



Environmental problems in a context of industrial development of Tatarstan in the second half of the XX century

Mirzagitova Alsu*, Department of Public and Private Law, Kazan Federal University, Elabuga, Russia.

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Abstract

The second half of the XX century appeared for Russia as period of the prompt economic growth expressed at high rates of industrial development. However the forced economic development was negatively reflected in an ecological condition of industrial regions of the country. Example of it is Tatarstan Republic, one of leading industrial regions of the country, which received an impulse for the evolvement thanks to development of oil fields in the 50th years of the XX century. However oil production became a source of environmental problems of the region. Insufficient attention to environmental protection questions, and often lack of actions for protection of the nature led to that, in the beginning of the 80th years of the XX century the region appeared on the verge of an ecological disaster. In article are considered separate aspects of cause-and-effect interrelation of industrial development and ecological problems, which have arisen in the second half of the XX century. The purpose of the conducted research consists in attempt of historical consideration of the environmental problems which have resulted industrial development in the second half of the XX century of the leading industrial region of Russia – the Republic of Tatarstan. The problem of research became disclosure of prerequisites of an aggravation of contradictions in the system "person-industry-nature" on the example of the oil-extracting industry of the region. The main theses of research are formulated on the basis of the analysis of a wide range of the archival documents characterizing activity of public authorities, etc. in the field of conservation, and also the sources characterizing a condition of environment of the region during the considered period. As a result of research are drawn conclusions that development of productive forces in the region the long time was carried out without its ecological features. The serious aggravation of an ecological situation became a result of it.

Keywords: Environment, Tatarstan, Industrial development.

*ADDRESS FOR CORRESPONDENCE: **Mirzagitova Alsu**, Department of Public and Private Law, Kazan Federal University, Kazanskaya street, 89, Elabuga, 423600, Russia. E-mail address: neahmat@mail.ru / Tel.: +7-987-416-3664

1. Introduction

Place and role of machinery, including production spectre in an ecological topic received quite inconsistent estimates in researches of scientists. Often it is considered or as a source of all evils, or as the only rescue before danger of an ecological disaster (Moncrief, 1974). However certain researchers extremely simplify understanding of a phenomenon of scientific and technical development in modern conditions. In itself machinery and technology are neutral in the relation to the nature. Only this or that principles of their application determined mainly by concrete historical forms of their use, causes various according to the contents and an orientation ecological consequences.

Sources of the ecological problems peculiar to the territory of the Republic of Tatarstan are multifactorial. For the XX century under the influence of the objective and subjective reasons, natural resources were used, proceeding from need of every possible development of economy and ensuring defence capability of Russia. It was considered that natural resources are boundless, the state of environment is invariable therefore questions of their preservation weren't first. So in Tatarstan at 20-30th of the XX century created quite strong industrial base, there were absolutely new industries. At the same time there was an active deforestation, sharply decreased natural fertility of soils, it began pollution of rivers etc (Dryagilev , 1994).

In essence there was strong interconnected triad: heavy industry-ecology-welfare. Industrial progress of Tatarstan was accompanied by receipt to the biosphere of a huge number of pollution which led to violation of natural balance and human health deterioration, as in an initial stage of development of this or that industry violations of all spheres of environment were almost always allowed: pollution of land, forest, pasturable grounds, rivers and reservoirs, atmosphere saturation by combustion products etc. In the minds of the people, their actions, decisions and plans of the project construction enterprises reigned ecological illiteracy, abuse in the use of natural insecurity. As a result, the environment has suffered significant damage.

It should be considered how this process took place on the territory of Tatarstan in the mentioned years.

2. Main part

From the beginning of the 60th years in the country was observed increase of number of actions in the nature protection sphere. So, on 22nd of April of 1960 year The council of ministers of the USSR adopts the resolution "About Measures for Streamlining of Use and Strengthening of Protection of Water Resources of the USSR" which was one of the first incentive motives, allowed to carry out many large actions for protection of water resources of the country (Center of storage and Tatarstan). On 27th of October 27 of 1960 year The Supreme Council of RSFSR adopted "The law on conservation of the Russian Soviet Federal Socialist Republic". In this document it was defined the system of actions from the state, providing with the assistance of all population, reasonable use, restoration and increase of natural resources (Batyev, 1980). Later there were also other legislative documents, the governmental and party decisions connected with this problem.

However in practice these documents weren't always carried out. The testimony of insufficient efficiency of taken measures was a deterioration of an ecological situation in industrial, especially in oil areas. Scales and the sphere of destruction of environment continued to increase, methods and means of fight considerably became complicated. The first signs of an impending crisis have already begun to be felt.

Unfortunately, sources don't give the chance to researchers to track comprehensively process of industrial environmental pollution of the republic since the beginning of the 60th. Such information is often does not exist due to lack of control over the process. Opportunity for this came much later, only in the 80s.

However on the basis of extremely rare archival materials and publications in periodicals, on the concrete facts nevertheless it is possible to track the separate reasons of a modern difficult ecological situation in Tatarstan.

So, by the beginning of the 60th was distinctly shown lag of development of water and sewer utilities of the republic from growth rates of the cities. By 1960 from 14 cities of Tatarstan only 4 cities (Kazan, the Zelenodolsk, Almetyevsk and Leninogorsk) had the sewerage. But even in them the sewer network was in an underdeveloped state and didn't provide full assignment and cleaning of household sewage and production sewage from industrial, municipal facilities and houses (Center of storage and Tatarstan).

In the next years, despite attempts to correct these shortcomings, construction of sewer and treatment facilities of the cities and worker settlements, at the enterprises of Tatarstan it was still carried out extremely slowly. Quite often took place vicious practice of acceptance of industrial and civil facilities in operation without connection to sewer and treatment facilities (Center of storage and Tatarstan). Thus, it was created the favorable circumstances for further ignoring of nature protection actions.

It is known that in Tatarstan in the second half of the XX century oil production gave a serious impulse to formation of industrial shifts. Development of oil fields, being rather difficult technological process, it was quite often accompanied by harmful consequences for the nature. Oil production process as any other type of the industry, is in a condition of close and continuous interaction with environment, negatively influencing change of qualitative structure of its resources - the soil, water, vegetation and in general environment .

Initially process of oil production needed rigid regulation and control of the correct use of natural resources, especially such as arable, pasturable and forest grounds, of other actions on protection from environmental pollution. But in the first 15-20 years since the beginning of large-scale oil production in Tatarstan nature protection aspects were simply ignored because of an urgent need of oil for state economy.

Only in the 60th on oil fields of the republic were made the first attempts of carrying out actions for improvement of rational use of natural resources. It began works on sealing of oil and gas gathering facilities, promoting preservation of light hydrocarbons of oil, i.e. reduction of the losses, allowing reducing pollution of atmospheric air. For comparison it is necessary to specify that in 1961 more than 1200 operational wells, giving gas, weren't connected to gas-collecting networks. As a result of it loss of associated gas, and respectively emissions in the atmosphere increased from year to year. Utilization of gas, amounting in 1960 - 60.6, decreased in 1961 to 59 per cent. In 1961, only flares burned more than 1 billion cubic meters associated gas, while most industrial enterprises experienced an acute shortage of fuel (Center of storage and Tatarstan).

For reduction of pollution of atmospheric air and reduction of losses of light hydrocarbons in "Tatneft" manufacturing group was carried out sealing action of gathering facilities, transport, oil and gas storage. The works begun in 1963-1964, allowed expelling from gathering facilities such knots, as flow tanks, tanks of assembly points, points of pumping of the oil, being a source of plentiful allocations of gas. By the beginning of year 1973 about 7095 wells were pressurized that made 80 percent from their total number (Center of storage and Tatarstan).

Along with pollution of atmospheric air, the enterprise of oil production caused and cause serious damage to water resources. One of types of such damage is pollution of the rivers and reservoirs as a result of dumping in them harmful substances. So, researches of 1964-1968 in oil-extracting areas showed that there, during the summer period the content of the weighed and soluble oil products in water was steady and made 5 mg/l. raising to 15-70 mg/l. in the period of rains, in due to washout of the poured oil (Karatayev, 1976).

Now is already fixed the dynamic of the content of chlorides and oil products in the small rivers of the republic. It testifies that in the 70-80th there was their steady increase that led to

gradual pollution of surface water which reached a maximum in 1986. However in the next years as the statistics testifies, situation began to improve (Garifullina, 1994).

In this regard, in the oil industry of Tatarstan have been several attempts of measures aimed on the one hand to reduce the consumption of fresh water for technological needs, and for cleaning on the other hand. At reservoir flooding, it was limited injection of ineffective and unproductive water, for keeping of reservoir pressure maximally tried to use oil-field sewage. So, if in year 1965 in systems of flooding were recycled only 2 percent of sewage, in year 1975 were recycled 68,4 million cubic meters, which amounted 73 percent. Under their injection was used about 700 wells (Batyev & Gimadeev, 1978)

To maximize the use of oilfield wastewater in order to maintain reservoir pressure built sewage treatment plant. Thus, utilization partially solved a problem of rational use of resources of fresh water and at the same time almost completely eliminated a source of pollution of reservoirs. "Tatneft" company memorandum of year 1976 "About strengthening of the nature and improvement of use of natural resources" foresaw by 1980 use of all volume of nascent sewage for maintenance of reservoir pressure. However implementation of this order was tightened for longer period.

Integral part of development of oil production is land use. And, in this sphere there is the maximal contact of interests of the enterprises and agriculture. In temporary and continuous exploitation of oilers there are tens of thousands hectares of land grounds.

The main reason for pollution and salinization of soils, reservoirs and underground waters were accidents and corrosion. These problems tried to solve by increase of corrosion firmness of oil-field communications and equipment. Introduction of new technologies and progressive methods of production, collecting, transportation of oil and gas allowed by the beginning of the 70th gradually reduce the amount of branch of the land plots for oil-field arrangement. If in 1968, the area set aside for the use of land was 2890 hectares, in 1972 it dropped to 703 hectares, decreased by 4 times. In 1969-1972 more than 20 thousand hectares of lands were returned to collective farms and state farms, from them 11 thousand for continuous using. Only in 1972 by the enterprises of association it was returned 5871 hectares of lands, including 3101 hectares of continuous using. Returning of land for 1972 exceeded its allocation 4,4 times (Oil, gas and petrochemistry of Tatarstan, 1979).

In 1973, according to "The law on nature conservation in RSFSR" "Tatneft" Company the first in oil branch developed the complex of no consumptive actions aimed on the long-term period (Oil, gas and petrochemistry of Tatarstan, 1979). In 1976 in company was issued the memorandum "About Strengthening of Use of Natural Resources" which served as the program basic document in the field of conservation. In year 1981 was issued an ordinance "About Further Strengthening of Conservation and Improvement of Use of Natural Resources" which foresaw carrying out a big complex of nature protection actions in all fields of activity of company (Zaripov, 1981).

On the basis of the above, it is possible to make a conclusion that in "Tatneft" company, and also resolutions of the central bodies were accepted many program documents of ecological character concerning oil production [10]. Nevertheless, actions developed and carried-out in the company for conservation and rational use of natural resources throughout long time not fully answered the adopted resolutions of the central bodies, and volumes and rates of carried-out works didn't conform to requirements of an urgent and complex solution of problems. A lot of existing industrial and public owned treatment works were still strongly overloaded and didn't provide necessary quality of cleaning of drains.

Quite often continued happen to be floods on the soil of oil and technological liquid at repair of wells. To the middle of the 70th the fund of wells remained big - 130 through which on a land surface streamed reservoir water, and in some cases with oil. More than in one thousand drilled wells, sources of fresh water weren't separated from the mineralized waters that led to their salinization. The planned amounts of works on wells with the broken tightness of columns

weren't carried out. The number of such wells, which are potential sources of pollution of waters, was more than 750. In oil areas of the republic were salted about 130 wells and springs (Center of storage and Tatarstan).

It could be allocated the main reasons for the mentioned negative phenomena in the oil-extracting industry. In our opinion, they consist in absence on the main waterways of local means of petro catching; in lag of the solution of a question oil and gas gathering under pressure and use of associated gas; in non-performance of actions for collecting of gas terminal stages of separation and installations of preparation of oil; in irresponsibility of heads of the company, etc.

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