for the last year of the original plan.* The pace of electrification of the Trans-Siberian Railroad is being accelerated, and the target date for the complete conversion of the entire stretch from Moscow to Irkutsk has been advanced 6 months to 1 July 1960. All the sections converted to date on this route operate on direct current, as will most of those introduced in 1959; but one stretch of 275 km, from Chernorechenskaya to Klyukvennaya, will be electrified for alternating current, and in 1960 additional adjoining stretches totaling 947 km are to have alternating current. Under the Seven Year Plan, about 20,000 km are to be converted to electric traction, of which 11,000 to 11,500 km will operate on alternating current.

The USSR is importing from France special locomotives for the alternating current lines. Only a few alternating current locomotives have been produced by the Soviet locomotive industry so far,

* The goal for the 5-year period was 8,100 km.

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but a sharp increase in production is anticipated soon. The schedule for production of alternating current locomotives in the only plant now making them (in Novocherkassk) is 5 in 1958, 60 in 1959, and 185 in 1960.

The Soviet plan for converting 2,828 km of railroad route to diesel traction in 1958 was not fulfilled, probably because of the failure to achieve plans for production of diesel locomotives. Production in 1958 amounted to 712 mainline diesel locomotives (expressed in single-section, 2,000-horsepower units), or about 95 percent of the goal of 750. Previous failures to achieve plans for dieselization -- only 1,500 km of the planned 1,965 km were converted to diesel traction in 1957 -- make it most unlikely that the original goal of the superseded Sixth Five Year Plan will be achieved. If the USSR succeeds in converting another 3,000 km in 1959, 10,000 to 11,000 km will remain to be converted in 1960 to achieve the goal of 18,000 to 19,000 km originally planned for the 5-year period 1956-60.

The share of Soviet rail traffic* performed by electric and diesel traction on Soviet railroads increased from 20.7 percent in 1957 to 26 percent in 1958, the share performed by electric traction alone increasing from 12 percent to 15 percent. The relatively high proportion of traffic performed by electric and diesel traction results from the fact that generally the lines with the heaviest traffic are being converted first. This generalization applies especially to electric traction.

In 1959 the share of Soviet rail traffic performed by electric and diesel traction is scheduled to increase to 31.4 percent. Thus the USSR still may achieve the original goal of increasing that share to between 40 and 45 percent in 1960, but only if plans for electrification are overfulfilled to compensate for the lag in dieselization. In 1965 these means of traction are scheduled to account for between 85 and 87 percent of the total.

In 1958 the route length of the Soviet rail network in permanent operation was reported to have been increased by 1,669 km, including 1,296 km of broad-gauge lines and 373 km of narrow gauge. The plan was 1,470 km, of which 1,236 km were to be broad gauge and 234 narrow gauge. Among the new lines accepted for permanent operation was the 700-km line from Tayshet to Lena, for years under temporary operation and recently realigned in connection with the construction of the Bratsk hydroelectric powerplant. The 203-km line from Kokchetav to Kizyl-Tu in Kazakhstan (Xa) also was reported to be added to the permanent route in 1958, although there is

* In terms of net freight ton-kilometers.

evidence that formal acceptance did not take place until the first few days of January 1959. This line is part of the Central Siberian Railroad, which is being constructed through the new agricultural lands in Kazakhstan and which is scheduled for completion by the end of 1965. Narrow-gauge lines commissioned for permanent operation in the "new lands" include the following: Atbasar-Takhtabrod, Kustanay-Uritskoye, Kokchetav-Volodarskoye, and Shil'da-Adamovskiy Rayon.

The line from Chum to Labytnangi in the Arctic finally was accepted for permanent operation on 20 January 1959 after many years of "temporary" operation. This line connects the port of Salekhard on the Ob' River with the main line of the Pechora Railroad.

The important 376-km line from Stalinsk to Abakan was not among the new lines added to the permanent rail network in 1958. The press reported that it was still in temporary operation in late January 1959, although the laying of the track had been completed in December 1957. This line connects the Abakan iron ore deposits with the Kuznetsk Metallurgical Combine at Stalinsk and also forms part of the new South Siberian Railroad being completed during the Seven Year Plan.

The total length of new rail lines to be put in operation during the Soviet Seven Year Plan is 9,000 km, excluding 2,700 km of new rail lines for the logging industry.

Because the Soviet rail network has not expanded so fast as the traffic, density has continued to increase, amounting to about 10.6 million tkm per kilometer in 1958 compared with 10.0 million tkm in 1957 and almost reaching the original Sixth Five Year Plan goal of 10.8 million tkm in 1960. In general, electrification, dieselization, and other improvements have made it possible for Soviet railroads to handle the increasing density. Neither the density nor the improvements are distributed evenly over the network, however, and some sections are under serious strain. The rail network in the Asiatic USSR represents only 27 percent of the total length of the route, but it handles 42 percent of the freight traffic. Density on some sections of the Omsk Railroad trunk line amounted to 90 million net tkm per kilometer in 1958. Density will continue to increase because new construction alone is inadequate to absorb the anticipated increases in traffic. The acceleration of the electrification of the East Siberian section of the Trans-Siberian Railroad apparently stems from necessity. In July 1958 the head of the Irkutsk Oblast Communist Party declared that if the trunk lines of the Krasnoyarsk and East Siberian Systems are not electrified by the middle of 1960 they will not be able to cope with the traffic.

III. Motor Vehicles.

Motor vehicle traffic in the USSR in 1958 is estimated to have exceeded that in 1957 by about 10 percent in terms of ton-kilometer performance and by 9 percent in terms of tons loaded. The share of motor vehicles in the total ton-kilometer performance of Soviet inland transport, however, remained less than 5 percent.* Trucking in the USSR still is confined primarily to very short hauls, the average being only 12 km. Nevertheless, motor transport accounted for more than 75 percent of the total number of tons loaded by all types of inland transport in 1958,** reflecting the extensive use of motor transport as a feeder for other types of transport.

The network of highways in the USSR was expanded further in 1958, and considerable new equipment was acquired, including more efficient and versatile trucks. The consolidation of motor transport organizations, which had begun in 1956, was continued and resulted in the improved use of available equipment.

The original goal of about 85 billion tkm of motor vehicle traffic in 1960 appears attainable in the light of the 67.6 billion tkm performed in 1958. The volume of such traffic in 1965 is scheduled to be about 130 billion tkm.

An ambitious program of highway construction is to be carried out in the USSR under the Seven Year Plan. This program will permit further expansion in the use of motor transport, improve its efficiency, and lower its costs.

IV. Inland Waterway Shipping.

In 1958, inland waterway shipping in the USSR accounted for 85.5 billion tkm, or 5.7 percent of total inland transport traffic.* The ton-kilometer performance and the number of tons hauled by inland waterway shipping each increased by 12 percent compared with 1957. Ton-kilometer performance exceeded the goal by 4 percent and the number of tons hauled, by 7 percent. The length of the average haul remained constant at 480 km.

In 1958 the use of the pushing method of employing tugboats was increased to about 40 percent of the total traffic carried in non-self-propelled vessels. The plan for introducing new equipment in 1958 was reported not fulfilled.

* See Table 1, p. 4, above.

** See Table 2, p. 5, above.

One technical development of some potential significance was the introduction in 1958 of a new system of "river trains" for carrying timber on river vessels on the Volga River. These "river trains" consist of a series of linked shallow-draft barges, of which the first has a prow bow and the last is self-propelled, pushing the others.

This innovation is one of the methods being tried as a substitute for the rafting of timber* in areas where such transportation is no longer efficient because of the construction of new hydroelectric power dams. Rafting, which accounted for almost 37 percent of the total freight tonnage transported on the inland waterways of the USSR in 1957, long has been a prime source of river shipping revenues, and the need to find an economic substitute is of great importance. The absence of current and the presence of waves on the new reservoirs created by the hydroelectric power dams has necessitated a reduction in the size and speed of timber rafts on these waterways, and the cost of rafting has spiraled for these and other reasons.

Apparently inland waterway shipping in the USSR is fulfilling the original goals of the superseded Sixth Five Year Plan for the number of tons transported but not for ton-kilometer performance. In 1959, ton-kilometer performance is scheduled to increase 7 percent compared with 1958, or to about 91.5 million tkm. This figure, however, still is more than 29 million tkm short of the original goal of the superseded Sixth Five Year Plan of about 121 million tkm in 1960, and it is obvious that this goal has been abandoned, inasmuch as the goal established for 1965 by the new Seven Year Plan is only about 140 million tkm.

V. Petroleum Pipelines.

In 1958 the volume of traffic handled by petroleum pipelines in the USSR increased by 27 percent compared with 1957, but this means of transportation, amounting to 33.8 billion tkm, still accounted for only 2 percent of the total inland traffic.**

The volume of petroleum handled by Soviet pipelines in 1958 increased to 94.7 million tons, a gain of 17 percent compared with 1957, and the average distance traversed by each ton of petroleum increased from 329 km in 1957 to about 357 km in 1958. This increase resulted from the entry into operation of portions of relatively long pipelines. Two of these pipelines -- Al'met'yevsk-Perm' (466 km) and Al'met'yevsk-Kazan'-Gor'kiy (577 km) -- went into operation late in 1957. The extension of the first Ufa-Omsk product line was completed to Novosibirsk early in 1958.

* In rafting the timber is floated directly in the water in the form of log rafts propelled by tugboats.

** See Table 1, p. 4, above.

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Current construction of pipelines in the USSR continues to be concentrated on arteries connecting the Ural and Volga Regions with new refining centers being built in the Central Region, the Ukraine, Belorussia, and East Siberia. The Al'met'yevsk-Gor'kiy line is being extended to Yaroslavl' and Ryazan' and eventually will reach Moscow. The Kuybyshev-Bryansk line is operational to Penza, and construction is continuing toward Bryansk. The Ufa-Omsk-Novosibirsk product line is being extended to Irkutsk. The construction of a 28-inch crude line is under way at several sites between Tuymazy and Tatarsk. Nevertheless, the schedule of construction established under the superseded Sixth Five Year Plan is not being met. Whereas the plan called for the installation of 15,600 km of new petroleum pipelines during the 5-year period, by the end of the first 3 years only 4,000 km had been constructed.

This lag in construction has been reflected in the volume of traffic handled by petroleum pipelines in the USSR. The goals for traffic were not fulfilled in 1957 or, the evidence indicates, in 1958. With regard to 1960, original plans for transporting about 128 million tons can be fulfilled, but the goal for ton-kilometers will not be achieved. There is a gap of 49 billion tkm between performance of 34 billion tkm in 1958 and the original goal of 83 billion tkm in 1960 which will not be bridged in 2 years. The abandonment of the original goals for 1960 both for ton-kilometers and for pipeline construction is confirmed by the goals for 1965 in the new Seven Year Plan, which are consistent only with a slower rate of growth during 1959-60. By 1965 the volume of traffic is to be 5.5 times that handled in 1958, or about 186 billion tkm, and the pipeline network is to be extended from 14,400 km in 1958 to about 43,000 km in 1965.

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APPENDIX

SOURCE REFERENCES

Evaluations, following the classification entry and designated "Eval.," have the following significance:

<u>Source of Information</u>	<u>Information</u>
Doc. - Documentary	1 - Confirmed by other sources
A - Completely reliable	2 - Probably true
B - Usually reliable	3 - Possibly true
C - Fairly reliable	4 - Doubtful
D - Not usually reliable	5 - Probably false
E - Not reliable	6 - Cannot be judged
F - Cannot be judged	

Evaluations not otherwise designated are those appearing on the cited document; those designated "RR" are by the author of this memorandum. No "RR" evaluation is given when the author agrees with the evaluation on the cited document.

Except for CIA finished intelligence, all sources used in this memorandum are evaluated RR 2 unless otherwise indicated.

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