

STAT

Page Denied

STAT

DEVELOPMENT AND UTILIZATION OF VARIOUS TYPES OF TRANSPORT IN USSR

Planovoye Khozyaystvo, No 4
Moscow, Aug 1954

Freight turnover for all types of transportation in the USSR during the period 1925 through 1953 increased 13 1/2 times, including an increase of 15 times in railroad freight turnover alone. At present, freight turnover on the transportation network of the USSR surpasses one trillion ton-kilometers per year.

As a result of the rapid development of productive forces in the period following World War II, freight turnover on the railroads has increased to approximately twice the freight turnover of 1940. This growth in freight turnover, despite the extension of the railroad network, has been accompanied by a further growth in the average freight density of the railroads and by a concentration of freight flows on the most important routes. While the average freight density of the railroads is 7 million tons, there are rail routes on which the freight density amounts to 30-50 million tons per kilometer per year.

At present, 75 percent of the total railroad freight turnover is concentrated on approximately one third of the railroad network. The necessity of providing for the growing freight flows on rail lines with an insufficient capacity usually requires the adoption of helper locomotives and also circuitous routing, which increases expenses and complicates the operation of the railroad systems.

The Ministry of Maritime and River Fleet USSR [since August 1954, the Ministry of Maritime Fleet and Ministry of River Fleet], the Ministry of Motor Transport and Highways USSR, the Ministry of Railways USSR and also Gosplan USSR, while planning and formulating measures for the development of rail centers, river and sea ports, and motor roads, and increased capacity of certain transport routes, are failing to give the needed attention to the rational coordination of various types of transport. As a result, while certain rail routes are overloaded, parallel waterways are not completely utilized for freight hauling. The capacity of rail approaches does not always coincide with the capacity of ports, and in many instances leads to unnecessary expenses in the organization of hauling. The distribution and development of a number of ports is often planned without calculating the rational utilization of rail line capacity. Also, cross runs of empty carriers occur on parallel transport routes. Many railroad stations lack approach motor roads, thus cutting off agricultural regions from through-route transportation.

The significance of the Moscow Canal is generally known. Its construction made it possible to supply the capital with water, improved the shallow-water characteristics of the Moscow River, and created a short deep-water route between Moscow and the Volga River. The water route between Moscow and Gor'kiy was shortened by 110 kilometers, and between Moscow and Leningrad by 1,100 kilometers. With the construction of the Moscow Canal, the White Sea-Baltic Canal, and the Volga-Don Canal, Moscow became a port of five seas.

However, the Moscow Canal has been poorly utilized for the delivery of transit freight from the Volga River to Moscow and handles only a small amount of the freight turnover of the capital. The chief reason for this is the absence of railroad connection between the West Port and the adjacent Moscow Inner Belt [Rail] Line, and consequently with the enterprises of Moscow.

STAT

Also, one of the chief reasons for the incomplete utilization of the White Sea-Baltic Canal is the limited capacity of the waterways adjacent to the canal.

The construction of the Volga-Don Canal provided an answer to a number of national economic problems but the canal was not utilized to its capacity in 1953, and this situation continues in 1954. This is explained by a lack of coordinated action on the part of the Ministry of Maritime and River Fleet, the Ministry of Railways, the Ministry of Timber Industry, the Ministry of Agricultural Procurement, the Ministry of Coal Industry, the Ministry of Construction Materials Industry, and others. A large amount of freight -- timber, coal, metal, machinery, paper, construction materials, and others -- which should be shipped by water, is hauled over the rail lines parallel to the canal. However, the Ministry of Maritime and River Fleet is doing little to increase hauling along the Volga-Don Canal and the Tsamal'yanskaya Reservoir.

For the elimination of shortcomings hindering the development and coordination of the various types of transport, it is first of all necessary to overcome the existing narrow-minded departmental attitudes toward the development of the various branches of transport and transport centers.

The organization of more effective coordination among the various types of transportation requires solving a number of important technical construction and operational problems.

As regards coordinating rail and water transport, primary considerations must be given to expanding and equipping the network of transshipment points -- of river and seaports -- and to developing the adjoining railroad sidings for the maximum increase in coordinated rail-water shipments. This will also necessitate a great amount of coastwise shipping, in particular between the ports of the North, Baltic, Azov-Black Sea and Far East sea basins, plus the utilization of the Northern Sea Route. The problem of constructing railroad ferries in the Azov, Caspian, and North-West sea basins must be studied as soon as possible. This will expedite the delivery of freight traveling in coordinated rail-sea shipment, increase the capacity of the seaports, and also diminish long-distance rail shipments.

The coordination of rail and motor transport requires a network of transshipment bases, motor vehicle approaches to railroad freight stations, and increased production of truck trailers, including those with a carrying capacity of 4-6 tons. Combined rail-water-motor transport must be conducted with the use of a single shipping document and without the participation of the shippers in the transfer of the freight from one type of transport to another. The existing practice of centralized motor transport of brick, coal, metal, and other freight in cities must be replaced by the hauling of freight to and from railroad stations. In places where there are constant freight flows, shuttle service of special trucks with trailers must be set up between freight stations and enterprises. This will make possible the elimination of excess runs of empty trucks belonging to various business enterprises, increased utilization of carrying capacity and productivity of trucks, and also discontinuance of the hauling of freight handlers on trucks.

For the coordination of rail and pipeline transportation of petroleum, it is necessary to expand the network of petroleum pipelines as much as possible and gradually increase their share of the transportation of petroleum and petroleum products. The expansion of the pipeline network is completely justified. Among other things it makes possible a large saving in the construction of railroad tank cars.

STAT

The coordination of sea and river transport demands the construction of a heavy-tonnage fleet, plus an increase in the construction of ships and lighters having a dead weight of 1,000-2,000 tons each for a maximum increase in through-cargo shipping over important rivers connected to sea basins. The ships must be able to pass through the river mouths without transloading the cargo from sea to river vessels and vice versa.

The coordination of river and sea transport within the framework of one Ministry of Maritime and River Fleet and the organization of main administrations combining the sea and river basins connected to them has made it organizationally possible to improve the coordination of these types of transport for the fulfillment of freight and passenger hauling. The passage of petroleum barges of the Heydtanker Steamship Line through Astrakhan' to Stalingrad, thus eliminating the transfer of petroleum products from sea to river barges at Astrakhan', has been suggested as a possible method for the joint utilization of river and sea tonnage. There is also a need for organizing the passage of maritime vessels of a certain dead-weight tonnage through Nikolayevsk along the Amur River to Khabarovsk, thus relieving the railroads from Khabarovsk, to Vladivostok and shortening the over-all travel distance of the maritime vessels. Great importance lies in the passage of river barges from the Volga-Don Canal to ports on the Azov Sea, from the Dnepr River at Kherson to Odessa, and from the Amur River to points in North Sakhalin, etc. All of these measures would help coordinate the operation of river and sea tonnage, and improve the effectiveness of water transport in the development of coordinated transport service.

Regarding the coordination of river transport and petroleum pipelines, the question has arisen concerning the development and installation of automatic pumping stations on oil pipelines, thus increasing their capacity during the internavigation period. Automatically controlled pumping stations would make possible a rational coordination of the operations of the pipelines and river transport: maximum utilization of the cheaper river routes during the navigation period for the transportation of petroleum products to regions of consumption, while eliminating unnecessary operating expenses of the pipelines during this period, by a temporary shut-off of the automatic pumping stations.

Shortcomings in the distribution of freight flows between various types of transport are often caused by underestimating the importance of the transportation factor in the construction of industrial enterprises. In the selection of places for new industrial enterprises, especially the distribution of timber-cutting areas among the consumers of timber, and in determination of production specialization in the metallurgical, petroleum, and other branches of industry, the transportation factor is not given sufficient consideration. Poor distribution of enterprises prevents the full utilization of water transport for the hauling of mass freight, such as timber, petroleum, coal, and grain.

Several tile and lumber mills located at the sources of rivers in the European part of the USSR receive raw material from timber floats and a considerable part of the finished product (tiles and lumber) is routed by rail parallel to navigable water routes to the southern regions of the European part of the country. This constitutes an incomplete utilization of river transport. The relocation of tile and saw mills at the lower reaches of the Volga River, closer to the regions of demand, would provide more effective coordination between rail and river shipping.

STAT

In the location of new enterprises there is often a failure to take into account the empty runs of rolling stock, which could be used for the delivery of raw materials and the distribution of finished products to consumers. The elimination of empty runs of the rolling stock in various types of transportation is the greatest means of increasing the economy of the transportation network.

With the sharp increase now going on in all the branches of the national economy the central transportation problem is the rational distribution of freight flows. The rational distribution of freight flows demands, first of all, an increase in the volume of water, motor vehicle, and pipeline transportation in the over-all freight turnover of the USSR and the maximum increase of utilization of several different means of transportation for coordinated freight hauling.

At present, railroad transport handles almost 65 percent of the total freight turnover of the USSR, but in many cases, it is done by excessively long, cross, and other types of irrational hauling. L. M. Kaganovich pointed out in his speech at the session of the Supreme Soviet of the USSR, that excessively long hauling and cross hauling amounts to nearly 50 million tons (of freight) per year, and costs approximately 2 billion rubles. Excessively long and cross hauls of coal surmount 13 million tons [per year] and cost more than 350 million rubles, and irrational hauling of petroleum products amounts to 4.6 million tons, ferrous metal to nearly 2 million tons, timber freight to 4.5 million tons, wheat to 1.0 million tons, etc. This irrational hauling is caused not only by disproportional distribution of various producing enterprises, and shortcomings in the planning of hauling, but also by serious shortcomings in coordinated transport service, including rail, water, motor vehicle, and petroleum pipeline transport.

Along with this, the volume of maritime and river transport in freight hauling is still very low and comprised, in 1953, for river hauling only 6.3 percent, and for maritime hauling 5.1 percent, [for the over-all freight turnover for the USSR]. At the same time, the expenses of the ministries for the hauling of freight in 1953 amounted to nearly 75 billion rubles, including 41.3 billion rubles for railroad transport, while the amount of water and motor transport in the freight turnover amounted, at the most, to only around 15 percent, but represented 45 percent of the transport tariffs paid by the ministry-shippers. This exemplifies the excessive costs for freight hauling by water and truck transport. Consequently, the aim to give the maximum possible relief to the overburdened railroad routes by the utilization of other types of transport, primarily water and truck transport, depends on making these types of freight hauling more economical.

Freight turnover in water transport continues to lag behind the growth in railroad freight turnover, and also behind the over-all development of the national economy. In water transport the negative "theory" of a lack of freight still persists; river steamship lines and the Ministry of Maritime and River Fleet are not seeking freight for water transport, often charge shippers prohibitory tariffs, are disinclined in the maximum utilization of water transport, and are not constantly striving to reduce the cost of freight hauling and tariffs. Many freight consignors prefer to utilize rail transport instead of water transport since the periods for the delivery of freight on water transport are 4-5 times longer, and the tariffs for a number of goods hauled by water transport are as much and sometimes higher than for railroad transport.

STAT

Freight hauling in several river basins of the country -- the Amur, White Sea-Onega, and Central Asian -- has yet to achieve the prewar level. Water transport is responsible for a small percentage of the freight turnover of the country, despite the fact that during the navigation period millions of tons of freight are hauled by overburdened rail lines parallel to water routes and often at great expense. For instance, timber is hauled from the Ural Mountains to regions of the South by railroads which are parallel to the Kama and Volga rivers; Donets Coal is hauled to Gor'kiy, Kuybyshev, Saratov, and other cities on the Volga also by railroads parallel to the river; grain and coal is hauled parallel to the Dnepr and Irtysh rivers; raw cotton is hauled from regions of Central Asia to regions of the central and north-western part of the USSR, etc. The Ministry of Railways is resigned to this situation and is doing little to halt the uneconomical use and overloading of the railroads caused by irrational shipments.

The transfer of freight hauling from the railroads to water transport necessitates the mobilization of reserves which are not utilized at present. A method of pushing barges and timber rafts which increases the traffic speed of river transport 14-20 percent has not been widely promulgated. There are also long, unproductive delays of the fleet. It seems odd that non-self-propelled river tonnage is moving only 24 percent of the operating time, and maritime shipping nearly 60 percent of the total calendar time. However, the reduction of the unproductive layover of maritime shipping by a total of only one percent is equivalent to increasing the hauling of freight by more than one million tons per year.

At river ports the practice of handling ships from two sides has not been widely adopted. This practice if adopted would permit a significant reduction in layover and increase the productive use of the fleet. A great increase in the freight turnover of water transport can be achieved by an increase utilization of the dead-weight tonnage and bale cubic capacity of ships. Dredging work in the approach channels to ports would allow an increase in the draft and the loading of maritime vessels. The lengthening of navigation periods on rivers by employing ice breakers is also an effective method for increasing freight turnover and improving the profit of hauling on river transport. The organization of unified dispatching shifts at ports connected to railroad stations and the transfer of freight from the railroads to water transport or vice versa by a direct "car-ship" method not only reduces the cost of the transloading work by 50 percent but also accelerates the delivery of freight.

The shipping of freight utilizing intercoastal shipping is not widely practiced in maritime transport. However, the cruise of one heavy-tonnage ship from ports of the Black Sea to the Far East relieves the railroads from operating 8-10 or more trains for distances of 6,000-8,000 kilometers and results in a direct saving in transport expenses of the national economy of up to one million rubles.

There are also shortcomings in the distribution of freight flows between other types of transport: truck and railroad, railroad and petroleum pipeline, pipeline and river transport, etc.

Motor transport is still not fully utilized. According to the Ministry of Motor Transport and Highways the coefficient of utilization of the truck park amounts to 0.62, and in other ministries and departments to 0.47. This causes a heavy load upon rail transport, promotes excessively long and cross

STAT

hauls, and allows considerable losses in the transportation expenses to the national economy. There are still many instances of irrational hauling of mass freight by motor transport for long distances and over routes parallel to the movement of empty railroad cars. The lack of a sharp division between the activity of motor transport on the general and departmental levels leads to irrational runs of empty trucks.

Among the shortcomings in the utilization of various types of transport are the lengthy periods for the delivery of freight hauled in coordinated rail-water service. This is chiefly a consequence of port delays resulting from the absence of unified work processes at ports and adjoining railroad stations.

There has yet to be developed an essentially scientific method for appraising the national economic expediency of distributing freight flows among the various types of transport. Capital investments for the development of transport are still not always fully taken into consideration when various alternatives for the location of new industrial enterprises are compared.

The accepted methods for determining the advantages of using one or another type of transport for hauling freight, by comparison of the rates (tariffs) or the costs of hauling, are incomplete and do not reflect the national economic expediency of the selected variants of hauling. Tariffs, while manifesting the average cost of hauling corresponding types of freight on one or another type of transport, do not always reflect the actual costs connected with the hauling of freight on actual transportation routes.

Under the existing method of calculating, the costs of hauling by various types of transport are not fully comparable: in river and truck transport, expenditures for the maintenance of the routes are not included in the costs, and in maritime shipping the cost of port maintenance is not included. Also, there is a failure to consider fully the effect on the national economy of the delivery time of freight by different types of transport, and also the losses of freight under different methods of transportation.

The imperfect method of technical-economic computations taken as a basis for distributing hauling among various types of transport often leads to faulty conclusions and mistaken planning in freight hauling. For instance, the hauling of Pechera coal in coordinated rail-water service to a destination on the railroad section Arkhangel'sk-Nyandoma with two transshipments is irrational. It is also incorrect to route floating timber along the Northern Dvina River past Kotlas to Arkhangel'sk with a subsequent transshipment of the timber by rail to regions of the south, instead of transferring it to the railroad at Kotlas, which would be more rational. Another irrational example is the hauling of local construction materials by motor transport parallel to water routes, particularly to Moscow over the Dmitrovskoye Shosse, which runs parallel to the Moscow Canal.

This lack of thought in the planning of hauling and distribution of freight flows among various types of transport must be corrected in order to bring about a more rational utilization of all types of transport and a sharp reduction in transportation costs to the national economy.

STAT

The responsibility for the proper utilization of various types of transport does not fall to Gosplan USSR alone, but also to the transportation ministries and the ministries utilizing the services of transportation. A significant role in planning the utilization of transport must be given also to the local planning organs, which usually avoid involvement in transportation problems. With their aid much of the irrational hauling could be eliminated.

The movement charts of river barges should be made to coincide with the movement charts and the train make-up plans where the two types of transport join.

At the Meeting of Activist Workers of Maritime and River Fleet in March 1954, L. M. Kaganovich, called upon river transportation to introduce movement charts, detailed plans for the formation of tows, and a technical work project for the fleet and ports, similar to those used on the railroads.

Technical planning, presently done only in railroad transport, will play a great role in mobilizing the existing reserves of the fleet and ports. The technical plan must provide for the most rational utilization of the technical facilities of all types of transport, and utilization of their capacity, the distribution of cadres of various trades, and also the distribution of the needed material resources for fulfilling the state hauling plan.

In the beginning of the Fifth Five-Year Plan, the hauling of freight in coordinated rail-water service relieved the railroads from hauling nearly 12 million tons of freight during the navigation period for an average distance of over 1,000 kilometers. This is equivalent to a yearly loading of a large two-track main line 1,000 kilometers long. However, there is still not enough of this type of hauling. Besides the reduction in the length of rail hauling and the relief afforded rail routes, the rational utilization of inland waterways and the development of coordinated rail-water hauling will make it possible to regulate loading on important rail routes.

The supplying of timber to the Central Asian regions through Krasnovodsk from Astrakhan', where the timber arrives by floats via the Volga River, allows a reduction in timber hauling from Siberia over the Turkestan-Siberia Railroad System to the regions of Central Asia. The hauling of petroleum products from Krasnovodsk to Astrakhan' and points farther north via the Volga River to Molotov allows a transfer of petroleum products traffic from the Krasnovodsk-Kryz'-Novosibirsk route to the Molotov-Sverdlovsk-Novosibirsk route. The hauling of petroleum products from Krasnovodsk to Vladivostok via the Astrakhan'-Molotov route relieves the railroads from hauling loaded and empty tank cars a distance of almost 2,600 kilometers, permits a redistribution of flows of loaded and empty tank cars on the railroad network, and in particular, relieves the Turkestan-Siberia System. The hauling of manganese ore from the Transcaucasus Railroad System to the metallurgical plants located in the Donbas via the Black Sea-Azov basin through the ports of Poti and Zhdanov relieves the Tbilisi-Baku-Armavir-Rostov railroad route by increasing the hauling over the Transcaucasus System on the route to Poti. The delivery of grain to Central Asia from the North Caucasus through the Caspian Sea makes it possible to relieve the Turkestan-Siberia System and imposes an additional flow on the Rostov-Makhach-Kala railroad route.

At present, combined rail-water shipments comprise approximately only 12 percent [in tons] of the freight turnover of river transport. This type of hauling could be considerably increased by utilizing water transport for freight hauled on rail lines parallel to waterways during the navigation period, and the utilization of existing port capacities.

STAT
 

More than four fifths of the total freight hauled in coordinated rail-water service is transferred from the railroads to water transport or vice versa through one third of all the ports and wharves carrying on coordinated rail-water shipments, while less than one fifth of the freight hauled in coordinated transport service is transferred at the remaining two thirds of the river and sea ports actively participating in coordinated service.

For a sharp increase in the volume of coordinated transport service, the fulfillment of a number of measures is required: the expansion of transshipment points connecting the various types of transport, together with a determination of the appropriate equipment for the freight transfer; an increase in the profit derived from coordinated service with the participation of several types of transport; the organization of direct shipments of freight "from the warehouse of the consignor to the warehouse of the consignee" with railroad, motor, and water transport operating with a single shipping document; the regulation and defining of tariffs with the aim of creating economic surplus from the national economic point of view for distributing freight flows between the various types of transport.

The chief means for increasing the profitableness of the coordinated rail-water shipments include the maximum mechanization of, and reduction in the cost of, transshipping operations, reduction in freight loss, and the adoption of measures to insure freight protection, plus the maximum utilization of empty runs of tugs and the non-self-propelled vessels.

The empty run of the tug fleet hauling dry freight on the Volga Freight Steamship Line amounts to 30 percent; for every 5 tons of freight hauled upstream by tugs of the steamship line, only one ton is hauled downstream. The assessment of low tariffs for freight hauled on empty runs is a great source for increasing the profits from coordinated rail-water transport.

Mechanization of transshipping points is often the simplest and most effective method for increasing their capacity. For example, the construction of a lateral sloping railroad track at river ports permits, even with a limited unloading space, a high productivity in transferring timber directly from railroad flatcars to the river for subsequent floating in rafts (as is done at Gor'kiy and other points), or for loading from the water directly into barges by means of floating cranes.

To achieve the goals established by the Communist Party and the government for a sharp increase in agriculture, light and food industries, and trade, the country's transport services must be widely expanded. This does not just mean the main through routes but also all types of local transport, primarily motor transport.

To carry out effects only the cultivation of the new land masses, and distribution of the production of grain, foodstuffs, and raw materials for light and food industries and further development of the freight turnover between cities and villages, discrepancies existing in certain parts of the country in the development of the main line and local transport routes must be eliminated as soon as possible. It is also necessary to improve intrarayon and intrablast transportation, including facilities connecting kol-khozes, moykhozes, and MTS with the nearest cities and rayon centers.

With this in view, primary considerations include the development of motor hauling over existing roads and truck routes, a sharp increase in the utilization of river routes connecting agricultural regions, and the maximum expansion of the local road network within rayons.

STAT

The establishment of the union-republic Ministry of Motor Transport and Highways has liquidated the long-standing gap between the operation of motor transport and the operation of highways, and has created an organizational basis for establishing regular motor freight traffic on highways and roads for the delivery of agricultural production to the city population and the enterprises of light and food industries, and also for the delivery of manufactured goods from the cities to the country.

The Ministry of Motor Transport and Highways USSR, together with the Ministry of Railways and the Ministry of Maritime and River Fleet, must organize the hauling of agricultural freight from places of production directly to the consumers by coordinated transport service. The development of coordinated service for the hauling of agricultural freight with a single shipping document assures the passage of agricultural production to regions of demand and eliminates the necessity for the agricultural working force to participate in the freight hauling and transshipment activities. For this it is also necessary to build up and expand the junction points for the transfer of freight from through lines to local transport and vice versa. At present, there are distances of hundreds of kilometers on separate rail lines crossing agricultural regions without stations equipped to receive and dispatch less-than-carload consignments.

Along with the expansion of motor transport for servicing agricultural regions, local river routes deeply penetrating hinterland areas play an important role in increasing freight turnover between the cities and the country.

Directives of the 19th Party Congress called for the development of hauling on small rivers for local needs. These rivers provide a cheap, natural method for improving the transport service to the agricultural regions of the country. In many areas of the USSR, especially in the east and north, where there are no roads, rivers are practically the only means of communication.

However, the Ministry of Maritime and River Fleet has underestimated the importance of these small rivers. For example, the East Siberia Steamship Line because of a direct prohibition of the Ministry of Maritime and River Fleet has not used their ships on the Selenga, Khilok, and Chikoy rivers, despite the fact that their fleet is not completely utilized on the main river routes. It is also necessary to aid the kolkhozes, sovkhoses and MTS in the construction of a shallow-water fleet.

The utilization of shallow rivers must also be coordinated with the service of motor transport. Thus, the organization of motor shipments during the winter over the ice of frozen rivers affords uninterrupted transport communications with the hinterland agricultural points and thus helps to expand the transport service to agricultural regions of the country. By this method the network of existing river ports and wharves could be utilized during the internavigation periods.

- E N D -