



## KEY ASPECTS IN THE FIELD OF STATE MANAGEMENT OF GROUNDWATER PRODUCTION FOR COMMERCIAL USE

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### ABSTRACT

Groundwater, which is both a part of subsoil and part of total water resources, is a valuable mineral, the use of which in the economy and social sphere, and mainly for household and drinking water supply of the population, is increasing every year. At the moment, Russian groundwater resources management system is imperfect, as the used regulatory methods have a number of significant problems that limit the optimal course of the processes of studying, extracting and using such a precious resource as water. Accordingly, the optimization of ground water production and use requires significant changes in the field of the organizational and economic mechanism. After analyzing tax legislation of the Russian Federation in the field of regulation of the commercial use of underground mineral medicinal and potable water, the main problems were identified, and rational ways of their solution are proposed.

**Keywords:** groundwater, mineral medicinal waters, domestic drinking water, operational reserves, water tax, mineral extraction tax.

### INTRODUCTION

Water is the most important element on our planet, because person's life depends on it. Today, despite the fact that humanity has great power, it depends on the resources that nature gives us. The shortage of clean and suitable for the use water stood in front of the public for a long time. Many countries throughout the history of mankind lived in such conditions, but today even developed countries with sufficiently large reserves of water are thinking about its more rational production. Water is undoubtedly considered to be a renewable resource, but it is not an instant process, it needs time and proper conditions [1].

The Russian Federation has large reserves of fresh and mineralized waters, many of which are groundwaters, while it is important to note that some groundwater deposits are unique curative sources. It confirms the need for rational extraction of this resource, for ecological inspection, for monitoring of groundwater use and implementation, and for the overall systematic protection of all mineral groundwater deposits.

Being a more reliable source of water supply than the surface waters the underground waters (groundwater) play a significant role in solution of water supply problems [2]. First of all, groundwater presents a very specific kind of mineral resources. One of the important factors that distinguish the groundwater from the other kinds of mineral resources stands for dynamic nature of reserves and resources, lower dependence of their quality on natural and anthropogenic factors, methods and volumes of production. According to official statistics, the share of groundwater use in overall balance of drinking water supply in Russia is 53-55% [3].

Nowadays the Russian groundwater resources management system has a number of significant disadvantages, some of which are insufficient control over the development of groundwater deposits and very limited geological work to find new deposits; undeveloped tax policy in the field of groundwater extraction and use and, as a consequence, small revenues to the budget, which

limits the state in the field of conservation and restoration of deposits [4, 5].

Such varieties of groundwater deposits (for their intended use) can be distinguished:

- a) deposits of fresh groundwater, suitable for drinking and domestic water supply;
- b) deposits of fresh groundwater suitable for technical water supply;
- c) deposits of mineral therapeutic and balneological (medicinal) groundwater;
- d) deposits of industrial groundwater;
- e) deposits of energy (thermal) groundwater [6].

This paper reviews only the water used for commercial realization (mineral healing (medicinal) waters and household drinking waters).

I. Fresh and ultra-fresh groundwaters having a total mineralization of up to 1 gram per liter are, as a rule, a source of household and drinking water supply. In such waters, there are sometimes separate trace elements that have beneficial effects on the human body [7].

II. Mineral (medicinal) groundwater is such water that has a beneficial physiological effect on the human body due to the general mineralization, ionic composition, content of the gases, the presence of therapeutically active microcomponents, content of radioactive elements, alkalinity, acidity, and elevated temperature [8].

The extraction of groundwater for various purposeful uses has two forms of tax regulation: the abstraction of water for drinking-domestic and technical water supply charges water tax (Chapter 25 of the Tax Code of the Russian Federation), and the extraction of mineral medicinal groundwater is subject to a mineral extraction tax (Chapter 26 of the Tax Code of the Russian



Federation) [9]. In both forms of regulation, there are significant drawbacks, which will be discussed below.

Due to the current system of water tax rates, the state, as a proprietor of the natural resources (subsoil), has very limited income for providing such a valuable mineral as groundwater for use. Modern rates do not stimulate the rational and careful use of groundwater, so that drinking groundwater, which is especially valuable in its type, is often used in considerable amounts for technical and technological purposes, the extraction of groundwater at individual water intakes is not taken into account at all [5]. The amount of water tax revenues for water supply from underground sources can't ensure the self-sufficiency of the industry responsible for the groundwater supply system [10]. Accordingly, the financing of the field for the extraction of groundwater (including geological exploration, the search for and evaluation of groundwater resources, monitoring, ecological control, etc.) is shifted mainly to the federal and regional budgets. In this regard, the industry for groundwater extraction is not able to develop, and the quality of the observational, exploration and analytical work itself is constantly deteriorating.

## MATERIALS AND METHODS

Undeveloped tax policy has already been mentioned as one of the main problems in state regulation

of groundwater extraction. To understand this issue and find possible solutions it's necessary to analyze current water taxation system, find the difference in taxation of two types of one mineral resource but used for the same aim - its commercial usage.

Tax relations in the sphere of nature resources management are regulated by the Tax Code of the Russian Federation with subsequent amendments and additions.

Since 2004, in accordance with the Budget Code of the Russian Federation (Article 50 of Chapter 7 "Incomes of the Federal Budget"), revenues from water tax are credited to the federal budget in the amount of 100 percent by the standard [11]. This code does not provide a decoding of the expenditure received from the water tax.

The main document which regulates taxation of water objects is presented by the Tax Code of the Russian Federation, chapter 25.2 "Water tax" (introduced by Federal Law No. 83-FZ as of 28.07.2004) [9].

Figure-1 shows the scheme of the current system of water use taxation. The area, reviewed in this paper, is limited only by groundwater, extracted for commercial usage - sale of bottled water. That's why rules and principles of the groundwater extraction for other purposes are not considered in this research.

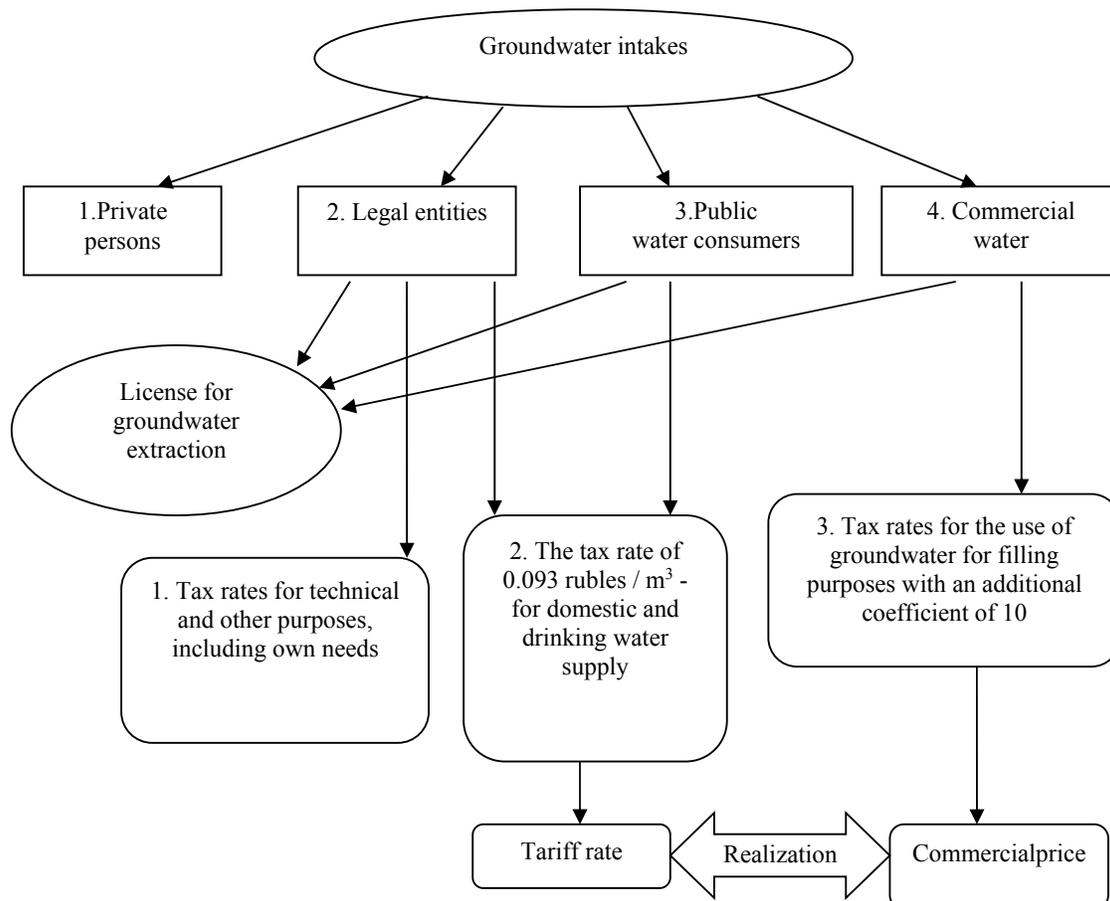


Figure-1. The current system of groundwater use taxation.



In the system of taxation groundwater production for commercial purposes (bottling), there is a dual approach. Extraction of groundwater for domestic and drinking purposes is subject to water tax only, since they are not mineral-medicinal. According to paragraph 5 of Article 333.12 of the Tax Code, the rate of water tax for the groundwater extraction (with the exception of industrial, mineral, and thermal waters) for the purpose of their realization after processing, preparation, and (or) packing in containers, determined in accordance with the provisions of paragraph 1.1. in the same article, applies to the regional water tax rate with an additional coefficient of 10 (as it's seen at Figure-1). Also when groundwater is collected, the tax rate is regulated by a table that contains the amounts of payments for every 1000 m<sup>3</sup> of water, depending on which basin and economic area the groundwater deposit belongs to. But in addition to the basic rate, an incremental factor is also applied (in 2017 - 1.52), which takes into account the negative impact on the environment. The validity of this rate raises strong doubts. As for the extraction of any mineral resources, the organization extracting mineral groundwater must purchase a license and make certain payments in accordance with Chapter 26 of the Tax Code. But there are some features that determine the reduction of the tax burden or complete exemption from it.

In accordance with the Tax Code, mineral extraction tax is levied on the extraction of medicinal mineral waters for commercial purposes, at a rate of 7.5% of the cost of sales [9]. If the extracted mineral water is sold at different prices, the unit value of the extracted mineral water is estimated as the ratio of the proceeds from the sale of produced water to the amount of mined mineral water sold.

It's very important to note, that in accordance with par. 6 p. 1 of Art. 342 of the Tax Code of the Russian Federation, if the mineral water is used by the organization that produces it, exclusively for medical and spa purposes without their immediate implementation (including after processing, preparation, bottling), taxation is at 0%.

A controversial situation arises when sanatoriums include the cost of mineral medicinal water in the cost of a voucher, since a 0% rate can be applied only if mineral water is not the direct subject of a sale transaction. If the rest is charged for the sale of mineral water, the organization must pay the mineral extraction tax at a rate of 7.5% [12].

## RESULTS AND DISCUSSIONS

According to the results of research, some problems in taxation system of groundwater extraction for commercial usage were found. Such a dual approach to the taxation system creates a number of difficulties in the revenue side of the budget, namely:

- The insignificant water tax rate does not provide the necessary profitability to the budget. Even when additional coefficient of 10 was supplemented, the size of this tax is still pitiable.
- The mineral extraction tax rate of 7.5% on medicinal mineral groundwater, in turn, creates the prerequisites for forging (falsification) mineral waters [9].

It is important to review the example of charging taxes on two previously considered types of groundwater for more clearly identification of existing problems (Table-1).

**Table-1.** An example of calculating the tax on the commercial sale of bottled groundwater.

The name of the indicator	Mineral extraction tax	Water tax
Brand name of water	“Borjomi” (“Narzan”)	“Shishkin Forest” (“Holy Spring”)
The average cost	120 rubles per liter (Conditional price without trade margin - 96 rubles per liter)	30 rubles per liter
Tax rate	7.5%	360 rubles/1000m <sup>3</sup> in the Central area, the basin of the river Volga (In St. Petersburg - 342 rubles / 1000 m <sup>3</sup> ) * K <sub>1</sub> (10) * K <sub>2</sub> (1.52)
Tax value in the example	7.2 rubles	0.005 rubles (~0.5 kopecks)
The tax base	cost of sales	volume of groundwater production

As we see, the water tax has a very small insignificant amount, which is less than 1 kopeck per liter. Such a current imperfect tax system objectively opposes the intensive reproduction of the mineral resources base, the integrated and rational use of groundwater. Finally, the collection of water tax does not ensure even the current costs of the state for monitoring and geological exploration.

Despite the fact that water tax refers to federal taxes, the solution of regional and local tasks at the federal level is required, such as:

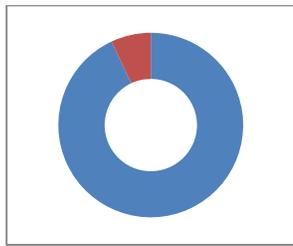
- ensuring control over the construction and operation of single low-rate water intakes;



- b) financing measures for the protection and restoration of regional water bodies (including in emergency situations);
- c) solution of hydrogeological and geocological problems caused by technogenic factors;
- d) revaluation of reserves of individual groundwater deposits, etc [5].

The collectability of the water tax should ensure the self-sufficiency of the industry in the groundwater extraction and withdraw it from the category of subsidized branches of the national economy.

Figure-2 shows the share of mineral extraction tax in the cost of mineral water for 1 liter.

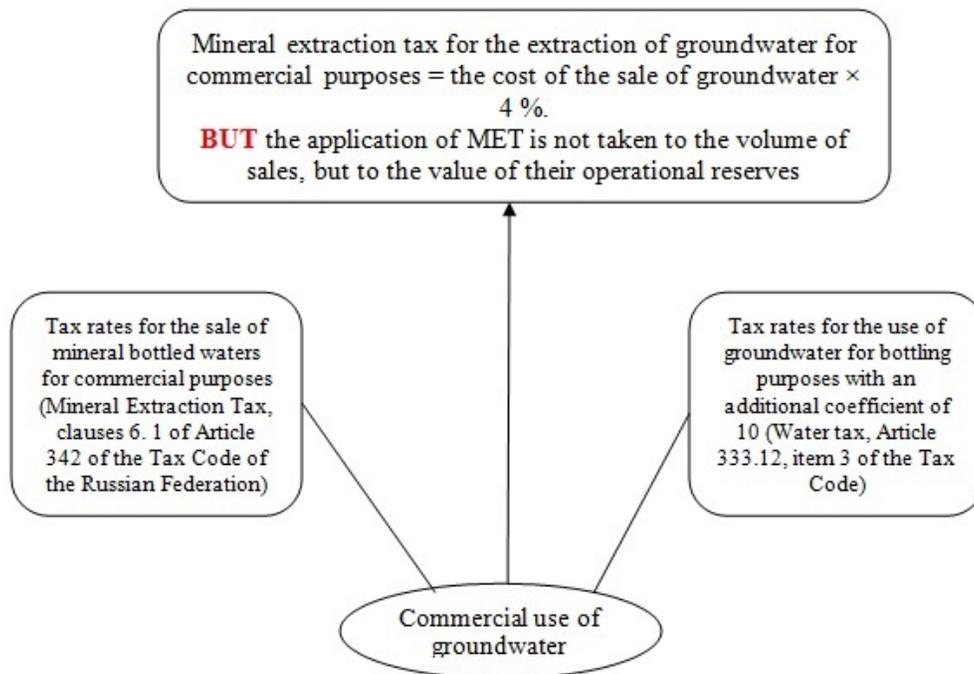


**Figure-2.** The share of mineral extraction tax (red color) in the cost of mineral water for 1 liter.

Analysis of the problems of underground mineral medicinal and potable water taxation has shown such results:

- a) Organizations carry out commercial sales of mineral and medicinal and household water - but taxes are paid differently and are not based on the same basis;
- b) Some organizations extracting underground mineral medicinal waters pay mineral extraction tax at a rate of 0% (illegally covering themselves with sanatorium and resort activities);
- c) Companies extracting water for domestic and drinking purposes overstate the volume of stocks, since the water tax is paid exclusively for the volume of extracted water. This situation generates a predatory impact on the environment;
- d) Revenues from the sale of domestic and potable water to the budget are insufficient to carry out even minimal restoration work, as well as further geological research;
- e) The increase in the number of counterfeits of mineral medicinal waters (organizations that produce domestic and drinking water; announce products as a mineral, which allows them to overstate the price, but at the same time pay only a water tax).

To solve the problems identified, the main task is to bring the system of taxation of all commercial groundwater to one sectoral tax - MET, as it is done for other types of minerals. But the rate of tax itself is advisable to reduce due to the application of the methodology specified earlier (at least 2 times). The key aspect of solving the posed problems is shown in Figure-3.



**Figure-3.** Proposed scheme of mineral extraction tax for the extraction of groundwater for commercial purposes



The main thing that is suggested by authors is a new approach for mineral extraction tax for the production of groundwater for commercial purposes. It is offered to take into account value of groundwater operational reserves [14, 15]. New tax rate is reduced to 4% as a size of industry average rate.

## CONCLUSIONS

The resources of groundwater have equal value, both in the economic life of people, and in the preservation of nature. Due to the nature of groundwater, the discussion of their legal regulation, started as far back as the last century, remains relevant today [16].

According to the results of our research several inferences can be made. First of all, the system of taxation of all commercial groundwater should be brought to one sectoral tax - MET, as it is done for other types of minerals. Secondly, it is suggested to apply the MET rate not to the sales volume, but to the value of the operational reserves indicated in the license, that is the amount of water resource that is allowed to be extracted. Thirdly, the revision or reassessment of operational reserves by the water-user will allow the state to approach the system of accounting and quoting groundwater resources more realistically and therefore to solve the main function of the state in this sector - the management of the natural resources extraction. And finally, improving the quality of control over the performance of licenses acquired by organizations is needed. Prevention of illegal use of "brands" and the hidden sale of sanitary mineral waters, sanatoriums, which are non-taxable, should be made.

It is also important to establish the process of carrying out environmental protection measures, protect groundwater bodies from depletion and pollution, organize and modernize monitoring activities, taking into account modern technologies and opportunities from private organizations. The sphere of extraction of underground mineral medicinal waters should cover budget expenditures.

Another necessary measure is the control over the formation of prices for the provision of sanatorium and health services in order to prevent the hidden inclusion of the cost of mining mineral therapeutic groundwater in the cost of permits.

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