

## **The Analysis of the Russian Transport Current State, including the territory of Volga basin (economic, social and ecological aspects): transport sector development since 1990s and possible outlook.**

The rivers of Volga-Caspian region were very important for the Russian transport system in former times, but nowadays they lose their importance. In the middle of 19<sup>th</sup> century navigation had place along all rivers, accessible to ships. To the early 20<sup>th</sup> century navigation was terminated along small rivers and to the end of the 20<sup>th</sup> century some medium rivers were considered to be unreasonable for keeping navigation along them. Dynamic development of railway and motor transport was a reason for reducing the volume of river transport in early 2000s in spite of some growth in late 1990s.

In 1990 Russian inner water transport freight turnover was 214 bln ton-kilometers (4.5% of total freight turnover), in 1995 – 90 bln ton-kilometers (3.7%) and in 2002 – 73 bln ton-kilometers (2.7%).

The major part of freight in Volga-Caspian region (the same in Russia in common) is carried by means of railroads which often go along and cross the main rivers( for instance, the Volga belt road: Kazan – Ul'ianovsk – Saratov – Volgograd, was built in 1941-1943 for army needs). The maximum density of railway network in Volga-Caspian region is in Moscow oblast and around Samara, and the minimum density – in the area up north from the Kama mouth (Kirov oblast, Mari El Republic and a part of Tatarstan) and the lower Volga region (Kalmykia).

The length of railroads in Volga-Caspian region (Russian part) was 34222 km. in 2002 (it's 1140 km less than in 1990 mostly because of spur tracks length reducing).

In 1990-2000s no new railway construction took place in the region, except the branch line from Yandiky station to a new port Olya (Astrahan). At the same a rapid electrification of railroads was carried out and it helped to low transportation of goods and conveyance of passengers expenses. Also it improved the state of environment. During this period the following railroads were electrificated: Saratov – Volgograd, Astrahan – Aksaraiskaya and others. In the near future the railway line Volzhskiy – Aksaraiskaya is expected to be electrified and as a result all Volga railroad will be provided with electric power.

Nowadays railway and water transport are used to convey different goods (water transport – as a rule, construction materials, railroad – other goods). Consequently, amount of rail-and-water traffic and terminal operations are not great. However there are some large terminals of rail-and-water communication in all main cities of Volga-Caspian region. For comparison, mixed rail-

and-water conveyance prevails in Siberia and Russian northern territories in connection with undeveloped railway network.

The part of motor transport in Russia is 6.1% of all freight turnover and 40% of passenger turnover (excluding intraurban traffic). For all that substantial amount of passenger conveyance with private vehicles wasn't taken into account. Thus buses and vehicles prevail in conveyance of passengers.

In 2002 10.7 mln private vehicles were registered in state political subdivisions located in Volga-Caspian region. It's 2.5 times more than in 1990. Rapid growth of vehicle's quantity with insufficient new road construction caused environmental deterioration in Volga-Caspian region.

In view of the fact that bus and vehicle conveyances prevail in intraregional and suburban communication, rivers are a serious obstacle because of the number of bridges across the Volga, the Oka and the Kama.

Nowadays there are bridges and dams available for traffic across the Volga (downstream from Tver) in following towns: Tver (4 auto and 1 railway bridges), Dubna (auto – across hydro plant dam), Kalyazin (auto and railway), Uglich (auto – across hydro plant dam), village Volga (railway), Ribinsk (auto), Yaroslavl (auto and railway + auto bridge under construction), Kostroma (auto and railway), Kineshma (auto bridge opened in 2003), Gorodec (auto – across hydro plant dam), Nizhniy Novgorod (auto and railway), Cheboksary (auto – across hydro plant dam), Zelenodolsk (auto and railway), Ul'ianovsk (auto and railway), Tol'jatti (auto and railway – across hydro plant dam), Sizran (railway), Balakovo (auto and railway – across hydro plant dam), Saratov (2 auto and railway), Volgograd (auto and railway – across hydro plant dam, auto bridge under construction), Astrahan (2 auto and railway). There are bridges and dams available for traffic across the Kama (downstream from Solokamsk) in following towns: Perm', Chaikovskiy, Sarapul, Naberezhnie Chelni and station Sorochii Gori (opened in 2001). Across the Oka (downstream from Kaluga) – Kaluga, Aleksin, Serpuhov, Kashira, Ozerki (pontoon-bridge), Kolomna, Riazan, Spassk-Riazanskiy (pontoon-bridge), Kasimov, Murom, Nizhniy Novgorod.

Transportation across the rivers practices by ferries and winch ferries in other places. It leads to extra motor transport expenses. In winter ice crossings are common, especially in the upper Volga and Kama where ice is thick enough to be safe. Crossings are organized according to all safety rules, so cases of drawn vehicles are excluded. By the way such cases have place when vehicles cross the rivers not through set crossings. In spring and autumn communication terminates between opposite bank population aggregates in many places of Volga-Caspian region. For instance, residents of Tutaev (Yaroslavl oblast) which is located on both Volga banks

have to get from one town district to another through Yaroslavl (100 km). In under-populated areas boats are used to cross the rivers.

The problem of rivers as a transportation obstacle for population often has been solving administratively – the borders of country districts, sometimes of regions, were set along the rivers. As a result there was no need for people to cross rivers so often. In 1994 Sokol'skiy district (Ivanovskaia oblast), located on the left bank of the Volga was included into Nizhegorodskaya oblast. Before that communication of Sokolskiy district with the oblast centre was held by ferry or ice crossing. Construction of the bridge was impossible because of the width of Gorkovskiy reservoir (10 km).

As it has been mentioned, up to the late 1990s the volume of passenger conveyance has been reducing in Volga-Caspian region and then it showed some growth. In 1990 55 mln people were conveyed (61% of total Russian passenger conveyance), in 1995 – 15.4 mln people (61%), and in 2002 – 19.6 mln people (72%). It needs to be noticed that in 2000-2005 directions of routes continued changing because of closing of some lines, but the number of passengers kept growing on functioning lines. Transportation along small rivers was closed down completely. Now passenger lines (non-tourist) kept as suburban lines around big cities (Kazan, Samara, Volgograd and others), and also several high-speed lines (Ves'egonsk – Yaroslavl, Nizhniy Novgorod – Vasilsursk, Kazan – Ul'ianovsk). Traffic of high-speed vessels was almost stopped completely along the Kama and Oka. The main reason for passenger conveyance network cutting down is its high cost. Generally lines of social importance are kept. They are those which are only one available means of transportation for separate population aggregate. As a rule, tariffs for these lines are not high.

These facts show that passenger river transport in Volga-Caspian region is in demand among population, but it's still economically ineffective. In 2002 totally around Russia profitability of freight river transportation was 10% and passenger river conveyance – 20%. Even to get this level of profitability tourist lines with high tariffs were used and vessels were allowed to be rented for celebration party.

In 2002 prime price of passenger conveyance by river transport reached 2280 kopeeks per 10 passenger-km, at the same time by motor transport – 388, by railroad – 244. But for freight transportation river transport is more beneficial – prime price of transportation along inner water lines was 204 kopeeks per ton-km in 2002, railroad – 226, motor transport – 2196.

From almost 20 mln people conveyed by inner water transport in Volga-Caspian region in 2002, 10 mln used this service in Volgogradskaya oblast. They are passengers of suburban lines from Volgograd to Krasnoslobodsk and dachas on the left bank of the Volga. As a matter of fact,

when construction of a new bridge in the centre of Volgograd is complete, intensity of river transportation will drop.

After decline of 1990s tourist communication started developing rapidly along the rivers of Volga-Caspian region. Now the following lines are functioning: Moscow – Saint-Petersburg, Moscow – Astrahan, Moscow – Rostov-na-Donu, Moscow – Perm, Moscow – Soloveskie islands, Moscow – Ufa, “Moscow round world” ( Moscow – Yaroslavl – Nizhniy Novgorod – Riazan – Moscow), also short versions of this lines. 1-3 hour boat trips around big cities and their suburbs are also popular.

Thus we can see that inner water transport of Volga-Caspian region is slightly integrated into the united transport system of Russia. The process of disintegration started at the end of 19<sup>th</sup> century in connection with railroad construction, when water transport showed the lack of speed. In the middle of 20<sup>th</sup> century with construction of Volga belt road this process got a new impulse. At the same time construction hydro plants and reservoirs, also canals (Moscow, Belomoro-Baltiiskiy, Volgo-Donskoy) and a total reconstruction of Volgo-Baltiiskiy water route gave a chance to freight river transportation to compete with railroad. In 1960-1970 passenger water transport became more important because of using high-speed hydrofoils. However, at that time construction of local automobile roads started and water transport lost the chance to be only one mean of transportation for people of medium and small population aggregates. Existence of inexpensive motor transport caused reducing of importance of water transport.

As a result, nowadays inner water transport of Volga-Caspian region has the following functions:

1. Construction materials transportation to the medium distances
2. Oil and oil products transportation to the destinations not covered with oil-pipe lines.
3. Suburban passenger conveyance in the district without bridges ( with new bridges construction the volume of such conveyance will reduce)
4. Tourist conveyance along various lines ( in forecast this type will be more popular)

If in 1990s the main factor preventing development of inner water transport was its economic inefficiency, nowadays one more factor appeared – ecological. Because of lack of proper attention to water-way maintenance (river bed cleaning, fairway deepening and so on), complex нарушение земель in the upper courses of Volga-Caspian region small and medium rivers, some rivers became shallow and unavailable for navigation. During last years the Oka grows very shallow and sometimes it makes impossible for large self-propelled barges and tow barges to get to Riazan during low water. As for smaller rivers situation is more deplorable – deforestation in the Vetluga and Unzhi basins made this rivers very shallow and as a result they

are not available to any navigation. During the Soviet Union when the rivers grew shallow because of the deforestation, rise of water level had place in the lower stream of small rivers by construction hydro plants on the Volga and Kama.

One more transport-ecological problem of Volga-Caspian region is a great number of private motor boats, launches and yacht. While using these vessels no ecological rules are complied that's why a great quantity of oil goes into the water. Many yacht-clubs located on the reservoirs of the Moscow canal don't have specialized facilities for refueling and maintenance of boats. In spite of this fact the number of yacht-clubs keeps growing. We need to add that as a rule, persons operating boats don't have licenses. It causes crashes of motor boats and big vessels.

The following objectives are considered to be important for solution of economical, social and ecological problems of Volga-Caspian region.

1. Construction of new bridges (including railway bridges) across the Volga, Oka and Kama. It will reduce expenses and a number of ferries as a result an amount of oil products in the river will decrease.
2. Continuation of railway electrification including local railway. It will increase economic activities and influence environment positively.
3. Strict control for operating rules of small boats used by private persons.
4. Reconstruction of the Volga, Kama and navigation canals locks. Many of them are in bad condition
5. Reforestation and discontinuation of bog reclamation in river basins.  
This step will help to stop rivers from shallowing.
6. Rejection of using artesian water in the Oka basin for Moscow water supply. Otherwise the Oka will be completely unavailable for navigation because of its shallowing.
7. Development of new inexpensive high-speed vessels for passenger conveyance along intercity lines. It will help to restore passenger communication on the Volga and its main tributaries.