

INTERNATIONAL TRANSPORT PROJECTS AND ECOSYSTEM OF BLACK SEA

МЕЖДУНАРОДНЫЕ ТРАНСПОРТНЫЕ ПРОЕКТЫ И ЭКОСИСТЕМА ЧЕРНОГО МОРЯ

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Abstract: *The importance of the Black Sea for modern Georgia is invaluable. It represents one of the important natural formations for the common geographical location of the country, resource potential, the main artery of recreational zone and foreign relations. Therefore, the security, economic welfare and future in general depend on effective use of economic potential of the Black Sea and its ecological condition.*

The article deals with the ecological condition of the main problems of the Black Sea. Special attention is paid to international transport and energy projects. It is proved that the projects that have been implemented and planned the "Blue Stream" and "South Stream" (so called "Turkish Stream") represent potential threats to the Black Sea in terms of environmental deterioration. Modest conclusions are made in the article concerning the joint efforts of the Black Sea countries directed to support transport and energy projects, realization of which will impact ecological condition of the Black Sea. In the opinion of the authors, the "Nabucco" project represents the very transport-energetic project.

KEY WORDS: ECOSYSTEM OF THE BLACK SEA, "NABUCCO" PROJECT, ECOLOGICAL CONDITION OF THE BLACK SEA

1. Introduction

The importance of the Black Sea for modern Georgia is invaluable. It represents one of the important natural formations for the common geographical location of the country, resource potential, the main artery of recreational zone and foreign relations. Therefore, the security, economic welfare and future in general depend on effective use of economic potential of the Black Sea and its ecological condition.

The Black Sea has an area of 422,000 km², the longest east-west extent is about 1,167 km (Burgas-Kobuleti), a maximum width - 580 km, a maximum depth - 2211 m, the coastline is approximately 4000 km, 320 km of which belongs to Georgia (Russian Federation - 395 km, the Ukraine - 1340 km, Romania - 215 km, Bulgaria - 317 km, Turkey - 1365 km).

A net outflow of water reaches 200 km³ per year through the Bosphorus. Inflow of freshwater from the surrounding areas reaches 320 km³ per year, the majority of which comes from central and central-eastern Europe [1].

So called oxygen rich "organized" layer of the Black Sea extends to the depth of 175-200 m, from 200 m up to the bottom it is almost without oxygen and there is no organic life there. Outstanding features of the Black Sea, distinguishing it from the rest of the earth, represent original layering character. Surface layer which is 175-200 m thick stands out with its density (it is lighter) from water body. This difference is so clear that confusion between layers of water is almost impossible. That's why deep water is accumulated with huge quantity of H₂S.

The Black Sea is one of the biggest locked water masses that does not stand out from the complex features and is convenient for navigation. Therefore, the Black Sea is the most important transport corridor [2].

2. Preconditions and means for resolving the problem

In 1960-ies of XX century intensive involvement of humanity in ecosystem of the Black Sea, in particular excessive use of the Black Sea resources, unplanned urbanization in the coastal zones, invasion of series of exotic and pathogenic organisms ballast water through the ballast waters, building of dams on many rivers, huge number of constructions to protect the coastlines, unduly cleaned wastewater spill (ships, industry and coastal areas of the settlements and their improper caring), the growth of illegal fishing and many other reasons have led to the degradation of the Black Sea ecosystem. Natural features of the Black Sea make this process

even more difficult. Exchange of the Black Sea water to the Mediterranean Sea water is extremely slow. Its salinity is less than 20 per mille. There are no revolutions and reversing in the Black Sea, in the contrary to other seas (the Baltic Sea). As a result, there is very little oxygen in it and contaminants are collected in abundance. Water is actually stopped; as a result oxygen is only in upper layers. Healthy seas need the oxygen not only for living organisms, but also for putrefaction and decomposition of dead plants and dead animals.

Black Sea and its resources are in greatest danger. It is almost completely locked and probably the most polluted seas in the world due to the fact that the pool is much beyond the scope of the six countries bordering the sea, and 17 countries are involved in the contamination. The only linking of the sea to the world ocean is Bosphorus Strait. At the same time it receives waste water and other pollutants from such large rivers as the Danube, Dnepr, and elevation, as well as from many other smaller rivers. Hence, it is understandable that protection of the Black Sea is possible only with the joint efforts and international assistance.

Currently, the Black Sea is facing the following main problems:

- Nitrogen and phosphorus compounds;
- Sewage Water;
- Toxicants;
- Radioactive materials;
- Invasive species of living organisms
- Raw refuse and oil pollution;
- International transport and energy projects.

One of the important problems mentioned above is international transport and energy projects. A highly favorable coastal location of the Black Sea has always been a certain advantage for development of transport industry, especially in recent period, when there have been many economic changes in the region. The location means many advantages and disadvantages for the region located on the crossroad of Europe and Asia: on the one hand it is its a favorable condition for the development of trade, but its' necessary to establish a certain balance firstly between the current favorable economic profit and on the other hand increasing, long term development of the native population and environment. Transportation of the oil in the Black Sea region in a part of this kind of danger, especially if the social and environmental issues are left by the wayside, and the geopolitical importance of the arguments prevail importance of future decisions. In recent period the issue of international importance is energy supply of Europe. Many projects are being developed, which provide energy to improve the energy supply through diversification of routes and

sources. This kind of route crosses the Black Sea and poses serious threats for the Black Sea from the ecological point of view. If the Black Sea performed only the navigational function in the past, in recent years it gained the new function – one pipeline has already been built and some more pipelines are planned to be built on the grounds of the Black Sea. Particularly [3,4]:

The Blue Stream. Mentioned project is considered as the deepest pipeline in the world, the total length of the pipeline is 1240 km, which started operations in 2006. The land section consists of the Stavropolskaya and Krasnodarskaya compressor stations. The offshore section is 396 kilometers long laying from the Beregovaya compressor station in Arkhipo-Osipovka to the Durusu terminal locating 60 kilometers from Samsun (Turkey).

"South Stream" and "Turkish Stream". "South Stream" is an abandoned project running into 10 milliards to transport natural gas of the Russian Federation through the Black Sea to Bulgaria and through Serbia, Hungary and Slovenia further to Austria. According to the project 2000 km long pipeline was to start from Varna and run to Pleven. From there, the original southwestern route was to continue through Greece and Ionian Sea to southern Italy. The newer northwestern route would have continued from Pleven to Serbia. In Serbia, then running through Zaječar and Paraćin to Čenta. From Čenta the main pipeline would have continued in direction of Gospodinci while branch-off line would run to Republika Srpska in Bosnia and Herzegovina. Construction of the Russian onshore facilities for the pipeline started on December 7, 2012 by "GAZPROM" [5,6]. The last developments in the Ukraine lead the project in danger. That is why, at the end of 2014, Russia decided to suspend the "South Stream" and instead of it started so called "Turkish Stream" pipeline. The Turkish Stream is a working name of the proposed natural gas pipeline from Russia to Turkey across the Black Sea. The proposal was announced by Russian president Vladimir Putin on 1 December 2014, during his state visit to Turkey. The pipeline would start at Russkaya compressor station near Anapa. The landing point in Turkey is not negotiated yet. According to Gazprom, pipe-laying works will start immediately when the landing point in Turkey is decided. The mentioned projects constitute potential threats to the pollution of the Black Sea, hydrogen sulfide gas, which is considered as corrosive substances is poisonous and causes rapid corrosions of metal. Therefore, on the one hand, the efforts of the Black Sea countries should be implemented to the strict monitoring of the proper operations of the pipeline, on the other hand, active support of the alternative projects linking to the Black Sea. To our opinion The Nabucco Pipeline is this kind of alternative project.

"The Nabucco Project" aims to run the gas obtained in Caspian region and Central Asia to Europe through Georgia and Turkey. Preparations started in 2002, the building of the pipeline was planned to start in 2011 and finish in 2014, but because of the problems with gas supplier countries the realization of the project was postponed several times. In 2011 it was announced that enforcement of the project was postponed until 2018. However, on 28 June 2013 Shah Deniz consortium announced that it had chosen the Trans Adriatic Pipeline over Nabucco for its gas exports,

Nabucco, is the idea born on the interests of the European Union and US, while South Stream project was created and supported by political leadership of Russia, hence Russia has done everything to ensure that this project is not implemented and partially succeeded in it.

Judging from the economic and technical parameters, "Nabucco" is more interesting project than "South Stream". Implementation of "South Stream" (including the "Turkish Stream") and blocking "Nabucco" allows Russia to influence the prices of natural gas supply not only in Europe, but also supply of Europe with gas from the Caspian Sea countries (Turkmenistan, Azerbaijan, Kazakhstan, Uzbekistan) as well. Moreover, unlike the Persian Gulf countries (which deliver natural gas in tankers to European terminals), but the pipeline, they don't have no other means of supply of natural gas.

The main advantages of the "Nabucco" in comparison to "South Stream is as follows:

- Reduces dependence of Eastern European countries on Russia;
- The project is open to several transit suppliers, ensuring competition and, therefore, protects consumers from monopolistic pricing;
- Encourages the utilization of new deposits, as Europe is the most expensive natural gas market in the world.
- Encourages trans-Caspian pipeline, which will break the path for a large natural gas resources of Turkmenistan, Uzbekistan and Kazakhstan to European markets, bypassing Russia and contribute to the growth of their political independence;
- Technically easier to implement, its operation will be relatively cheap and economic parameters are better;
- The most important issue is to reduce the risks and threats that are associated with the deterioration of the ecological conditions of the Black Sea [7].

Another problem in terms of the ecological state of the oil extraction works. Such work is already being planned. Another problem in terms of the ecological condition is commencement of crude-oil production. These kinds of works are already planned and do not bode well for the Black Sea. If the industrial production of oil starts, it will have a very large impact on the Black Sea, because the biggest problem is not the "big discharge", but also the so-called "daily discharge". "The Black Sea Convention" can be considered as a step forward in terms of protection of the Black Sea. The convention was signed in Bucharest in April 1992, and ratified by all six legislative assemblies of the Black Sea countries as of Bulgaria, Georgia, Romania, Russia, Turkey and the Ukraine. The countries acknowledge the increasing deterioration of the environment in their joint resources in the Black Sea which caused signing of Convention on the Protection of the Black Sea against Pollution (also so called the Black Convention or the Bucharest Convention). On 31st October 1996, Bulgaria, Romania, Russia, Georgia and Ukraine's Ministers of Environment met in Istanbul, where they signed the Strategic Action Plan for the Protection of the Black Sea, the most comprehensive program, which is to save the world's one of the most polluted seas.

3. Conclusion

It can be said that currently there are plenty of other economic projects in the Black Sea countries, which are a potential threat from the ecological point of view. As for the ecological projects enhancing reduction of the pollution of the Black Sea, are very small. Besides, there are no states safe from the adverse effects of pollution on human health effects or country's economy. Therefore, the joint efforts of the Black Sea countries should be directed to such projects, including support of transport and energy projects, realization of which will have minor impact on the ecological situation in the Black Sea.

3. Literature

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