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PROBLEMS OF MINERAL TAX COMPUTATION IN THE OIL AND GAS SECTOR

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The paper demonstrates the role of mineral tax in the overall sum of tax revenues in the budget. Problems of tax computation and payment have been reviewed; taxpayers and taxation basis of the amount of extracted minerals have been clearly defined. Issues of rental content of natural resource taxes are reviewed, as well as problems of right definition of the rental component in the process of mineral tax calculation for liquid and gaseous hydrocarbons.

One of important problems in mineral tax calculation is a conflict between two laws – the Subsoil Law and the Tax Code of Russian Federation (26th chapter). There is an ambiguity in the mechanism of calculating amounts of extracted mineral resources – from the positions of the Tax Code and the Subsoil Law. The second problem is in the necessity to amend the mineral tax for oil extraction the same way as it has been done for gas extraction, when characteristics of each field are taken into account.

This will provide a basis for correct computation of the natural resource rent for liquid and gaseous hydrocarbons. The paper offers recommendations for Russian authorities on this issue.

***Key words*:** subsoil use, oil, gas, tax revenues of the budget, mineral tax, tax payer, license, taxation basis, amount of extracted mineral resource, rent, natural resource rent, coefficients, mineral tax rates

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Introduction. In the report «Global Trends 2015» by the National Intelligence Council, USA it is observed that despite the substantial growth of global energy demand by 50 %, there will be enough resources to satisfy it. According to latest estimates, the subsoil still contains 80 % of extractable oil and 95 % of extractable gas reserves. The same estimates have been presented in another report «Outlines of a Future World. Trends of Global Development until 2020»: amount of energy consumption can increase approximately by 50 % in the following two decades, as compared to the growth by 34 % in the period 1980-2000, with the share of oil consumption rising as well [1, p.14-15].

The dependence of national economy on import and export of raw materials becomes a problem of economic security. Hence, exploration and assessment of natural resources and their reserves is a strategic objective.

Role of resource taxation. Computation and payment of natural resource taxes is a priority realization of not only fiscal, but also regulative function of the taxation system. At the end of 20th century in Russia, despite annual increase in natural resource payments, their share in the consolidated budget did not exceed 5.5 % (in 1994 – 5.5 %, in 1997 – 5.2 %, in 1999 – 4.6 %).

After enacting of the corresponding chapters of the Tax Code of Russian Federation (TC RF), which changed the system of taxing subsoil users, a share of these taxes in the consolidated budget of Russia started to grow. According to data from the Russian Federal Treasury, in the latest decade receipts from the mineral tax constitute one-fifth of the federal budget. In the latest 10 years amount of mineral tax on the average accounted for 22.77 % of the overall amount of budget revenues (see the Table). With the beginning of the global crisis, not only did the tax receipts decrease in 2009-2010, but also the share of the mineral tax was reduced due to its redistribution at the expense of other taxes. In principle, however, the trend stayed the same: even reduced growth rate of the mineral tax still leaves it the key source of tax revenues for the Russian budget. Its share is gradually increasing, from 1/5 of the tax revenues to a quarter (from 21.4 % in 2006 to 23.4 % in 2015). Taking into account other taxes and payments coming from subsoil users (profit tax, VAT, export revenues etc.), every year the raw material focus of Rus-

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sian economy becomes more apparent. Presented information (see the Table) shows that the basis for the mineral tax calculation is the income from extraction of liquid and gaseous hydrocarbons – oil and gas, i.e. approximately 97.5 % of the mineral taxes is paid by companies in the oil and gas sector.

Mineral tax receipts of the Russian budget system in 2006-2015

Year	Overall sum of taxes and non-tax revenues of the budget, administered by tax authorities		Mineral tax (total)		Mineral tax from hydrocarbon resources		
					oil + gas	oil	gas
	thousand rubles	%	thousand rubles	%	%	%	%
2006	5 432 410 088	100	1 162 288 128	21.4	20.91	19.12	1.79
2007	6 955 225 008	100	1 197 395 957	17.22	16.78	15.4	1.38
2008	7 948 938 894	100	1 708 010 877	21.49	21.02	19.77	1.25
2009	6 288 295 506	100	1 053 837 251	16.76	16.16	14.86	1.3
2010	7 662 893 653	100	1 406 312 676	18.35	17.76	16.53	1.23
2011	9 719 599 225	100	2 042 549 612	21.01	20.46	18.99	1.47
2012	10 958 192 714	100	2 459 397 777	22.44	21.99	19.46	2.53
2013	11 325 853 271	100	2 575 778 758	22.74	22.2	19.34	2.86
2014	12 669 534 703	100	2 904 200 872	22.92	22.39	19.44	2.95
2015	13 787 845 798	100	3 226 830 746	23.4	22.7	19.61	3.09
Average value across 2006-2015 гг.		100	–	20,77	20.24	18.25	1.99

* Compiled by authors basing on data by Federal Tax Service of Russian Federation [8].

Origin of the mineral tax. Separate elements of subsoil use payments were introduced as early as in the USSR. In 1992 in Russia the Subsoil Law was adopted [9]. It formed a legal basis that still regulates rational and complex subsoil use. The next step was adoption of the Production Sharing Agreement [11], according to which money tax is replaced by product sharing (with the exceptions of profit tax and subsoil use payments), and the extracted mineral resources are divided into two parts: compensatory and profitable ones. Moreover, the investors were exempted from paying customs duties and excise duties in case of imported equipment and exported raw materials. Thus, from 1992 Russia had an extensional system of basic and additional payments for subsoil use. The basic payments were: a) subsoil use payments (payment for the right to explore and assess mineral resources deposits; payment for the right to prospect mineral resources; payment for the right to extract mineral resources; payment for the right to use waste products of mining and processing industries; payment for the right to construct and maintain underground facilities that have no relation to extraction of mineral resources); b) contributions for the replacement of the mineral raw material base; c) fees for participation in tenders and auctions for the issuance of licenses and export quota; d) excise duties. The system of additional payments included: a) payments for the land, areas of territorial sea and sea-bed; b) payments for geological information about the subsoil.

Amendments to the Tax Code, introduced in the middle and end of 2001, cancelled the operational practice of a complex and extended system of subsoil users' taxation. In January 2002 the mineral tax was introduced. Thus, the Tax Code of Russian Federation, the Subsoil Law and the Production Sharing Agreement regulate the entire complex of tax and non-tax payments, associated with the development of mineral resources in Russia.

Problems of mineral tax computation and payment. Let us elaborate upon the problems of mineral tax in the context of taxation of liquid and gaseous hydrocarbons. Having analyzed discussions on this topic, we shall divide them into four basic groups, which require urgent practical solutions. These problems are associated with: first of all, definition of a mineral tax

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payer; secondly, different rendering of the calculation of taxation basis by the laws of the same level; thirdly, improvement of mineral tax rates, so that they take into account rental origin of the tax; fourthly, development of a unified information system, using «cloud technologies» and containing data from every well of every deposit, as well as provision of information security. It should be noted that, while the first three problems address specific «narrow» economic-legislative questions, the last one – informational – goes beyond the scope of engineering infrastructure of subsoil users and regulatory authorities. Let us review the first three problems in more detail.

The first problem is associated with a clear definition of a mineral tax payer. Currently mineral tax payers are legal entities (organizations) and private entrepreneurs registered as subsoil users [3, art.334, pt.1]. This means that, according to Russian legislation [6, 9, 10, 13]: 1) information about them as subsoil users has to be catalogued in the Unified State Register of Legal Entities; 2) they need to have a license (or another permission document), which confirms they are authorized to perform these activities*; 3) they are obliged to register in the tax office in the area of subsurface allotment**. This should be done in the period of 30 days from the moment of state registration of the license; for subsoil users in the Crimea and Sevastopol there is a special procedure of registration in the tax office [3, art.335]. In case the license area includes territories controlled by different tax offices, the organization should register in each of them, as approved by tax authorities.

It should be noted that the mining license only includes preliminary boundaries of the mining site. Precise coordinates of the boundaries will be identified only after the technical project undergoes state examination and gets approved by the state mining inspectorates and environmental authorities. These coordinates are obligingly included in the license. With their help it is easier to identify the deposit. Location of the license area influences the tax payment, as the sums of payments are distributed among subjects of Russian Federation in proportion to the amount of mineral resources extracted on the territory of each one of them.

Practically, there are situations when license owners involve subcontractors – outside organizations or private entrepreneurs, who bear the costs of mineral resources extraction. The question «who in this case is the mineral tax payer? » depends on the legal organizational form of the licensee – subsoil user (whether the organization has signed cooperation agreements and is a member of simple partnership).

As assignment of the allotment for subsoil use is documented by a specific governmental permission, information about all the subsoil users, who have obtained the licenses, form the basis of Unifier Register of Subsoil Users, which is an essential condition of mineral resources exploitation. According to legislation, all subsoil users have an opportunity to choose independently, what means to use for the retrieval of mineral resources [9]. The most important condition here – the means should not contravene the law. According to Regulations on the Procedure for Subsoil Use Licensing [4], license owners have the right to involve subcontractors for individual operations associated with subsoil use [9, art.17.1]. The latter party incurs responsibility for the observance of standards (norms, rules) in the area of subsoil and environmental protection. Subsoil legislation does not provide contractors with licenses for subsoil areas that have already been granted for licensed use to other entities.

* Mining license is a special governmental permission, which is prepared on the letterhead paper of the organization. Licenses are issued by the Ministry of Natural Resources of Russian Federation or its local offices. Rights and duties of subsoil users arise from the moment of state registration of the license [9, art.9]. Mandatory particulars of the license are the following: information about the organization, about the state authority that issued the license; about the boundaries of the land or offshore allotment; about the objective and means of operations; about the duration of the license and the start time of work; about the ownership to geologic information obtained in the process of operations.

** To register in the tax office the organization should file an application in a prescribed form (form № 9-NDPI-1 or № 9-NDPI-2), as approved by tax authorities [6].

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Hence, if the subject of the license for geological exploration and extraction of hydrocarbons from a certain field is a simple partnership, then all its members are considered mineral tax payers. They are obliged to pay the mineral tax depending on the amount of mineral resources extracted and distributed among the partners, equally or on the terms that are covered by the cooperation agreement. In all other cases, mineral tax payer is the licensee entitled to use the subsoil in order to extract mineral resources. It is the duty of the organization to keep account of the taxation object, to compute and pay the tax, to file tax declaration. This issue is relevant for organizations (e.g., joint stock companies) that after a certain lapse of time start to sign cooperation agreements with other organizations, not mentioned in the license. If in the course of tax inspection of such JSC it is detected that the tax payment comes not from the JSC, but from some other entity, tax authorities have the right to impose appropriate measures of tax enforcement, provided by the Tax Code. Concerning other members of cooperation agreement (agreements), tax authorities are entitled to carry out simultaneous inspections in order to confirm the accuracy of taxation basis calculation.

If the extraction of mineral resources takes place without a license, such operations are regarded as unauthorized subsoil use. Then penal sanctions are imposed on the organization (or private entrepreneur): tax authorities act to collect inflicted damage, calculated using mineral tax rates for the whole period of operation [9, art.43; 7]. The amount of inflicted damage in such cases is set to the maximal rate of subsoil use payments. The only exception is the stage of exploration, when the organization is issued a license only for geological prospecting of the subsoil, as it is considered that the mining license will be obtained after the deposit is explored and its reserves are estimated. That is why at the exploration stage the extraction is often carried out without a license – from test wells. There is no need to pay for unauthorized operations in this case, as the exploitation of the field occurs in the test mode – and this stage is a mandatory step in geological prospecting, included in the technical project. However, the mineral tax on extracted raw materials must be paid even at this stage (i.e. in legal parlance: operation without a license, either in accordance with the legislation or contrary to it – does not exempt companies from the mineral tax).

The second problem of mineral tax computation and payment is associated with a clear definition of a taxation basis. The objects of taxation in case of hydrocarbons are mineral resources: a) extracted from the subsoil areas, lawfully provided for these operations and situated on the territory of Russian Federation or outside its borders*; b) retrieved from waste products (losses) of extractive industries, subject to separate licensing. The quality of extracted mineral resources has to meet state standards of Russia. These requirements can be national, regional, international – or company standards, if all the other options are unavailable.

The Tax Code [3, art.337, pt.2] gives an exhaustive list of mineral resources. Hydrocarbon raw materials, subject to mineral tax burden, are: a) oil – dehydrated, desalted and stabilized; b) gas condensate from all types of hydrocarbon deposits after its industrial preparation, according to the technical project of deposit development, but before processing**; c) combustible natural gas (dissolved gas or a mixture of the former and gas from the gas-cap) from all types of hydrocarbon deposits, extracted from oil wells (hereafter – associated gas); d) combustible natural gas from all types of hydrocarbon deposits with the exception of associated gas.

From the moment of mineral tax introduction, the taxation basis is computed: a) separately for each type of mineral resource; b) as the cost of extracted mineral resource taking into ac-

* «Situated outside the borders of Russian Federation» means that these territories are leased, used under international contracts or are subject to the jurisdiction of Russian Federation.

** Processing of gas condensate involves separation of helium, sulphur and other components, if present; preparation of stabilized condensate, wide fraction of light hydrocarbons and their derivative products.

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count established diverse rates. Precise definition of the taxation basis depends on the calculation method of extracted mineral resources and the share of those included in the taxation basis.

Recent practice of mineral tax computation has shown that two legislative acts (Tax Code of Russian Federation, chapter 26 and the Subsoil Federal Law) of the same level and a regulation document (Russian National Standard 8.615-2005) contain: a) mutual contradictions; b) unclear statements; c) in certain cases altogether lack necessary norms (definitions, nomenclature). This causes inconveniences both for tax payers, trying to define the amount of taxation basis for the mineral tax, and for tax authorities, controlling it.

Subsoil Federal Law has formalized the position that from the moment of state registration of the license the subsoil user assumes a duty to provide trustworthy information about extracted mineral resources and the components they contain to the state statistical authorities. From the introduction of mineral tax in 2002, the Tax Code: a) prescribes the general procedure how to access the cost of mineral reserves and the components they contain in order to calculate the taxation basis [3, art.340]; b) states that the amount of extracted mineral resources (in mass or volume units) can be determined using two methods: *direct method* (using measuring instruments, tools and equipment) or *indirect* one (by calculating the mineral content in the rock mass extracted from the subsoil, waste products, losses) [3, art.339]. Indirect method is applied when it is impossible to measure the amount of mineral resources directly. Direct method, which uses technical measuring instruments, is methodologically based on the Law on Technical Regulation [12].

The method, selected by the tax payer: a) depends on the technological cycle of mineral resource extraction; b) has to be formalized in the accounting policies; c) can only be altered if there are changes to the technical project of deposit development or technology of mineral resource extraction. The amount of dehydrated, desalted and stabilized oil is defined as net oil [3, art.339, pt.1]. In the Tax Code it is also stated [3, art.339, pt.7 and 8] that in case of selling or using the mineral resources for technical needs their amount is calculated using indirect method*, and when development operations are finished, amount of mineral resources is calculated using direct method**. Notably, in the direct method the overall amount of mineral resources is composed of the amount of mineral resources, extracted from the subsoil, and the amount of extraction losses (actual losses). Estimated amount of mineral resources is the amount, by which mineral reserves in the subsoil are reduced; it is determined as the mineral resources get extracted from the subsoil according to the procedure, prescribed by subsoil legislation.

Actual losses are the difference between estimated amount of mineral resources, by which the deposit reserves are reduced, and their actual extraction. Losses also include mineral resources, extracted and dumped to waste pits, left in storage rooms, loading terminals and initial processing sites. In case of oil and gas development, they also include losses on treatment of oil and gas, already extracted from the subsoil. Actual losses should be calculated separately from normative ones, as the actual losses always exceed standard rates.

By the actual amount of extracted mineral resources is meant amount of mineral resources, retrieved from the mineral mass at the end of technological cycle of extraction and meeting the applicable standards [3, art.337, pt.1]. Consequently, the calculation of actual losses cannot be done basing only on the actual amount of extracted mineral resources without defining estimated amount of mineral resources, by which the reserves are reduced.

* «… when using the mineral resources for technical needs or selling them before the end of extraction operations, as anticipated in the project of deposit development, their amount is calculated basing on their content in the mineral mass» [3, art.339, pt.8].

** «… when calculating the amount of extracted mineral resources, all the operations on their extraction, anticipated in the project of deposit development, are taken into account» [3, art.339, pt.7].

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Currently, general metrological and technical requirements towards measurement of extracted oil and associated gas are defined in Russian National Standard 8.615-2005. According to pt 5.4 of this standard, «… results of measuring crude oil mass, using methods of direct and indirect observations, carried out in line with the approved procedure, serve as a basis for direct calculation in this specific subsoil area». However, there is no term «direct calculation» in taxation. Neither can it be found in tax legislation. Logic suggests that the term stands for a direct method of calculating amount of extracted mineral resources. But in such case results of measurements according to p.5.4 cannot be «a basis» for this method, because only the oil that meets the standard, brought to the end of a full technological cycle, is subject to measurement. Nevertheless, according to the Tax Code [3, art.339, pt.8], this approach is possible but only in case of selling and (or) using crude oil before the end of extraction operations.

Analysis of financial results and taxes (including mineral tax) of oil companies demonstrates that, despite the existence of national standard on measuring amount of extracted oil and associated gas, which formalizes general metrological and technical requirements, there is no unified procedure to calculate parameters that allow to carry out quantitative and qualitative assessment of mineral resources extraction. Most companies in the oil and gas business have developed and implemented their own corporate procedures. The main disadvantages of these procedures are the following [14, p.16]:

• only partial use of initial measurement information available, which necessitates reverse calculation of extraction parameters from the sales data;

• metrological characteristics of measuring tools are used in the procedures not to assess probability characteristics of the parameters, but to divide their shares for separate accounting, which contradicts metrological standards of traceability;

• tolerance range of extraction parameters for separate license areas and for the whole enterprise is neither analyzed nor formalized; consequently, no restrictions are applied to the results obtained;

• contrary to tax legislation requirements, the procedures tend to calculate daily amounts of extracted mineral resources – although they do not have necessary measurements in place, and the established tax (accounting) period is a calendar month;

• quantitative authenticity assessment of obtained extraction parameters is never provided.

And thus it all leads to significant economic and tax risks, both for subsoil users and taxation authorities, and also for the government as the owner of subsoil resources.

The next problematic issue of the mineral tax is correct definition of tax rates and their rental component. It should be noted that all the taxation of subsoil use apriori has to be of rental nature. However, this is not so. The only time, when theoretical elaboration of the tax rates was done correctly, was in 2014, when the tax rates for natural gas were introduced. Rates for all the other mineral resources do not take into account rental nature of the tax.

From the moment of mineral tax introduction, tax rates have been differentiated depending on the types of mineral resources. For some of them [3, art.342, pt.1] the tax rate equals zero (0 % – 0 rub). E.g., such rate is used for normative losses of mineral resources. In summary, currently the Tax Code clearly regulates, which tax rate corresponds to which mineral resource [3, art.342]:

• in percents for all extracted mineral resources except for coal, oil, associate and combustible natural gas. Tax rates range from 3.8 to 17.5 % of the cost of extracted mineral resources depending on their type. E.g., 3.8 % for potassium salts, 4 % for turf, oil shale, apatite-nepheline, apatite and phosphate rocks, 7.5 % for mineral water and peloids, 8 % for nonferrous and rare metals etc.;

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• in rubles for a unit of taxation basis for coal, dehydrated, desalted and stabilized oil, associated and combustible natural gas. E.g., in 2014 – 493 rub/t of extracted oil, from 01.01.2015 – 766 rub/t, from 01.01.2016 – 857 rub/t, since 01.01.2017 – 919 rub/t of extracted oil – dehydrated, desalted and stabilized.

Then the tax rate is multiplied by coefficients, taking into account dynamics of global oil prices (K_p), characterizing depletion of the particular subsoil area (K_{da}), characterizing reserves of the particular subsoil area (K_r), characterizing degree of difficulty of oil extraction (K_{dd}), characterizing depletion of the particular field (K_{df}); all these coefficients are determined in accordance with tax legislation [3, art.342, pt.3, 4 and 5].

Coal tax rates are multiplied by deflator coefficients, taking into account changes in domestic coal prices for the previous quarter and adjusted for every type of coal on a quarterly basis.

The tax sum is computed at the end of each tax period for every mineral resource extracted: a) for dehydrated, desalted and stabilized oil, associate gas and combustible natural gas from all types of hydrocarbon deposits and coal – as product of the corresponding tax rate by the taxation basis; b) for all other extracted mineral resources – as a percentage share of the taxation basis, corresponding to the applicable tax rate. For mineral resources with several established tax rates, or for tax rates, implying the use of coefficients in their calculation, taxation basis is computed separately for each variation of the tax rate [3, art.338, pt.5].

Since July 2014, according to amendments made by the Ministry of Finance of Russian Federation, a floating tax rate was introduced for associated gas and combustible natural gas from all types of hydrocarbon deposits; the formula for its calculation includes such parameters, as pricing environment on the market, transportation costs, difficulty of extraction and economic efficiency of the projects. Resulting mineral tax rate for gas and gas condensate equals 42 rub/t of gas condensate, or 35 rub/1,000 m^3 gas × ($E_{o.e.}K_{dd} + T_t$), where $E_{o.e.}$ – reference value of the unit of oil equivalent, which is calculated by the tax payer in case of extracting combustible natural gas (excluding associated gas) and (or) gas condensate from the subsoil area, containing a hydrocarbon deposit; K_{dd} – coefficient, characterizing degree of difficulty to extract combustible natural gas (excluding associated gas) and (or) gas condensate from the hydrocarbon deposit; T_t – costs of transportation for combustible natural gas (for gas condensate $T_t = 0$). Since 01.07.2014 tax rate for extracted gas condensate from all types of hydrocarbon deposits is 42 rub/t, and for combustible natural gas from all types of hydrocarbon deposits it is 35 rub/1000 m^3 of gas.

Each of the indicators is calculated using a special formula. Now every deposit is calculated separately. Therefore, mineral tax rates for gas and gas condensate started to take rental component into account (although everything is not that simple and unequivocal).

Conclusion. Tax legislation is permanently being amended. E.g., since 2016: a) mineral tax for gas is calculated using a new coefficient ($K_{g.p.} = 0.7317$, but for certain tax payers $K_{g.p.} = 1$), which characterizes export profitability. It is used to determine reference value of the unit of oil equivalent ($E_{o.e.}$) [3, art.342.4, pt.18]; b) mineral tax for oil is calculated using a new basic rate and coefficient, brought up to 857 rub/t; c) coefficient K_{mt}, used to estimate indicator P_m that characterizes specifics of oil production, is raised to 559 [3, art.342.5, pt.1] (in 2015 $K_{mt} = 530$); d) mineral tax for gas condensate is calculated using an increased value of correcting coefficient (now $K_{cm} = 5.5$); e) due to an increase in the discount rate, Central Bank of Russian Federation has raised fines for delays in tax payments (discount rate is now equal to the key interest rate and amounts to 11 %).

However, even in this case subsoil users face increasing difficulty of forecasting and uncertainty in investment issues.

Efficiency problem of tax rates and resource taxation at large (including tax rates for liquid and gaseous hydrocarbons) is reviewed in greater detail in the next paper.

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One of the prospects of mineral tax development is the elaboration by the government of Russia of a new calculation scheme for mineral tax on oil, as it has been done for the gas industry: for each subsoil area and taking into account transportation.

Taken as a whole, the function of the state – management of strategic resources – is becoming more relevant on the threshold of post-market economy and global depletion of mineral raw materials [2, p.296; 5, p.136].

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