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ЭКОНОМИЧЕСКИЕ НАУКИ

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ABOUT SOME STAGES OF DEVELOPMENT OF MORTGAGE IN RUSSIA

Abstract: the institute of pledge of real property operated in Russia before the revolution of 1917 as a mortgage and later – as the ordinary mortgage related mainly to the right of state ownership. Institute of mortgage, which firstly was an agreement on a mortgage, secondly, an agreement of guarantee, informs about intention, that all duties contracted by a borrower will be executed. On this case if the debtor does not execute his duties there will be the right of the creditor to reclaim the pawn thing with its selling from bargains and with compensation the debts of the borrower from proceeds.

Keywords: mortgage lending, credit institutes, credit and financial policy, pledge

The mortgage lending was the first type of crediting in Russ. Already in the XIII-XIV centuries simultaneously with the right of private ownership for land there was mortgager in Russia, but long time it existed actually without legislative registration.

In 1754 the first credit establishments were created: for the nobility – St.-Petersburg and Moscow offices of the State participating bank at Senate and Senate Office, for merchants – in Petersburg port and Commerce-board. Banks credited nobility and the merchants on the security estates. In 1786 these banks were reorganized into State borrowing bank [2].

On the 29th of October 1768 with the Manifesto of Catherine II in Russia for the first time the issuance of paper money - Bank notes was legally enshrined. The issue of paper money was assigned to the assigned banks established in Moscow and St. Petersburg in 1769. Additional borrowing of credit resources for state needs was carried out from the State loan Bank, which was formed in 1786 with the purpose of organizing a Mortgage loan to landowners, mostly the nobility.

In the same loan Bank insurance expedition was formed – the first insurance institution in Russia. The Manifesto provided the insurance of the stone houses taken as collateral in the implementation of credit operations. The procedure of registration of the contract of insurance was accompanied by the issuance of the insurance policy, whose integral part was the architectural plan of the object of pledge, transferred under the collateral loans, the State loan Bank. In the Russian Empire on the first of January, 1835 the code of laws of civil was introduced (the author of M.M. Speransky) where charging lien has been regulated in details. Mortgage in Russia at that time existed in the following forms (in this case, the concept of «mortgage» refers only to real property): with the Treasury; between individuals [1]. There was also the third type

of mortgage presented in the regulations of credit and public charity.

Since 1842 in Saint-Petersburg and Moscow with saving treasury the first savings banks began to work [1]. In 1859 it was decided to reorganize credit institutions connected with the preparation of the abolition of serfdom. All state institutions were eliminated, and so called Zemskie banks were established. At the same time private lending institutions have been created. In 1861 was founded the first private organization of long-term loan in Saint-Petersburg city credit society. And in 1863 the mutual credit Society was founded.

Since the early 70-ies of the XIXth century, the country had 11 joint mortgage (land) banks. Their role in the development of the credit system and as a consequence, the rise of the Russian economy in 1913 is still under-valued, although the shareholders of these banks conducted a large-scale land transactions and real estate. Mortgage credits became very common. For example, in 1867 it was granted loans in the amount of 99, 6 million rubles. In 1874, 294, 9 million rubles, in 1877 - 415 million rubles.

The growth of credit institutions has led to fierce competition. In this regard, the Government in 1872 took action limiting the formation of new state mortgage institutions for 20 years. The increased defaults of the landlords and nobles for loans in state banks and development of new market institutions have dramatically changed subsequent credit and financial policy of the state [4].

According to the Russian legislation of that time on the same territory could not act simultaneously over two land banks, not to create unnecessary competition. In Moscow there were 8 major state banks. Moscow land Bank to support the mortgage in 1891 organizes the Moscow housing society, on which lay the functions of control over the property. In the case

of «malfunction» of the debtor, his possessions become the property of the society.

Since 1912, the main coordinator of the mortgage becomes Moscow People's Bank. Private mortgage headed 10 joint-stock land banks, allocating loans land and urban property, on a clearly defined territory. They provided credit in the form of mortgages sold on the stock exchange sheet (a special kind of securities, in force in the mortgage market, had fluctuating rate). In the case of «failure» property of the debtor «disappeared» from a public auction. Shares of mortgage banks and mortgager sheets were a favorite tool of capital facilities for Russian entrepreneurs and renters.

On State Peasant Land Bank (founded in 1882), the problem of peasants to lend money for the purchase of landed estates was assigned. Bank issued long-term loans to farmers of up to 33 years. During 1883-1895 years, the bank has issued 15,000 loans totaling 82 million rubles. With its participation was sold and bought 2.4 million acres of land, mostly landlords. Loans issued in the amount of up to 75% of the cost of acquiring a property for a period of 24.5 and 34.5 years, the interest rate was quite high and amounted to 7.5-8.5 percent [2].

State Nobles Land Bank, founded in 1885, supported by the issuance of landlordism nobles mortgage loans for a period of 66 years at a rate of up to 100% of the appraised value of the collateral. Thus, in 1887 it has been granted 69 million rubles, and in 1890 – already more than 600 million rubles (just under 5% per annum, in addition been charged for banking services and insurance percentage).

By the first of January about 1893 102 313 estates with 46, 3 million acres of land, and the remainder of the debt in 1131 was laid. However the principal amount of debt amounted to State Nobility Land Bank. In 1896, credit conditions have improved for farmers: size up to 100% of the acquired land, the rate was reduced to 3.5 - 4.5 percent per annum. At that time the law on the organization of small credit institutions was declared in Russia. So rapid growth of mortgage institutions have began. There were loan saving banks and credit associations, rural, township, village saving banks and rural offices, which the state has, a great help. The newly opened credit institutions could form the initial capital of the borrowed funds, which they repaid their loans at the expense of their profits, and in most cases, the lender acted directly to the State Bank of Russia.

The country has adopted a massive occurrence and loan – savings partnerships. About 729 partnerships have been established for 10 years. In the first decade of the 20th century, they have joined the interests of 8 million people. By 1905 there were more than 500 associations of small loans, and in 1915 there were already 15 450. Credit associations began to unite

with credit unions, which were in 1914 about 11. At this time, the pledge was the most reliable and guaranteed way to secure the loan. By 1917, there was the development of credit in Russia – the banking system of long-term loans, which had a good legislative support and was brilliantly organized. The financial appeal widely involved mortgage-backed securities: mortgage sheets, various obligations, bills, certificates, as well as mortgages directly.

The long-term financing of the real estate assisted rapid development of economy, industry, rural and municipal economy. Russia on development credit – the financial system did not yield to Western Europe. What be more, on the volumes of the securities, provided mortgage obligations, circulating on the European markets, Russia prevailed over all Europe.

Specific Russian experience of long-term crediting, and in particular, on the security of the earth, a variety credit – investment technologies and an infrastructure in the field of pledge of real estate, undoubtedly played a huge role in development of both the American, and European mortgages, formed base for creation of new investment and mortgage tools. In Russia of the post – revolutionary period the mortgage right continued to exist in the conditions of a failure to provide of the valid turnover ability of fast estate [3]. Therefore during the period more than the 70th years of Soviet development pledge turned into the little significant mechanism which was extremely seldom used in transactions according to the order by property. In general, during the Soviet period a circle of subjects and objects of mortgage housing and consumer loan, the sizes, conditions, an order of issue and repayment, sources of repayment of these credits, terms of using and interest rates were regulated by resolutions of the Central Committee of CPSU and Council of ministers of the USSR. The instructions of credit providing bank consumer and mortgage loans then were extremely poor. So, to collective farmers, workers and employees of the state self-supporting enterprises and organizations mortgage and consumer loans were issued only in their place of work, under liabilities of collective farms and economic organizations which actually acted as the main guarantors according to bank private loans. Only teachers, doctors and other workers of the budget institutions obtained from banks consumer and mortgage loans under the personal obligations. The classical housing mortgage in the USSR in essence was absent [4].

Revival of institute of pledge (mortgage) in Russia was connected with introduction of the Federal Law «About a mortgage» from July 16, 1998.

The following provisions found reflection in it:

- The bases of emergence of a mortgage, the obligation provided with a mortgage, a mortgage subject;

- Order of the conclusion of the contract on a mortgage;
- Mortgage as security;
- State registration of a mortgage;
- Ensuring safety of the property put under the contract on a mortgage;
- Transition of the rights for the property put under the contract on a mortgage to other persons and encumbrance of this property by the rights of other persons;
- Subsequent mortgage;
- A concession of the rights under the contract on a mortgage;
- The address of claim to property put under the contract on a mortgage and realization of the specified property;
- Features of a mortgage of the land plots, enterprises, buildings and constructions, houses and apartments [4].

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PROBLEMS OF STIMULATING RATIONAL ENVIRONMENTAL MANAGEMENT IN THE RUSSIAN ECONOMY AT THE PRESENT STAGE

Abstract: this article indicates the critical importance of taking into account the environmental factor in the economic development of contemporary countries. The issues of formation and implementation of the economic mechanism of using natural resources are considered on the example of Russia.

Keywords: use of natural resources, stable development, environmental safety, natural capital

In order to ensure stable development of economies of modern countries, it has become very important for them to find the ways of rational use of the nature capital and preservation of the properties of the environmental and economic systems. According to the article Human Domination of Earth's Ecosystems by the leading American ecologists, the humankind changes the biosphere faster than realizes it [6]. It is obvious that only environmentally safe development and preservation of the natural capital are the basis of stable development of economic communities.

Currently, the world science and practice pay more and more attention to the economic role of natural and environmental services, and the environmental factor is accounted for at both the microeconomic level when developing various technology of using the natural capital, and at the macroeconomic level at selection of a socio-economic line of the country's development. The problem of natural capital preservation and environment friendly development is especially topical for modern Russia, as natural capital plays special role in the economy of the country.

While understanding the importance of the solution of the problems of rational use of natural resources, the Government of the Russian Federation adopted a series of strategic documents targeting increase of the economic role of natural capital. For example, the Concept of Long-Term Development of the Russian Federation for the Period until 2020 states that "formation of innovative economy means turning intelligence and creative potential of a human into the leading factor of economic growth and national competitiveness along with the considerable improvement of the efficiency of using natural resources" [4]. Ensuring economic growth in Russia is inherently connected with the pollution worsening and degradation of the natural capital. This all actualizes the study of economic regulation of use of natural resources, of which incentive is the main element.

Highlighting the importance of the study of the problem of encouraging rational use of natural resources, we would like to remind that the 2008 world economic crisis showed depletion of the potential of

export-oriented raw material economy of Russia. According to the Economic Expert Group, Russia spent for antirecessionary measures more than any other country - over 11% of its GDP, and it ended at the lowest position in the top twenty with its -7-9% of the GDP. To compare, the USA spent for antirecessionary measures only 8.4% of the GDP, and the world totally spent 7%. But it is obvious that these efforts are insufficient: for the last 50 years, nearly 60% of the world ecosystem services have been damaged by anthropogenic impact, and they are going to become deficient at the current economic growth ratio and depletion of natural resources [2]. The renowned American ecologist L. Brown provides China as an example of this statement [1]: in order to achieve the US standards of living, this country will require more oil and paper than the world can produce (we omit the 3 billion people living in the developing economies, like India and Brazil, and other countries).

In case of Russia with its obviously resource nature of the economy, solution of the problems of use of natural resources depends first of all on the formation and implementation of the economic mechanism of using natural resources, the main chain link of which, to our opinion, must be the incentive of rational use of natural resources. Let us consider such an approach. First, we need to emphasize that we understand *incentive* as the process of external impact on natural resource users with the purpose of coordination and implementation of economic interests. As we have a market economy, the incentive measures must be taken within the framework of market self-regulation. However, due to known market failures, the capabilities of market self-regulation are quite limited. This circumstance intrinsically determines the necessity of governmental intervention, so the incentive measures will involve government control.

Let us analyze the economic mechanism of using natural resources, which exists currently in Russia.

1. The practice of implementation of incentive measures in the area of environment protection shows that the effective legislation in Russia is weak and contradictory in this area. For example, the Federal

Law dated 10.01.2002 #7-FZ On the Protection of Environment [5] failed to achieve its objective – creation of a single economic ground for development of the legislation in the area of encouraging protection of the environment. The main actuating elements of the economic mechanism of using natural resources in the Russian Federation are currently the natural resource taxes and payments for using natural resources, but they do not play the role of a reward for rational use of natural resources. Their role is mainly the budget revenue generators.

There is another circumstance to notice: according to the same source, in the total volume of payments received for using natural resources by the consolidated budget of the Russian Federation, 88% (which is equal to 2,043 billion rubles) are payments of the mineral replacement tax (MRT). 97% of the revenues are payments of the oil and natural gas extraction taxes where all other payments are so insignificant that we cannot state any significance of the payments for the budget and, of course, any stimulating role.

In this view, we believe that if the total amount of taxes remains unchanged (observance of the principles of fiscal neutrality), it is reasonable to change the proportion by increasing the share of taxes related to use of natural resources, which would allow to decrease the rate of destructive extraction of resources from the natural environment, on the one hand, and to encourage natural resource users to apply energy and material saving technology, on the other hand.

2. Another effective form of the economic mechanism of using natural resources is the payments for environment pollution. But they do not have the status of taxes in Russia; their rates are rather low; and they are not charged not as the enterprise's profit but as the production cost if they are within the standard values.

Therefore, they do not influence the economic interests of the enterprise. However, the actual receipt of payments for negative impact on the environment by the federal budget, according to the Federal Treasury, equaled to 4.430 billion rubles in 2011, which is equal to 115.86% of the forecast volume of revenues. Consequently, there are grounds to increase this type of revenues.

What we mean is, first of all, payment for the right to use natural resources and taxes related to environmentally harmful activity, which leads to pollution of the environment. Currently, the principles of environmental reorganization of tax systems are spreading around the world. The leaders in implementation of the principles are the European countries, some part of which have decreased personal income and salary taxes and increased taxes on environmentally destructive activities (Table 1). As Table 1 shows, there is a tendency in Europe to impose larger taxes on environmentally destructive activities, including carbon and sulfur emission, coal mining, and land alienation. The following taxes are also imposed depending on the country: on excessive consumption of water, on utilization of agricultural land for other purposes, on deforestation, on usage of pesticides, etc. This experience should be applied in the Russian practice with account for regional differentiation and peculiarities of recreational use of natural resources.

Simultaneous creation of efficient direct or indirect economic tools and regulators for development of environment friendly types of activities and entrepreneurship on the level of federal and regional authorities would contribute to attraction of investments in this sphere and, finally, allow forming favorable conditions for implementation of rational use of natural resources in the regions.

Table 1

Environmental reorganization of tax systems in some European countries

Country	Areas of decreased taxes	Areas of increased taxes	Total shift of tax revenues (%)
Denmark	Personal income	Engine fuel, coal, electric power, prices for water, and waste incineration and disposal.	2.5
Denmark	Salary, agricultural property	Industrial emission of carbon, pesticides	0.5
the Netherlands	Personal income and salary	Natural gas and sales of electrical power	0.8
the Netherlands	Personal income	Sales of energy, sales of water to households, alienation of lands	0.9
Germany	Salary	Sales of energy	2.1
France	Salary	Solid wastes, air pollution	0.1

In order to achieve it, the government needs to pursue efficient selective economic policy for changing the structure of investments in various sectors of the economy based on macroeconomic regulation and indicative planning using tax tools, benefits, loans, subsidies, custom duties and payments. Among the latest works in this sphere, the Report on Measurement of Economic Development and Social Progress by two Nobel laureates in Economy J. Stiglitz and A. Sen (2009) is worth mentioning [3]. Particularly, they noted in this article that the GDP did not cover various social processes and changes in the environment, which very negatively affected the envi-

ronmental and economic development of contemporary countries.

Thus, the unfavorable environmental and economic processes that take place in the world as a whole and particularly in Russia can upset the balance of development unless due attention is paid to the environmental factor during the process of using natural resources and when the economic structure is changed. It is possible to achieve truly rational use of natural resources and preservation of environmental and economic systems only provided the economic mechanism of using natural resources is formed and implemented.

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ОСОБЕННОСТИ ВЕНЧУРНОГО ФИНАНСИРОВАНИЯ ИННОВАЦИОННЫХ ПРОЦЕССОВ В УСЛОВИЯХ РЫНОЧНЫХ ОТНОШЕНИЙ

Аннотация: в статье рассмотрена роль инноваций как ключевого фактора экономического роста, а также освещены аспекты создания теоретических основ венчурного финансирования. Статья представляет интерес для научных работников, аспирантов в области развития инновационной деятельности, специалистов государственных органов управления, а также широкого круга читателей.

Ключевые слова: инновационные процессы, инновационная экономика

Основным методом перехода к инновационной экономике является «венчурное финансирование» (от английского слова «venture» - «рисковое начинание»). Понятие риска связано, прежде всего, с вероятностью угрозы потери инвестированных средств в условиях отсутствия гарантий их возвра-

та, а также необходимости выделения дополнительного финансирования или получения прибыли меньше запланированной.

Существует две основных схемы венчурного финансирования: традиционная схема венчурного финансирования инновационных проектов,

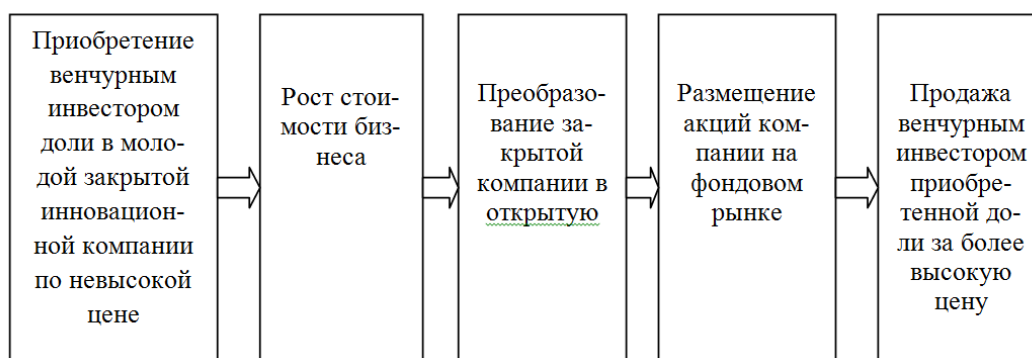


Рис. 1. Традиционная схема венчурного финансирования инновационных проектов

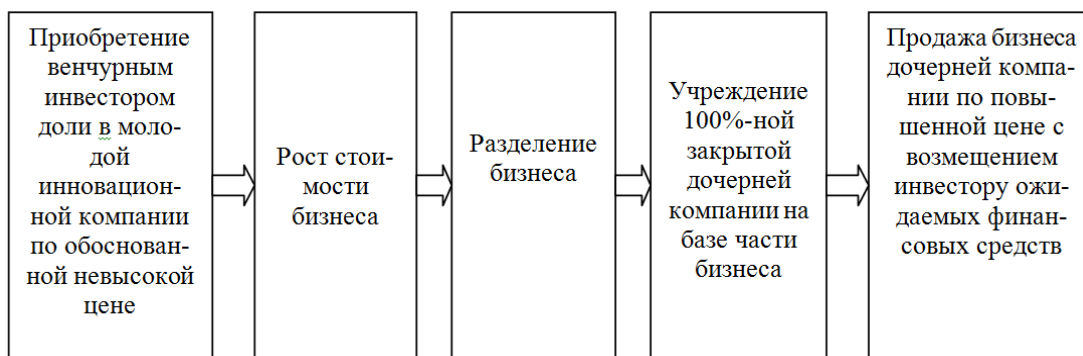


Рис. 2. Альтернативная схема венчурного финансирования (для стран с неразвитым фондовым рынком)

опирающаяся на использование инструментов и механизмов фондового рынка и альтернативная схема венчурного финансирования (для стран с неразвитым фондовым рынком). В соответствии со схемой (Рис.1), венчурное финансирование в проект привлекается таким образом, что во вновь учреждаемую компанию, в форме закрытого акционерного общества, для реализации намеченного инновационного проекта, в качестве соучредителя приглашается венчурный инвестор. За денежный взнос в уставный капитал этой компании, ему предлагается приобрести долю в компании. Это делается либо на этапе учреждения компании,

либо позднее. В первом случае венчурный инвестор изначально выступает соучредителем компании. Во втором случае для него по закрытой подписке выпускаются дополнительные акции. Финансовые средства, внесенные в уставный капитал, в дальнейшем используются для оплаты капитальных затрат инновационного проекта и представляют собой объем венчурного финансирования. При этом венчурный инвестор обязан:

- участвовать в управлении проектом и предприятием;

- осуществлять мониторинг рыночной стоимости бизнеса, стремясь обеспечить наиболее быстрый рост этой стоимости;

- принимать решение о преобразовании закрытой компании в открытую, предварительно убедившись в том, что рыночная стоимость бизнеса и компании значительно выросла по сравнению с величиной уставного капитала на момент вхождения венчурного инвестора в компанию;

- анализировать возможность продажи своей доли (пакета акций) в компании, убедившись в том, что после размещения акций компании на фондовом рынке они станут достаточно ликвидными, а выручка от их продажи значительно превысит первоначальную сумму инвестиций в уставный капитал компании.

Создание теоретических основ венчурного финансирования предполагают следующие обстоятельства:

Во-первых, осознание научным сообществом того факта, что инновации вносят ключевой вклад в экономический рост и, что, по сути, есть только два способа увеличения объемов производства в экономике: либо путем увеличения объема используемых ресурсов в ходе производственной деятельности, либо путем разработки и внедрения новых способов увеличения отдачи от того же объема используемых факторов производства, т.е. путем изменения методов применения ресурсов (создания и использования новых технологий).

Во-вторых, понимание того, что новые небольшие фирмы более склонны к высокорисковым стратегиям, чем крупные фирмы, которые в основном, рационально ориентируются на более традиционные подходы. Вследствие этого, хотя малые фирмы обладают больше вероятностью банкротства, они также с большей вероятностью могут вывести на рынок инновационный продукт.

В-третьих, признание того факта, что, известные ранее, методы финансирования (включая все существующие инструменты коммерческих банков и традиционных инвестиционных компаний) неадекватны особенностям деятельности быстрорастущих молодых инновационных компаний и непригодны для финансирования их проектов.

В-четвертых, понимание того, что стратегической целью обеспечения финансирования инновационной деятельности и помощи молодым инновационным компаниям является «повышение качества жизни населения», а не извлечение прибыли.

В-пятых, осознание научным сообществом того факта, что высокорисковые инвестиции в инновационную экономику необходимо привлекать под гарантии и преференции государства с использо-

ванием средств институциональных инвесторов (таких, например, как, пенсионные фонды).

Основателем теории венчурного финансирования считается профессор Гарвардской Бизнес Школы Джордж Ф. Дорио (Georges F. Doriot), который возглавил первую венчурную компанию, созданную с гораздо более масштабными целями, чем просто извлечение прибыли - Американ Рисерч анд Девелопмент (АРД – American Research and Development).

К наиболее существенным концептуальным основаниям государственного регулирования венчурного финансирования инновационных процессов можно отнести:

1. Рыночные модели экономики развиваются во времени и современная мировая экономика, в настоящее время, стала преимущественно инновационной. Предметом конкуренции в инновационной экономике являются не товары, а права на интеллектуальную собственность, которыми обладают инновационные продукты;

2. Процесс создания инновационного продукта - от идеи, до выхода на рынок, обладает повышенным инвестиционным риском. Для инвестирования инновационных проектов известно соотношение «3-3-3-1» (полученное в результате статистических наблюдений), когда на десять проинвестированных проектов: три неудачны, три приносят умеренную доходность, еще три высокодоходны, а один оказывается сверхдоходным и приносит сотни процентов прибыли, в связи с чем, все традиционные финансовые инструменты коммерческих банков, инвестиционных компаний и частных инвесторов, как правило, не могут быть пригодны для инвестирования подобных проектов;

3. К возникновению системы венчурного (рискованного) финансирования инновационных проектов, привели результаты высокодоходных инновационных продуктов, успешно выведенных на рынок, в которых участвовала достаточно малочисленная группа энтузиастов, склонных к риску, однако к качественным изменениям в экономике, в направлении роста инновационной составляющей, это не привело.

4. В целях увеличения масштабов инвестирования инновационных процессов, для развития инновационной экономики, основана система государственного регулирования венчурного финансирования, включающая внедрение пакета привлекательных возможностей государственно – частного партнерства для частных инвесторов;

5. Наиболее позитивным опытом государственного регулирования венчурного финансирования является Англия. По инициативе правительства, парламента, банка Англии и казначейства в 1983 году была создана Государственная инновацион-

ная компания высокорискованного финансирования в научно-технический сектор экономики за счет бюджетных средств, которая за счет стартовых бюджетных инвестиций в объеме 2 млрд. долларов создала более 1000 новых предприятий высоких технологий и запустила успешно работающий, до настоящего времени, механизм льготного налогообложения частных венчурных инвесторов. При этом, к настоящему времени, доля частных венчурных инвестиций превзошла первоначальный бюджетный показатель.

б. Подобная система государственной поддержки венчурного финансирования позволила: привлечь существенный объем частного капитала в научно-технический сектор экономики, создать систему вовлечения в хозяйственный оборот объектов интеллектуальной собственности, провести диверсификацию и модернизацию промышленности, снизить уровень безработицы, привлечь в национальный венчурный бизнес иностранные инвестиции, создать новый рынок ценных бумаг малых инновационных компаний.

Переход к инновационной модели экономики обеспечивается процессами диверсификации и модернизации существующей экономики. Диверсификация и модернизация являются наиболее эффективными факторами повышения конкурентоспособности и устойчивости экономики на всех уровнях хозяйствования и иногда являются единственным средством «выживания» хозяйствующего субъекта в условиях рыночной неопределенности. Выделены следующие макроэкономические условия проведения диверсификации и модернизации:

¹ Источник: Инвестиции: учеб. А.Ю. Андрианов, С.В. Валдайцев и др. 2-е изд.-М.:ТК Велби, изд-во проспект, 2007.584с. (с.325)

² Источник: Инвестиции: учеб. А.Ю. Андрианов, С.В. Валдайцев и др. 2-е изд.-М.:ТК Велби, изд-во проспект, 2007.584с. (с.333)

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FEATURES OF VENTURE FINANCING OF INNOVATIVE PROCESSES IN THE CONDITIONS OF THE MARKET RELATIONS

Abstract: the article considers the role of innovation as a key factor of economic growth, and also highlights aspects of the theoretical foundations of venture capital financing. The article is of interest for scientists, graduate students in the field of development of innovation activity, specialists in state management bodies, as well as a wide range of readers.

Keywords: innovative processes, innovative economy

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FROM THE HISTORY OF TREASURY AS AN INSTITUTIONAL ENVIRONMENT OF MANAGEMENT BY BUDGETARY RESOURCES

Abstract: in this article historical roots of the institutional environment of management of the budgetary resources, represented by treasury, the institute which directly being in system of bodies of federal executive authority are considered, which is engaged in execution of federal budget.

Keywords: budget, treasury, institutional environment

From old times a function of execution of budget of the state was a major strategy of management and powerful lever of affecting on social – economic development of the country.

A treasury passed very long and difficult way of development. Its history is not separated from the history of development of the Russian state.

Treasury service had emerged yet in the days of Ancient Russ, when position of treasurer appeared – public servant of princely or boyar administration, keeper of princely values that was named a treasury. With expanding of the Russian state's borders and with its strengthening a treasury grew gradually, and it required additional control after preserving of means. As a result, the role of treasures began to grow and some state yards appeared during governing of Ivan the third.

Speaking about a treasury, as the institutional environment of management by budgetary resources, we should take into consideration the history of management of profits and charges of the state.

The historical roots of budgetary methods of management go away to the depth of centuries. As early as the Moscow great duchy and Russian state in 15-16 centuries there was specially authorized organ, called «treasury». It controlled collection of bearers, collections and duties. In the middle of the 16th century their functions were committed for the Public Ambassadorial low level trial (Холопъему), and since 1775 public chambers, as public institutions, were involved in Russia. [1].

In 1710 during the reign of Pete the 1st Audit Office was established which controlled the correct income of taxes. In 1785 urban governance was reformed by Catherine the second. A treasury becomes an organ, carrying out collection and storage of money treasury. In 1780 the treasuries of regular and residual amounts were opened in Moscow and St.-Petersburg, which were all running expenses except the military, naval and cabinet.

Thus executions of current outlays realized on the basis of annual time-tables, and remain according to the special time-tables, made up by «Expedition about state profits» [1].

In 1780-1781 differentiation of this expedition was conducted on four constituents: on profits, on charges, auditing constituent and on the penalty of arrears and shortages through local authorities.

In the period of reign of Paul the first, from 1796 treasury expeditions are distinguished in a conduct of the Lord high treasurer [1].

In 1802 the most important transformation of Emperor Alexander the first was establishment of Ministries, including Ministries of finance. Management by the matters of state economy it was entrusted to the minister for finance, commerce and Lord high treasurer. The first state controllers became F.A. Golubtsov (1802-1810) and, Kampengauzen (1810-1811rr). In 1821 at Ministry of finance the Department of the Main treasury was created which made monetary report of the state.

In 1822 the Main Treasure included 5 separations: cash desk, book-keeping, control - arrival, control - circulating, office.

The question of achievement of unity of cash desk and abolition of division of cash desks on arrival and expense was marked as early as in 1855r. And already from 1864 unity of cash desk was entered in St.-Petersburg, and in 1866 it was widespread over the all Empire. In 1872 unified instruction was published for all treasuries of Empire, containing rules about the order of reception by the treasury of chinks, credit papers and sending of sums, pensions, manuals etc. [1].

In 1900 there was a confluence of treasury cash desks with bank.

After revolution 1917 on the base of treasury were created cash desks of income and expenditure of the Folk committee on finances, incorporated with establishments of the Folk bank in October 1918. For New power, building the state on distribution and setting of norms, the functions of treasury were not acceptable. A folk bank concentrated in the hands credit business, financing of national economy, estimate - budgetary work, guidance by money circulation. State treasury, as a structure of Ministry of finance, ceased to exist [1].

In Russia rational management of the state income and output acquired an enormous value as far as passing an economy of country to the market relations.

In 1992 the president of Russia published a decree in accordance with that the before existing organ of management was subject renewal budgetary resources, in the person of treasury, - institute being in the system of federal executive government bodies, that engages in execution of federal budget. The necessity of reconstruction in treasury system did not come at once. It was not easy to understand what model of execution of budget suitable for Russian Federation – bank or treasury [4].

With the disintegration of the USSR there was a mixed system of cash execution of the budget. State system of budget calculations was not sufficiently flexible and stable. Further, the situation appeared at the end of 1991 was characterized by the fact that the funds which had very large budget users were in the commercial banks, and they could not guarantee their safety. Banks, in some cases, deliberately, in others – for objective reasons did not adjust their means to budget users, considering them as a time of crisis, primarily as cheap credit resources to maintain its own stability. So, in the budget's economy of the country there was a mess [3].

This process was localized, and then completely stamped out, when money passing only through the federal treasury bills began to come into the offices of federal budget sphere in the relevant territory as a part of federation, region or city. The control function had an important meaning in allocation and spending of public funds directly to budget recipients.

The finally formed single centralized management consists of the Main management of Federal Treasury of Ministry of Finance in Russian Federation and including territorial organs of federal treasury in republics in the part of RF, also regions, autonomous republics, cities of Moscow and St.-Petersburg, cities and regions. [2].

The successful development of the economy of any country depends on authentic and rapid information about the state of public financial and material resources, as well as the ability of effective management. This allows evaluating the work of government and getting a clearer idea of the economic impact of

fiscal policy. The main suppliers of such information are the Treasury.

The development of market economy in Russia has led to a lot of problems in terms of budgetary discipline. Our country has a long period of time some economic crisis, the consequence of which is the excess of expenditure budgets of all levels of their income, i.e., budget deficit. It urges leaders at all levels of the budget system to look for ways to solve the budget problem and strengthen control over the spending of budget funds.

A new stage in the development of federal treasury system was administrative reform in accordance with the decree of the President of the Russian Federation on March 9, 2004 No.314 «On the system and structure of federal bodies of executive power». As a result of this reform, on the first of January 2015, the Federal Treasury has been allocated from the Ministry of Finance of the Russian Federation and transformed into a federal service with the subordination of the Ministry of Finance of the Russian Federation [5].

In accordance with the data transformation functions to ensure enforcement of the federal budget moved from the Ministry of Finance of the Russian Federation to the Federal Treasury, as well as the function of drawing up a report on the federal budget and on the performance of the consolidated budget of the Russian Federation.

Regulation about Federal Treasury was approved by resolution of the Russian Government.

Nowadays the organs of Federal Treasury have the following main objectives:

- Conducting cash transactions carried out in the course of the federal budget;
- Implementation of the preliminary and current control over the observance of the budgetary legislation participants of budgetary process;
- Distribution (for regulatory requirements) income received by the budgetary system between the budgets of different levels;
- Implementation of cash management services execution of budgets of the Russian Federation and local budgets;
- Timely and qualitative preparation of reporting on the execution of the federal budget.

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INCREASING THE EFFICIENCY OF BANKS IN THE KABARDINO-BALKARIAN REPUBLIC

Abstract: the features of the functioning of regional credit institutions, which allowed them to identify the problem. The main trends and patterns of development of the regional banks in the CBD relating to the fall in the level of financial stability, reliability and profitability during the crisis, on the basis of which proved the need for organizational changes in the banking sector.

Keywords: regional banking system, investment activity, international standards, effective functioning

Regional banking system is considered to be the main component of the regional financial system, which includes all cash flows of economic entities. The main role of the regional banking system is given its multi-function relationships. It is well known that the economic activity of banks is considered a compulsory component of financial interactions occurring at the business entities. But the banking system is also a major element of the investment activity of the financial system, redistributing financial assets in favorable and efficient functioning of the economy sgmente industry in need of investments. Question mobilization of investment has always been not easy for the subjects of the federation, and for the country as a whole. Therefore, underdevelopment of regional banking systems leads to a weakening of business activity, the inhibition of the development of economy, violation of the reproduction cycle.

There is a development of the quantitative characteristics of the banking system, which is accompanied by positive changes. All of the banks of the Kabardino-Balkarian Republic are participating in the deposit insurance system of the population. Banks are rebuilt on a gradual transition to international standards of economic accounting, develops a system of credit bureaus.

However, there are reasons that hinder the efficient functioning of the regional banks. Such reasons may be:

- absence of a strong national banking system;
- imperfect legal framework;
- lack of direct investment inflows.

It considered expedient allocation of 3 central vectors of development of the regional banking system. First, the country has been the policy of reducing the medium and small banks, bank concentration by absorption or merger. This exposed, mainly those banks that are not well conducted research and evaluation of their financial condition and risks, where there are no qualified staff are not able to build a competent development bank structure and attracting new customers at the expense of interesting and attractive products.[2]

There is a tendency to high-quality transformation of the regional banking system. The most stable were those banks that flexibly respond to changes in the

economic development of the regions and the country as a whole, and to create the necessary amount of assets. These banks acquire the status of a stable, vysokoplatezhesposobnyh, high liquidity banks and enjoy great trust from clients than currently provide stability in the banking arena region

Previously, the number of regional banks were small and the population did not have much choice among specialized credit institutions, in recent decades, with the establishment of new banks of various functional purpose and nature of the operations, as well as the development of information technology intensifies competition among regional commercial banks. Attracting financial resources the population has become more difficult. To maintain its position and develop efficiently and more, banks are forced to sell more profitable products, to increase the volume of the operations, increase its resource base, and ultimately raising the yield.

But the invasion of other regional markets as a consequence of the creation of territorial divisions can not be regarded as a likely direction of investment activity of regional business banks. Together with the positive factors in the development of the banking system of the republic of Kabardino-Balkaria, to intensify the activities of commercial banks in the direction of investment, there are also negative intra moments.

Even with the trend of increasing the authorized capital of regional banks of the republic, now the value of the authorized capital is not sufficient to effectively counter their competitors.[1] Only one bank in the country may be included in sgment banks with registered capital of 3 million rubles, one – from three million to ten million rubles, and four banks –... more than 10 mln. rub.

The probability of increasing the size of lending at independent regional credit institutions is low because of the limitations of their own, and the involved capital and offices in inoregionalnyh commercial banks due to the subordinate position of the central credit institutions that affect the maximum size of loans issued. In addition, commercial banks in the region are attracted mainly short-term financial resources, which also has an impact on banks' opportunities for long-

term investments: Long-term liabilities take less than thirty per cent of attracted resources. This limits the ability of credit institutions in the implementation of large-scale investment projects in the region of the financial resources that are outside of the country. Limited financial resources of national commercial banks also hinders the work of external capital. The consequence of all this is the inability functions effectively functioning outside the country.

Thus, it can be concluded that due to certain factors, the investment performance of the regional banks in the country is limited by the insufficient size of their total capital, they were locked in their borders to commit large prospective long-term investment banks Kabardino-Balkaria have to increase their own resources. Some banks have attempted to increase their resources at the expense of transactions with securities, but this trend has not produced the expected results due to the underdevelopment of the stock market of the country. In recent years, the proportion of the schedule of profit from securities transactions decreased markedly. In general, a small amount of the share of investments is observed in the republic in securities in the assets of banks in the republic. This tendency can be seen in the following table.

Active in the field of work on securities trading is not observed in the regions, because the investments in shares of local companies are not attractive and are the only means of maintaining liquidity rather than a way of its increase.[3] The republic is not the stock market and securities are distributed mainly in the banking sector.

Regional banks prefer to invest their resources attracted in such areas of the economy where they will get a quick return at the expense of turnover. Banks provide credit services mainly to small and medium-sized businesses.

The question of increasing investment activity of regional banks for the successful development of the Russian economy has been and remains one of the main, because the solution to this problem automatically lead to financial self-sufficiency of the real economy, and, as a consequence, to its development and implementation of growth strategies. Key points of origin of the investment policy of regional com-

mercial banks are characterized by the value of the investment activity on the part of potential investors and the degree of investment attractiveness of economic subjects. To do this, in the region need to form certain conditions, which would have pushed the entire investment process. Federal policy should be designed in such a way as to create a program to stimulate investment and innovation, the development of the regions of advanced technologies and their implementation, modernization of production. It is necessary also to carry out the reconstruction of the guarantees of the rules for investment banks in the industry. To intensify the investment activity in the regions need to introduce certain tax benefits for those categories of commercial banks that invest in the development of the region. Those. the city and the banks can fruitfully cooperate.

Directions of perfection of investment activity on the part of regional commercial banks could be:

1. Create the right sales and marketing system.
2. Build a quality service.
3. Implement attractive types of investment products for the population.

On the part of the federal government should:

1. to improve the tax system, in particular to reduce the income tax rate on income from investment activities of regional commercial banks;
2. to provide more benefits to banks that are engaged in investment activities;
3. exempt from taxation income derived from loans granted to finance specific investment projects;
4. The provisions for loan losses but it is desirable to include the cost in determining the tax base for income tax in full, it will help to raise the solvency of banks and, thus, will provide an additional incentive to engage in investment.

Summarizing, we can say that to improve the investment atmosphere in the region could result in the construction of specialized centers, whose activities would be aimed at the development of specific investment projects, database creation for all investment projects and companies in need of additional long-term resources, the introduction of the insurance system investment risks, as well as the analysis of the investment climate in the country.

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MEANS OF INCREASING THE INVESTMENT ATTRACTIVENESS OF AGRARIAN SECTOR OF ECONOMY

Abstract: the investment crisis in an agricultural production is based on the incompleteness of market transformations, on the weak investment attractiveness of this sector and on extremely unhealthy financial position. For effective development of investment processes it is necessary to solve fundamental strategic management tasks of the agrarian sector of economy.

Keywords: investments, agriculture, state support

Intensification of investment process in agrarian sector of economy dictates the necessity of realization of consequent state policy on bringing in and use of investment resources. It is urged to stabilize the economic and financial situation of agricultural enterprises as a prerequisite for overcoming the crisis. Eventually it solves the problems of life-support of industries, development of new, technologically advanced productions, formation of effective economic units, creating new workplaces, first of all, in rural areas [1, 4].

It is necessary to stir up investment activity in order to restore reproduction processes in agriculture, to overcome a crisis, promote the competitiveness of products and to compensate the expected leaving of the out-of-date fixed capital.

The reasons of investment crisis in agricultural production are lied in the incompleteness of market transformations, in the weak investment attractiveness of this sector and in extremely unhealthy financial position [5].

Forming of pre-conditions to the macroeconomic financial stabilization (decline of budget deficit, percent rate and rate of inflation) is a necessary condition for the growth of investment activity. It is necessary to raise liquidity of agricultural production, revitalize its finances, reduce debts, and to increase the profitability of investments, operations of financial market, including state promissory borrowings.

It is also very important the formation of development programs on enterprises, promoting the revival of investment and financial activity of agribusiness. They should be "opened" for the capital investments of private investors, have the effective programs of reconstruction and rearmament, willingness to use growing country savings. Creation of favourable investment climate with the support on market mechanisms allows to solve this task, if to provide active support of the state. The main directions of state economic policy in the sphere of investment activity in the agricultural sector are:

- stimulation of internal solvent demand on domestic agricultural production;

- state assistance of institutional transformations, including development of market mechanisms and effective transformation of savings in investment;

- strengthening investment orientation of bank activity in regions which isn't ready yet to accumulate sufficient funds for use in real sector of agrarian economy;

- activation of state support of investment activity and stimulation of inflow of real investments in regional agro-industrial production;

- formation of favorable investment climate which will depend on development of the state system guaranteeing effective projects, capacity-building of assets, creation of the mechanism of guaranteeing on the basis of non-budgetary sources, guarantee and mortgage funds;

- set of system-wide measures to promote regional financial recovery of agricultural production, reduce risks, strengthening the regulatory framework and ensure the safety of investment activity of private enterprises in agricultural sector [3,5].

It is necessary to consider the following factors while ranking regions:

- not only an existent level of socio-economic development but also starting terms of included in a market economy, defining opportunities and rates of adaptation to the market environment;

- the objective regional prerequisites (geopolitical position, resource potential, transport development, etc.) which are accelerating or slowing down this process.

It will allow to define really needy regions which depressive state is initially predetermined by insufficient development of productive forces, and those of territorial units whose distress is a consequence of shortcomings, surmountable without additional state expenses (internal, external) in policy of carrying out market reforms.

In our opinion for effective development of investment processes, it is necessary to solve three fundamental strategic tasks in the managerial sphere of the agrarian sector of economy:

1. Liquidation of deep structural deformations causing decrease of investment activity, levelling the negative consequences of adverse starting conditions of occurrence in the market economy of regions and subjects-agrarians.

2. Prevention of destruction of existing productive, scientific and technical potential in agriculture because of sharp reduction of investment at critical level of depreciation of fixed assets that substantially limits possibilities for economic revitalization.

3. Perfection of regulatory investment mechanism for stimulation of long-term investments of financial resources into agro-industrial production [1, 4].

First of all investment resources have to be directed to the development of those agricultural enterprises in which relative revival of investment motivations were outlined. It is very important that reliable information about business activity creates prerequisites for attraction of both private and foreign capital because it is not so required not so much considerable capital expenditure, as restoration of the lost economic communications between traditionally adjacent enterprises.

Simultaneously with the development of annual investment program, it is expedient to set the State order for production and supplying of major investment resources to ensure its full implementation. The agro-industrial enterprises which

have received such orders, should realize production on fixed prices, and the State guarantees it credit exemptions, budgetary funds on compensation of difference in prices and other forms of the state support [2,5].

To revitalize and improve overall efficiency and investment activities, we suggest to carry out a number of measures:

- postponement of payment of income taxes as a result of investing resource-saving technologies;

- to determine exemptions on taxes for the first 2-3 years of functioning of agribusiness created in the depressed regions and producing products both for satisfaction of national and, especially, regional needs;

- preferential taxation of income received in the result of completion of construction and commissioning at full power construction in progress which was acquired from other companies and located in depressed areas;

- liberation of agricultural enterprises creating new workplaces as a result of investing, from all taxes into local budgets within two years from the moment of filling opened vacancies;

- distribution of action of investment tax credit on agro-industrial enterprises, introducing advanced technologies, contributing to the increase in output, increase its quality, competitiveness, improving the use of existing production capacity.

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ECOLOGICAL AND ECONOMIC TRANSFORMATION OF NATURAL MANAGEMENT SYSTEMS AND TERRITORIES OF SOUTH RUSSIA

Abstract: this paper shows the crucial importance of taking into account ecological factor in the economic development of modern countries and territories. Through the example of the southern regions of Russia the issues of ecological and economic transformation of natural management systems and the development of the economic mechanism taking into account the threshold of ecological safety are explored.

Keywords: ecological and economic transformation, natural resource use, ecological safety, green economy, ecosystems

At the present stage stifling of innovative development of economies of various countries, including Russia, is becoming an ecological factor which covers almost all types of resources and technological systems based on their use. In this regard, we'll note that one of the crucial tasks for the successful transition of Russian economy to environmentally sound development is the use of state methods of regulation, improving the efficiency of use of natural capital and creation of conditions for realization of the market of ecologically safe production. Thus, in the Concept of Long-term Socio-Economic Development of the Russian Federation for the Period up to the Year 2020 it is stated that "forming an innovative economy refers to the transformation of intelligence, of human creativity into the leading factor of economic growth and national competitiveness, along with a significant increase of efficiency of use of natural resources" (The Concept of Long-term Socio-Economic Development of the Russian Federation for the Period up to the year 2020, 2008). In scientific literature, the researchers note that "the threat of environmental crisis will escalate, if there remain resource-wasteful economy and society based on the use of natural resources and environmental pollution" (Yakovets, 2011).

It should be noted that methodologically, in constructing ecologically oriented innovative development strategy the main problem today is not already finding an answer to the question of why the market, as an economic system, in relation to the environmental component of development is manifested as a sys-

tem with a very substantial degree of entropy. The probability, unreasonable use, diseconomy and inefficiency of the environmental component of the market are adequately explained by the "failures" of the market, which is covered in detail in the famous works of R. Coase and A. Pigou (Pigou, 1985; Coase, 1960). However, the aspects of the global economy development taking into account the ecological factor in new conditions prevailing in the financial and economic crisis of the end of the first decade of the twenty-first century haven't been virtually explored yet. The issues of application of new approaches and tools for ecological and economic policy in modern crisis conditions of the global economy have been insufficiently covered.

Therefore, for the formation of ecologically safe development of the countries and territories the ecological factor must be considered both at the micro level, in the development of various technologies of natural capital use, and at the macro level, in the choice of socio-economic direction of the country development. However, today in the Russian economy many important components of natural capital use are taken into account not in full, both in the development programs and macroeconomic indicators (GDP, GRP), which is a serious obstacle for the formation of innovation strategy. This problem is enhanced by the fact that the Russian economy has a strong natural resource and raw roll. For example, the researchers revealed that the mineral extraction between 2005 and 2012 was accounted for as much as 33-39% of the consolidated budget, as reflected in Figure 1:

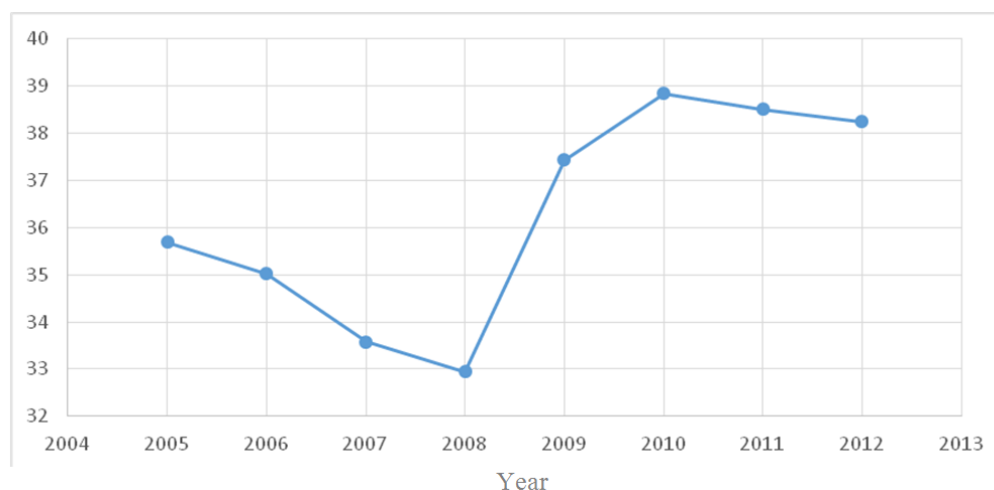


Figure 1. Mineral extraction, % of consolidated budget revenues (Pavlov and Kerimov, 2015)

It is fair to say that at the level of the Russian Federation government in recent years certain steps have been taken in the development of programs for rational use of natural resources. To ensure achieving the strategic objective of the state policy in the field of ecological development in the solution of socio-economic problems, providing ecologically oriented economic growth, preservation of favourable environment, and in the field of ecological safety, the Government of the Russian Federation approved the “Bases of the State Policy in the Field of Ecological

Development of the Russian Federation for the Period till 2030”. This document identifies a number of measures for improving state administration to prevent, limit and minimize the negative impact on the environment in all the Russian Federation, as well as in its regions. It is gratifying that in the Russian economy, the costs for environment protection are, though slowly, but rising, as it is shown in Table 1 (State Report “On condition and protection of environment in Russian Federation in 2013”, 2014):

Table 1

The costs for protection of the environment (in actual prices, million rubles)

The costs for protection of the environment, million rubles	2010	2011	2012	2013
Costs: for protection of the environment	372,382	412,014	445,817	479,384
for protection of atmospheric air and prevention of climate change	80,071	88,362	89,236	93,251
for collection and treatment of wastewater	169,152	197,073	186,445	204,351
for waste management	41,510	44,172	41,022	51,612
for protection and rehabilitation of lands, surface and ground water	17,219	23,435	36,498	33,486
for conservation of biodiversity and protection of natural areas	22,975	13,381	28,091	28,082
other costs	41,455	45,591	64,525	68,602
The total costs for environment protection, % of GDP	0.8	0.8	0.7	0.7

It should be mentioned that in Russia the total costs for environment protection, % of GDP remain quite low – at 0.7-0.8%. Negative is the fact that in the total receipts of payments of taxes, fees and regular payments for using natural resources in the consolidated budget of the Russian Federation 99% of payments is the tax on mineral extraction. This means that all other types of taxes and charges in natural resource use account for only 1%. Referring to the experience

of natural resource use in Russia, we’ll note that we’ve conducted a number of studies confirming the necessity of improving the process of natural resource using in Russia (Dovgot’ko *et al.*, 2014; Dovgot’ko *et al.*, 2014). The natural-adaptation vector of the Russian economy transformation orients and fills substantially economic practices in the country regions, including Southern Russia. For the South of Russia in the conditions of high economic reclamation of steppe

and coastal lands, landscape and biological diversity of mountain areas, paucity and patchiness of specially protected natural territories the creation of a green economy is extremely important, first of all, in ensuring the sustainability of ecological systems themselves, maintaining the mechanisms of self-regulation and compensating for the effects of anthropogenic activities. Primarily, the natural-adaptation development determinants of managerial natural resource use in the southern part of Russia should be associated with preservation and maintenance of structural and functional integrity of the unique steppe ecosystems, allowing in the long term to ensure their high economic efficiency and ecological value. Currently, in economic practices of using steppe ecosystems, inconsistency of the situation is, on the one hand, their exclusive role as a factor of production through which "...the bulk of Russian agriculture is based nearly two centuries" and "not less than 85% of the total Russian grain harvest, more than 70% of the cattle population, ... more than 90% of sheep and goat wool" is produced (Sobolev, 2011), on the other hand, due to high economic reclamation the steppe biomes of the temperate zone, not only in Russia, but all over the world, as the studies show (Henwood, 1998), were the least protected of all fifteen terrestrial biomes.

Turning to the question about the economic mechanism of natural resource use in the southern regions of the Russian Federation, we believe that the preference should be given to the stimulating type of the economic mechanism, a central place in which the tax and credit methods should take. For example, such Russian resort region as the Caucasian Mineral Waters may become a pilot site, on which a possibility of introducing a resort fee in Russia will be tested. The feasibility of introducing the resort fee is due, above all, to the need to maintain and improve the infrastructure of recreational areas and to expand tourist services. In this regard, the Ministry of North Caucasus Affairs is proposed to set a fixed rate of the resort fee – from 50 to 100 roubles per day of stay on the territory of resort towns (which corresponds to the average rate of the fee in international practice). And the resort fee will not be included in the package tour, it may be paid by the tourists in the property, for example, at check-in or check-out. Of course, the benefit-entitled citizens (children, pensioners, veterans, etc.), who are exempted from payment of the fee fully or partially, will be privileged. According to the calculations of the Stavropol Territory, annually, the resort fee can bring up to 700 million rubles in the region budget. Using the funds of this fee should be strictly targeted – for development of resort towns in the Caucasian Mineral Waters, for improvement of infrastructure of recreational zones, in particular, public baths and thermal baths not repaired since the Soviet times. However,

for this fiscal tool to work effectively the federal and regional laws must be adopted, the various regulatory documents must be developed and approved, so its introduction is planned not earlier than in 2017. In this regard we'll remind that there have already been attempts of introducing the resort fee in Russia. Thus, in 2009 the Governor of St. Petersburg Valentina Matvienko proposed to introduce a fee for the repair and maintenance of monuments (the rate is 2 € per tourist), but the federal government did not support this idea (The Introduction of the Tourist Tax in Russia is Possible not Earlier than 2017). If to refer to the world experience, a positive example of supporting the tourist infrastructure and monuments at the expense of the resort fee is Italy, where the municipalities establish it at their discretion (but the amount cannot be more than 5 euros per night), and in Catalonia (Spain) such fee is 1-3 euros per night depending on the level of the hotel. In our opinion, in the case of introduction of the resort fee in the recreational areas of the Russian Federation it is very important not to create additional burdens for business, and also the mechanism of charging and using this tax should be economically reasonably determined. Without reducing the value of tax methods for resort areas support, we associate ourselves with the position of some researchers who insist on the fact that primarily for the economy of the resort regions of Russia the market oriented and rent forms of stimulation of rational use of natural resources should be developed. In this respect, we believe that in the recreation areas it is advisable to collect not only the resource rent but also the assimilation one, which we understand to mean an income derived from the carrying capacity of the natural environment. In this case, the natural resource users-pollutants will be exempted from having to pay taxes on the reproduction of the natural environment quality. Unfortunately, currently there is no developed scientific approach to accounting and assessing the assimilation rent, but in the long term, in our view, it should occupy a central place in the mechanism of "green" economy.

Meanwhile, numerous works (Belelli *et al.*, 2007; Smelansky and Tishkov, 2012; Wang *et al.*, 2009) demonstrate convincingly that the ecosystems of the territories hold not only huge economic, but not less important ecological meaning, providing the global community with carbon-depositing, water, climate regulating, erosion preventing, life-supporting, cultural and genetic services. Their importance is especially great in the southern steppe regions of Russia, such as the Stavropol Territory, the Rostov Region, the Republic of Kalmykia, the areas of which are characterized by low, less than 3% forest cover, by high, more than 90% agricultural development (A Report on the Status and Use of Lands of Agricultural Purpose), as

well as by belonging to semi-natural agro-ecosystems – steppe and meadow pastures, hayfields and fallow lands by one quarter.

Such goals can be served by organizing nature reserves such as “microreserves” on agricultural lands, withdrawn from circulation, using fallow lands, formed in the period of mass reduction of farmland in the 1990s, for grazing, increased using conservation easements and encumbrances which limit either plowing of potential plowed land, or the access of livestock to grazing areas with the purpose of ensuring protection of the areas or restoring natural habitats of wild fauna species and/or self-renewing natural vegetation, etc.

In this respect we believe that to encourage the production of ecosystem services in the South of Russia it is necessary to provide preferential taxation of agricultural producers in the case of, for example, withdrawal of lands from economic circulation to microreserves, preservation (restoration) of natural pastures and reforestation. The constructive practice of such and other stimulating initiatives can be based on

the EU, where within the framework of implementation of the Common Agricultural Policy (CAP) for 2014-2020 more than 100 billion euros are supposed to be allocated, mostly, in the form of direct payments, to farming households to stimulate ecologically clean directions of farming. These ones include organic crop diversification, maintenance of natural pastures productivity and conservation of 5%, and in the future of 7% of the agricultural lands to obtain environmental benefits (EU: In 2014-2020 – with a New, Fair, Agricultural Policy, 2013).

Meanwhile, the world statistics shows (Willer and Lernoud, 2013) that the bulk of 63% of agricultural land falls on pasture husbandry and 17% – on grain, i.e. the core sectors of the southern Russian regions. Therefore, we believe that their bioorganic re-orientation is justified, referring to the natural-adaptation development determinants. For example, the implementation of natural-adaptation principles in grazing management may have the following form (Table 2).

Table 2

The natural-adaptation determinants of grazing management

Parameters	Traditional techniques of management		
	Allowable	Restrictedly allowable	Unallowable
Grazing	Moderate grazing, mainly, of horses, camels	Moderate grazing, including pigs	Unregulated grazing
Type of pasture	Natural pastures, phytomelioration with grass mixtures of local species	Artificial cultivated pastures	Fully artificial cultivated pastures
Plowing	Not desirable	In the framework of necessary cultures – technical measures	Widespread plowing, agricultural activities which violate the soil and vegetation cover
Phyto- and forest melioration	Phytomelioration with grass mixtures of local species and forest melioration are not desirable	Afforestation of places of mixing ravine and valley forests, in recreation areas and watering places, green belts around the settlements	Phytomelioration with grass mixtures of introduced species Widespread forest melioration
Arrangement of pastures	Haying (1 every 2-3 years) Adjustable pala (1 every few years, in early spring, immediately after snow) or in late autumn	Improvement of pastures: interplanting forage grasses, cutting of tussocks, spot hydro amelioration, irrigation	Haying of seed material, not adjustable pala, not equipped cattle driving

We'll note that for the southern regions of the country such natural formations, spanning from 26.8% (the Krasnodar Territory) up to 98% (the Karachay-Circassian Republic) of their territory, form a distinct historically developed type of natural management relations and, of course, determine the development vector of natural resource use in the South of the country. The exceptional economic importance of such areas in several southern regions is correspondingly institutionally formed and is increasingly becoming an object of regulation by the authorities. We

believe that generally the natural-adaptation vector of development of the agricultural sector ensures, among other things, agricultural biotechnologies. By their contents for southern Russian regions in compliance with the “Comprehensive Program of the Development of Biotechnology in the Russian Federation for the Period till 2020” (Approved by the Government of the Russian Federation 24.04.2012 No.1853p-P8): the creation of new varieties of agricultural plants and animals using modern post-genomic and biotechnological methods; biotechnologies for soil improve-

ment and production of biofertilizers; development and implementation of methods for genomic certification to improve the efficiency of breeding work, the technologies for animals-producers cloning; the production of biological preparations for plant growing; recycling of agriculture and food industry wastes based on the technology of microbiological conversion; the production of feed additives for livestock and veterinary biopreparations should be considered.

It is obvious that the formation of bioindustrial systems of managing rural economy on the basis of these technologies in the South requires an appropriate organizational infrastructure. At the regional level this is about the legislative, program maintenance, cluster initiatives, special status territories. For example, the projects on creation of biocluster for deep processing of grain and livestock production being implemented now in the South of Russia, in the Stavropol Territory (Budenny Area), Industrial and Investment Concern "Vel" (Moscow), the operating network of the Don industrial parks, "Evrodon" (production of turkey meat) (Don industrial parks) are pioneer in this direction. Equally the natural-adaptation determinants of development of natural resource use should be focused on the specifics of economic activities in mountain territories. Thus, in the Republic of Dagestan the Law "On Mountain Territories of the Republic of Dagestan" (No. 72 of December 16, 2010), regulating the framework of the state policy in the sustainable development of mountain territories, was adopted. Such constructive practices can be observed in the Republic of North Ossetia-Alania, in the Strategy of socio-economic development of which for the period up to 2030 (the Law of North Ossetia-Alania No. 6-RZ of March 31, 2008) with reference to the positive experience of cheese-making cooperatives in the mountainous areas of France are mini-enterprises of the Carpathian region.

Obviously, implementing such large-scale cluster projects in the mountainous regions of the North Caucasus highlights the issues of ensuring ecological safety, and that's fair enough, because, on the one hand, the natural resources and environment, environmental benefits (climate, water areas, mineral waters, therapeutic muds, vegetable, mountain landscapes, etc.) are a significant component of recreational systems as factors of production and natural resource use is an important part of recreational activities, on the other hand, the uniqueness and large limitation of the natural resource recreational potential determine their particular ecological status and the specific mode of natural resource use.

We believe that the concept of "green" economy, which in the South of the country should be realized in the integrated mega-project "Sustainable "Green" South metaregion", covering the green directions in

all spheres of life of the local community, can serve for these goals. Such green projects could serve as the basis for innovative development of Southern Russia stimulating business and research in such promising "green" fields as pharmaceuticals, natural cosmetics, organic farming, agroecotechnologies, energy saving, Smart technologies, recycling, green design, etc. Besides, the remoteness, inaccessibility and relatively small infrastructure capacity of mountain resorts open the possibilities for testing energy- and resource-saving technologies for major Russian infrastructure companies (JSC "Gazprom", JSC "Russian Railways", JSC "RusHydro", FGC "UES", MRSK "the North Caucasus") implementing their own investment programs in the tourist-recreational complex of the South territories. Meanwhile, the mountains of the South of Russia are not only the area of culture genesis and ethnogenesis of the peoples of the North Caucasus, but along with foothill and plain landscapes form unique natural-adaptation ethnoeconomic practices. There is terracing of mountain slopes in the upper reaches of the Cherek, Chegem, Baksan, Kuban and Bolshoy Zelenchuk Rivers and constructing irrigation systems among the Balkars and Karachays, Adyge gardens phenomenon. In this regard, speaking about the natural-adaptation development determinants of managerial natural resource use in the South of Russia, greater emphasis should be placed on mobilizing the productive capacity of the ethnic economics.

So, it should be assumed that the considered in the paper and other similar initiatives constitute innovative phenomenon as one of the significant development factors of natural management system of the southern Russian regions. The adverse ecological and economic processes, occurring now in the South of Russia, can upset the balance of development, if in the process of using nature and changing the economic structure, to the ecological factor will not be given due importance. The authors of this paper believe that taking into account the mentioned circumstances, the innovation-oriented paradigm of the natural management system development will allow building economically, socially and environmentally effective way of managerial appropriation of natural resources and environmental assets different from the existing form of primitive distribution of the expropriated natural resources, adding a new territorial and sectoral impetus to the development of natural management system of the territory in the South of Russia. As a consequence, the development of this research in the future we see in the development of a model for ecologically safe development of regions and formation of a "green" economy in them, which, on the one hand, should maximally satisfy the material and other needs of people, and, on the other hand, – protect and

improve the environment as a source of meeting these needs. The achievement of such results may be contributed by different directions of institutional and economic transformations in the sphere of natural re-

source use, the means and methods of which are subject to further development, improvement and effective implementation in the Russian regions.

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TOURISM AS FACTOR OF DEVELOPMENT OF SOCIAL AND ECONOMIC CONDITIONS OF THE REGION

Abstract: recreational tourism can be referred to one of the directions of innovations. In the territory of Russia there is a high tourist potential for strategic development of tourist and recreational complexes. But poorly developed own social and economic structure, does some regions noncompetitive in the sphere of travel business. Relevance of this direction of research it is caused by importance of the special analysis of compliance of the ecological conditions, social and economic structure and all other conditions providing development of tourism in recreational zones. A research objective is formation of methodical bases of strategy of development of recreational tourism in Russia, improvement of an economic condition of the certain regions which don't have alternative opportunities for improvement of quality of life of local population and level of ecological culture.

Keywords: recreational tourism, organizational economic conditions, tourist and recreational zone

Tourism is one and large and dynamic branches of economy, important part of foreign economic activity of the country. Development of the industry of tourism influences positively the economy sector influences on various. In addition, it should be noted her influence on social and environment that causes the necessity of in-depth study of a state and prospects of development of tourism. One of the principles of a sustainable development of tourism is protection of the natural resources and objects of culture allowing to counterbalance and in a complex to solve problems of a survival of local communities and development of farms of the local people.

In the forecast of development of the tourist directions designated in solutions of various levels of the state, one of the most popular has noted recreational tourism. The growing popularity of this type of tourism is explained by the increased interest in the nature and careful attitude to surrounding environment, based on higher level of ecological consciousness of people. In our country in spite of the fact that it has enormous tourist resources, recreational tourism hasn't reached a due level of development yet. The difficult social economic situation which has developed at the present stage is the reason for that. Effective development of tourism in Russia is interfered by imperfection of mechanisms of state regulation at various levels of the power, absence of motivation for private, both domestic, and foreign investments into the tourist markets, not demand of tourist objects owing to backwardness of infrastructure of tourist services, and lack of effective methods of the economic analysis of a tourist complex of regions. Follows from the afore-said that need of formation of strategic approach for development of the domestic industry of tourism, including, recreational tourism has ripened.

Recreational tourism is presented by two types of tourism, tourist and improving and informative and

tourist types. Each of the presented types, requires the type of recreational resources, including, natural and are cultural territorial complexes, technical systems, service personnel and governing body. Development of recreational tourism is possible at an optimum combination of each component:

- climatic factors;
- historical and cultural potential;
- medical and rehabilitation potential.

To the solution of these tasks, in our opinion promotes:

- the analysis of organizational and economic, ecological and demographic features, for the purpose of identification of the basic principles and possible objects of tourism;
- development of classification signs of group of types and forms of tourism in recreational zones;
- determination of the socio-economic factors and the strategic program actions corresponding to them creating conditions for effective development of tourism;
- formation of the Internet resources, acts and standard and legal documents regulating functioning of branch.

Among the most priority tourist and recreational zones there is Kabardino-Balkar Republic which history of development contains several centuries. Not only traditional hospitality, but also favorable mountain climate, beautiful natural landscapes, rich balneological resources and objects of historical cultural heritage is the reason of popularity of the republic for mass rest. One and most demanded zones the tourist cluster "Prielbrusye" where slopes of Mountains Elbrus and Tcheget create favorable conditions for alpine skiing tourism is. Generally in development of this zone private investments are attracted that has allowed to reconstruct and improve alpine skiing infrastructure. At the same time, there is a need not only

for expansion, but also improvement of quality of the provided services and safety of tourists that has to decide at the state level.

Degree of wear of hotels and similar means of placement in the republic, the arising problems with employment of the population because of seasonality of work, absence of significant investments into branch, insufficient development of transport infrastructure and weak knowledge of the population of other territorial subjects of the Russian Federation of tourist opportunities of KBR causes need:

- creations of the modern websites for the enterprises of the tourist sphere, with exhaustive information for potential guests of the republic; creation of favorable conditions for investors, with participation of government bodies of the power, regarding protection of their rights;

- creations of more modern means of placement conforming to the international requirements of tourism;

- strengthenings of preparation and retraining of personnel for tourism;

- developments of different types of tourism, including ecological, sports, medical, ethnographic, individual, etc.;

- creations of a network of language, transport maintenance, ensuring the guaranteed safety of tourists.

In 2015 the republic was visited by 300 thousand vacationers from whom 15 thousand – foreign citizens. In comparison with 2014 increase in an entrance tourist stream has made 15%. Respectively, the volume of the rendered tourist services has grown by 18%. Within the federal target program "Development of Internal and Entrance Tourism in the Russian Federation (2011-2018)" in 2015 4 actions for construction of infrastructure of an autotourist cluster of "Zaragizh" are realized, namely – construction and reconstruction of the highway "Blue lakes - is complete Century. Blue lakes" the highway an entrance from the federal highway "Urvan-Ushtulu" to a thermal source in Aushiger is also reconstructed. Also for protection of the autotourist Zaragizh complex in Che-

reksky district coast on Zhemtal's river (1 and 2 start-up complexes) are strengthened. Work on updating of tourist routes for entering into the National tourist RussiaTravel portal and to creation of the tourist passport of the region has begun.

During formation and development of a tourist complex of Kabardino-Balkaria as those were designated:

- balneogryazevy mountain resort tourism;
- mountain sports tourism;
- mountaineering.

The Ministry of Culture of the Russian Federation together with executive authorities in the sphere of tourism has organized interregional railway cruise "The tea express" on the Caucasian site of the Great Silk Way (Nalchik, Pyatigorsk, Nazran, Caucasus Mineralnye Vody region, Makhachkala, Grozny, Vladikavkaz).

For involvement of tourists and creation of favorable image of Kabardino-Balkar Republic in 2015 the Ministry of resorts has participated in five tourist exhibitions, conferences and forums of the international and All-Russian format.

In plans of work for 2016 implementation of the investment project "the Autotourist cluster of "Zaragizh", study of the questions concerning implementation of the Atazhukinsky Park and Kavkazavtositi projects, continuation of collaboration with agency of investments and developments of KBR in development of tourist and recreational potential of Aushigersky hot springs, work with JSC Kurorty Severnogo Kavkaza is planned.

Effective functioning of a tourist complex will help to make branch a source of the considerable income in the budget of the republic; to form the new sphere of employment of the population; to stimulate involvement in turnover of the additional capitals and investments in the territory of the republic; to preservation of cultural and historical monuments and natural national parks, reserves; to improvement of an ecological situation; to development of a services sector; to arrangement of settlements and roads.

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ПЕДАГОГИЧЕСКИЕ НАУКИ

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НЕКОТОРЫЕ АСПЕКТЫ ПРЕПОДАВАНИЯ МАТЕМАТИКИ ДЛЯ СТУДЕНТОВ-ФИЛОЛОГОВ

Аннотация: в статье анализируются приемы междисциплинарного подхода к изучению некоторых тем математики студентами–филологами. Материалы могут быть использованы в практике преподавания математики студентам гуманитариям.

Ключевые слова: алгебра, русский язык, поле, бинарная лекция, кейс-метод, функционально-семантическое поле

Стандарт гуманитарного образования предусматривает изучение математики будущими филологами. Существуют учебники, в которых изложены общие подходы к преподаванию математики для гуманитариев (3; 5).

Дисциплина относится к вариативной части профессионального цикла, изучается в течение одного семестра, а ее аудиторная трудоемкость составляет 36 часов. Большой объем материала, неподготовленность аудитории к предмету и сравнительно малое количество времени на его изучение определяют трудности в изучении математики филологами. Возможное решение проблемы, на наш взгляд, кроется в использовании гуманитарного стиля преподавания, когда основное внимание уделяется определению понятий и утверждений, а не их доказательству.

Математическая подготовка студентов-нематематиков включает в себя изучение общих математических понятий и конструкций, а также математических свойств изучаемых объектов, обеспечивающих широкий спектр их применимости, и отличается от математики для математиков следующими задачами:

- определить основные математические понятия, такие как множество, отношение, функция;
- дать представление об основных алгебрах и их свойствах;
- показать применение математических структур для описания естественных процессов.

Предлагается изучить следующие темы:

1. Множества и отношения.

Определение множества как определенной совокупности объектов. Способы задания множеств. Операции над множествами, иллюстрируемые с помощью кругов Эйлера (диаграмм Вьета). Бинарное отношение между множествами и его свойства: рефлексивность и симметричность.

2. Основные алгебраические структуры. Понятие алгебры как совокупности некоторого множе-

ства объектов, замкнутого на определенной операции. Определение группы, кольца, поля.

Проведение бинарного занятия по теме: «Алгебраические структуры. Поле», на котором рассматривается с позиции математики и русского языка, что позволяет определить насколько математические и лингвистические понятия «Поля» сходны, выяснить, чего в них больше: общего или различного, а также показать, что термин универсален для различных дисциплин (2).

Рассматриваемые вопросы бинарного занятия: история появления понятия «Поле»; определение поля; конститuentы поля; признаки поля; характеристика поля; примеры полей – математического и лингвистического.

Сама возможность и непротиворечивость подобного занятия определяются следующим:

-математика и язык представляют собой четко структурированные и систематизированные организации;

-функциональная значимость языкового и математического факторов (и не только) определяется понятием «антропоморфизм», являющимся объединяющим компонентом любого научного направления, что позволяет элементы знания одной дисциплины использовать в другой дисциплине;

-математический и лингвистический знаки представляют собой элементы языков, а их совокупные отношения формируют представления о более сложных понятиях и явлениях;

-математическое действие и языковой знак как значимые компоненты направлены на решение определенной задачи.

3. Основы линейной алгебры и аналитической геометрии.

Возможно введение непосредственных иллюстраций практического применения математики к решению нематематических задач с помощью метода анализа конкретных ситуаций (кейс-метода) (1; 4).

Название доминирующей функции кейса	Тип кейса	Характеристика функций кейса	Примеры
Тренинг	Тренировочный	Тренировка обучаемых навыков деятельности в изменяющихся условиях.	Решение различных систем линейных уравнений методом Гаусса. Решение задач на определение положения линии на плоскости относительно начала координат.
Анализ	Аналитический	Выработка умений и навыков аналитической деятельности.	Анализ существования решений и их числа у данной системы линейных уравнений. Анализ взаимного расположения двух данных линий на плоскости.
Исследование	Исследовательский	Получение нового знания относительно развивающихся объектов.	Сравнительная характеристика эффективности методов линейной алгебры и аналитической геометрии при решении задач экономического содержания.
Систематизация	Систематизирующий	Систематизация ситуационного знания.	Составление таблицы зависимости числа решений линейной системы от ее вида.
Прогнозирование	Прогностический	Получение сведений о развитии данной системы.	Решение линейной системы с буквенными коэффициентами и прогнозирование решения в зависимости от значения параметра

4. Элементы математического анализа. Изучение функции. Сравнительный анализ понятия функции с позиции математики и русского языка.

	Математика	Русский язык
Объекты	Числовые множества	Совокупность всех слов, грамматических форм, особенностей произношения всех русских людей, т. е. всех, говорящих на русском языке как на родном.
Значение	Соответствие между множествами, отношение. Функция – это соответствие между элементами двух множеств, установленное по такому правилу, что каждому элементу одного множества ставится в соответствие некоторый элемент из другого множества.	Термин «функция» в лингвистике употребляется в нескольких значениях: 1) назначение, роль языка в человеческом обществе, 2) назначение роль единиц языка. В первом случае говорят о функциях языка, во втором – о функциях языковых единиц (фонем, морфем, слов, предложений).
Свойства	Сюръективность Инъективность Биективность Периодичность Монотонность Четность и нечетность	Функции языка – это проявление его сущности. Исследователи языка не сходятся в вопросе о количестве и характере функций. Язык выполняет много функций (ученые выделяют до 25 функций языка и его единиц), однако основная функция языка, главное его назначение – быть средством общения людей. К основным функциям языка относят коммуникативную, когнитивную, кумулятивную.

Изучение основных элементарных функций: линейной, квадратичной, дробно-рациональной, показательной, логарифмической, тригонометри-

ческой. Понятие предела и производной функции, интеграла.

4. Избранные вопросы теории вероятности. Изучение алгебры событий Определение вероят-

ности события и основных теорем вычисления вероятности. Задание числовых характеристик дискретных случайных величин и их анализ. Определение количества информации в слове и тексте.

В заключение подчеркнем, что подобным образом организованный курс вызывает интерес ауди-

тории, а сравнение и анализ с использованием элементов современных технологий формируют у студентов устойчивое понимание основных математических понятий, возможность употребления полученных знаний в других областях и, самое важное, в школьной практике.

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SOME ASPECTS OF TEACHING MATHEMATICS FOR STUDENTS-PHILOLOGISTS

Abstract: the article analyzes the methods of the interdisciplinary approach used in lessons in mathematics for students-philologists. The materials can be used in the practice of mathematics teaching for students of humanities

Keywords: the Algebra, the Russian language, field, binary lecture, case method, function-semantic field

ПСИХОЛОГИЧЕСКИЕ НАУКИ

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КЛИНИКО-ПСИХОЛОГИЧЕСКИЕ ОСОБЕННОСТИ ДЕТЕЙ С ЦЕРЕБРАЛЬНЫМ ПАРАЛИЧОМ

Аннотация: в статье рассматриваются клинико-психологические особенности детей с церебральным параличом. Содержится краткий литературный обзор по данной проблеме. Выделяется специфика нарушений, которые характерны для детей с ДЦП. Отмечаются особенности личностного развития причиной которых являются факторы биологические, психологические, социальные.

Ключевые слова: познавательная деятельность, эмоционально-волевая сфера, психические функции

Детский церебральный паралич относится к более широкой категории нарушений развития. В клинической картине симптомами при ДЦП являются двигательные нарушения и определенное состояние центральной нервной системы, в большинстве случаев в сочетании с нарушениями психики, речи, зрения, слуха. Дети с церебральным параличом имеют в психическом развитии специфические отклонения. Механизм нарушений достаточно сложен и зависит от времени, степени и локализации поражения. На основе сложившегося фона заболевания развиваются различные формы нарушения психики и познавательной деятельности.

Исследования К.А.Семеновой, Э.С.Калижнюк и Е.М.Мастюковой указывают, об отсутствии взаимосвязи между психическими нарушениями и выраженностью двигательных расстройств, так тяжелые двигательные нарушения могут сочетаться с легкой задержкой психического развития, а остаточные явления ДЦП — с тяжелыми нарушениями психических функций или психики в целом.

Исследование по изучению структур нарушения у детей с церебральным параличом, проведенное Е.М.Мастюковой, Л.И.Переслени, М.С.Певзнер позволяет говорить, что при ДЦП нарушается не только формирование познавательной деятельности, но и эмоционально-волевая сфера личности.

Специалисты выделяют для всех детей с ДЦП характерные специфические особенности нарушений структуры познавательной деятельности.

К ним относятся:

- неравномерный, дисгармоничный характер нарушений отдельных психических функций. Эта особенность связана с мозаичным характером поражения головного мозга на ранних этапах его развития при ДЦП;

- выраженность астенических проявлений — повышенная утомляемость, истощаемость всех психических процессов, что также связано с органическим поражением центральной нервной системы;

- сниженный запас знаний и представлений об окружающем мире. Дети с церебральным параличом не знают многих явлений окружающего предметного мира и социальной сферы, а чаще всего имеют представления лишь о том, что было в их практике. Это обусловлено следующими причинами:

- вынужденная изоляция, ограничение контактов ребенка со сверстниками и взрослыми людьми в связи с длительной обездвиженностью или трудностями передвижения;

- затруднения в познании окружающего мира в процессе предметно-практической деятельности, связанные с проявлением двигательных и сенсорных расстройств.

И.И.Мамайчук; И.Ю.Левченко; О.Г.Приходько отмечают, что при ДЦП нарушается координированная деятельность различных анализаторных систем. В результате патологии зрения, слуха, мышечно-суставного чувства отражаются на целостном восприятии окружающей среды, ограничивая объем информации и затрудняя интеллектуальное развитие ребенка с церебральным параличом.

Двигательная недостаточность мешает правильному развитию зрительно-моторной координации, которая влечет за собой неполноценное и искаженное восприятие предметов, явлений окружающей действительности. При всех формах церебрального паралича имеется глубокая задержка и нарушение развития кинестетического анализатора. Без зрительного контроля дети затрудняются определить положение и направление движений пальцев, не могут узнавать

предмет на ощупь. Ощупывание, манипулирование с предметами, т. е. действенное познание окружающего мира и восприятие себя, при ДЦП существенно нарушается. Так же наблюдается затрудненное фонематическое восприятие, у большинства встречаются нарушения формирования мыслительной деятельности.

При ДЦП характерны проявления для психического развития — замедленность, истощаемость психических процессов. Отмечаются трудности при переключении с одного вида деятельности на другой, низкая концентрация внимания, медленное восприятие, сниженный объем механической памяти. Наблюдается низкая познавательная активность, пониженный интерес к заданиям, плохая сосредоточенность, медлительность и пониженная переключаемость психических процессов. Низкий темп умственной работоспособности имеет связь с церебральным синдромом, который характеризуется быстрым утомлением при выполнении интеллектуальных заданий. И наиболее ярко это проявляется в младшем школьном возрасте, при появлении интеллектуальных нагрузках.

Дети с церебральным параличом представляют разнородную группу по состоянию интеллекта у одних наблюдаются задержки психического развития, другие имеют нормальный или близкий к нормальному интеллект, у некоторой части детей имеется умственная отсталость. М.Б. Эйдинова, Н.В. Симонова, М.В. Ипполитова выделяют основные причины нарушений познавательной деятельности, которыми с одной стороны является положение ребенка, связанное с ограничением движения и речи; с другой стороны - отношение семьи к болезни ребенка, окружающая его атмосфера. Личностные особенности детей, страдающих ДЦП, - результат тесного взаимодействия этих двух факторов.

В работах А.Г. Закаблук, В.В. Лебединского отмечается наличие разнообразных расстройств у

детей с детским церебральным параличом. Проявления высокой эмоциональной возбудимости, раздражительности, двигательной расторможенности, так же наблюдаются и противоположные проявления - заторможенность, застенчивость, робость. Склонность к колебаниям настроения часто сочетается с инертностью эмоциональных реакций. Высокая эмоциональная возбудимость зачастую сочетается с плаксивостью, раздражительностью, капризностью, реакциями протеста, которые становятся сильнее в новой для ребенка ситуации и при утомлении. Нарушения поведения встречаются нередко и проявляются в виде двигательной расторможенности, агрессии, реакции протеста по отношению к окружению. У некоторых детей отслеживаются состояния полного безразличия, равнодушия, безучастного отношения к происходящему вокруг.

Отмечаются проблемы личностного развития детей с ДЦП причиной которых являются развития многих факторов (биологических, психологических, социальных). Кроме реакции на восприятие болезни, огромное значение имеет воспитание и социальная депривация. Физический недостаток существенно влияет на социальную позицию ребенка, подростка, на его отношение к окружающему миру, следствием чего является искажение ведущей деятельности и общения с окружающими. У детей с ДЦП отмечаются такие нарушения личностного развития, как пониженная мотивация к деятельности, страхи, связанные с передвижением и общением, стремление к ограничению социальных контактов.

Обобщив вышеизложенное, можно отметить, что психическое развитие ребенка с церебральным параличом характеризуется нарушением формирования познавательной деятельности, эмоционально-волевой сферы и личности. Таким образом перед специалистами, которые работают с детьми данной категории, стоит важная задача — оказание психолого-педагогической и социальной помощи в профилактике и коррекции нарушений.

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CLINICAL PSYHOLOGICHESKIE CHARACTERISTICS OF CHILDREN WITH CEREBRAL PALSY

Abstract: the article discusses the clinical and psychological peculiarities of children with cerebral palsy. Contains a brief literature review on this issue. Stands out the specifics of violations that are characteristic of children with cerebral palsy. Features of personal development, which are the factors of biological, psychological, social.

Keywords: cognitive activity, emotional-volitional sphere of mental function

ФИЗИКО-МАТЕМАТИЧЕСКИЕ НАУКИ

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ИЗЛУЧЕНИЯ ЭЛЕКТРОМАГНИТНЫХ ВОЛН ПРИ КОНДЕНСАЦИИ

Аннотация: в работе приведен расчет сечения неупругого взаимодействия молекул воды по длине волны излучения электромагнитных волн при их конденсации. Было установлено, что в равновесном состоянии газа каждое неупругое взаимодействие атомов или молекул приводит к излучению двух фотонов. Распределение Максвелла по скоростям в газе определяет Планковское распределение фотонов по энергии. Электромагнитное излучение может играть существенную роль при теплообмене в атмосфере и приводить к передаче тепла излучением, а так же может быть индикатором конденсации газов в жидкое состояние.

Ключевые слова: электромагнитные волны, конденсация, излучение, теплообмен

В работе приведен расчет сечения неупругого взаимодействия молекул воды по длине волны излучения электромагнитных волн при их конденсации. По величине энергии взаимодействие между атомами гелия рассчитано сечение неупругого рассеяние, и определен угол взаимодействия, при котором выполняется закон сохранения импульса. Показано, что в этом случае основной параметр есть $\frac{v}{c}$, который и определяет и закон сохранения энергии и импульса. Ключевые слова: конденсация пара, сечения рассеяния молекул, тепловое излучение, закон сохранения импульса.

Наиболее общий подход об излучении электромагнитных волн дан в [1] и в частности дано определения дипольного излучение параграф 67. Согласно определению заряды могут излучать только, если они движутся с ускорением. Если рассматривать излучения молекул (атомов), то при их тепловом движении с ускорением они могут двигаться только при столкновениях (тормозное излучения). Одним из условий описывающее столкновению молекул (или вообще частиц) является прицельное расстояние. А конечное значение о столкновениях определяется через сечения рассеяния. Такое излучения согласно [1, пар.65] рассматривается в приближении по $\frac{v}{c}$ (где v – скорость молекулы, c – скорость электромагнитного поля). Данный параметр, как будет показано и определяет сечения рассеяния при не упругих столкновениях молекул.

На больших расстояниях между атомами их взаимодействие описывается силами Ван-дер-Ваальса [2].

При $R \gg a$ (a – размер атома) взаимодействия между ядрами компенсируются их взаимодействием с электронной оболочкой, и самым важным становится поляризационное взаимодействие, обусловленное одновременным дипольным возбуждением обоих атомов [3]. Для таких случаев процесс взаимодействия довольно хорошо разработан [2]. А при непосредственном взаимодействии атомов, то есть при $R=a$ теоретический расчет конкретных вопросов сталкивается с существенными трудностями. Поэтому для конкретных случаев воспользуемся экспериментальными данными.

Предположим, что электромагнитное поле излучается только при неупругом столкновении частиц и сами частицы идентичны, как это происходит при конденсации на примере пара. Это будет возможно, только в том случае, если при таком столкновении молекула переходит в возбужденное состояние $|0\rangle \rightarrow |n\rangle$, а затем $|n\rangle \rightarrow |0'\rangle$ и такие переходы являются разрешенными. При этом рождаются два фотона с одинаковой энергией, но могут вылетать под разными углами, что приведет к изменению сечения рассеивание.

Определим сечения столкновения для этого случая (молекула воды).

Будем исходить из условия модели. Для этого определим исходные данные. Пусть газ будет водяной пар это удобно в том, что для этого случая есть данные по длине волны излучения при конденсации [4,5]. Определим данную область в распределении Планка рис.1

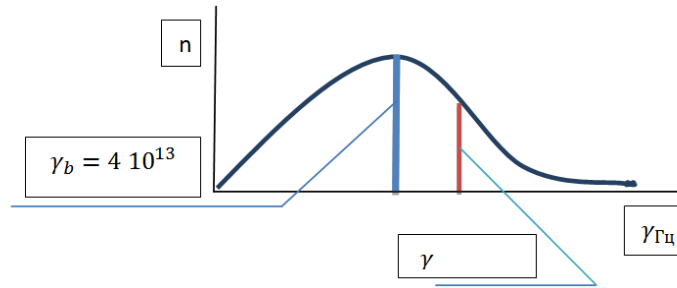


Рис.1 Распределение Планка. По оси ординаты отложена частота, а по оси абсцисс число фотонов.

Определим количество фотонов для данной длины волны и температуры при нормальных условиях, то есть при 373 градусах Кельвина и длине волны 1,5 мкм.

Объемная плотность излучения газов равна

$$W_\gamma = \frac{dW}{d\gamma} = \frac{4}{c} \epsilon_{\gamma,T} \quad (1)$$

Где $\epsilon_{\gamma,T} = \frac{2\pi\gamma^2}{c^2} \frac{h\gamma}{e^{kT}-1}$

Тогда плотность излучения на данной частоте в единицу объема будет равна

$$dW_\gamma = \frac{8\pi\gamma^2}{c^3} \frac{h\gamma}{e^{kT}-1} d\gamma \quad (2)$$

Отсюда число фотонов для данной частоты будет равно

$$\frac{dW_\gamma}{h\gamma} = \frac{8\pi\gamma^2}{c^3} \frac{d\gamma}{e^{kT}-1} \quad (3)$$

Все величины даны в последующем тексте.

Определим длину волны Вина $\lambda_{\max} = \frac{b}{T}$, $b = 2,9 * 10^{-3} \text{ м/К}$. Получим $7 * 10^{-6} \text{ м}$, а частота $\gamma_b = \frac{c}{\lambda_{\max}} = \frac{3 * 10^8}{7 * 10^{-6}} = 0,42 * 10^{14} = 4 * 10^{13} \text{ Гц}$

Теперь рассмотрим процесс столкновения молекул в газе определим через него часть не упругого столкновения.

Число столкновений в единицу времени в единицу объема данной частицы с другими, определяются следующим образом:

$$\beta = \frac{N}{V} \frac{\pi}{2} \left(\frac{m}{\pi kT}\right)^{3/2} \int_0^\infty e^{-\frac{mv'^2}{4kT}} \sigma v'^3 dv' \quad (4)$$

Где m-масса частицы, N-число частиц, V-объем, v' -относительная скорость. m-масса молекулы (атома), σ -сечения рассеяния.

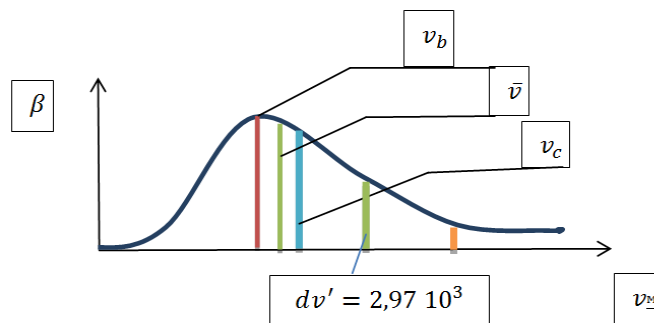


Рис.2 распределения столкновение по скоростям по осям отложена скорость молекулы (x) и число столкновений в единицу времени (y).

Если взять столкновения только для v' и n-число частиц на единицу объема и за время Δt то получим

$$d\beta = n \frac{\pi}{2} \left(\frac{m}{\pi kT}\right)^{3/2} e^{-\frac{mv'^2}{4kT}} \sigma_\gamma v'^3 dv' \Delta t \quad (5)$$

Считаем, что число не упругих столкновений, которые приводят к излучению, будет равно числу фотонов из (4)

$$n \frac{\pi}{2} \left(\frac{m}{\pi kT}\right)^{3/2} e^{-\frac{mv'^2}{4kT}} \sigma_\gamma v'^3 \Delta t dv' = \frac{8\pi\gamma^2}{c^3} \frac{d\gamma \Delta V}{e^{kT}-1},$$

а сечение не упругого рассеяния в этом случае будет равно

$$\sigma_\gamma = \frac{16\gamma^2}{\pi n c^3} \left(\frac{m}{\pi kT}\right)^{-3/2} \frac{1}{e^{kT}-1} \frac{1}{v'^3} e^{-\frac{mv'^2}{4kT}} \frac{\Delta V}{\Delta t} \frac{d\gamma}{dv'} \quad (6)$$

Характерные тепловые скорости молекул.

Наиболее вероятная скорость $v_b = \sqrt{\frac{2kT}{m}} \approx 1,41 \sqrt{\frac{kT}{m}} \approx 6,26 * 10^2 \frac{\text{м}}{\text{с}}$

Средняя арифметическая скорость

$$\bar{v} = \sqrt{\frac{8kT}{\pi m}} \approx 1,6 \sqrt{\frac{kT}{m}} \approx 7 * 10^2 \frac{м}{с}$$

Средняя квадратичная скорость

$$v_k = \sqrt{\frac{3kT}{m}} \approx 1,73 \sqrt{\frac{kT}{m}} \approx 7,7 * 10^2 \frac{м}{с}$$

И скорость, соответствующая энергии излучения фотонов

$$v' = \sqrt{\frac{2hv}{m}} = 2,97 * 10^3 \frac{м}{с}$$

Принимаем следующее значения.

Константы $h = 6,63 * 10^{-34}$ Дж/с,

$K = 1,38 * 10^{-23}$ Дж/К, число молекул в $1 м^3$ массой пара 1 кг $n = 3.3 * 10^{25} м^{-3}$, масса молекулы воды $m_{м.в} = 3 * 10^{-26}$ кг., радиус молекулы воды $r_{м.в} = 1,6 * 10^{-9}$ м, температура пара $T=373$ К, давление нормальное, длина волны излучение $\lambda = 1,5 * 10^{-6}$ м, частота $\gamma = 2 * 10^{14}$ Гц, $\frac{\Delta v}{\Delta t} \frac{dy}{dv'} = 1$

Для того, что бы определить угол между импульсом молекулы и фотоном получим следующее выражения $tg\alpha = \frac{v'}{2c}$. Так как при таком взаимодействии образуются два фотона, то если они вылетают строго в одном направлении, то тогда $tg\alpha = \frac{v'}{c}$ и угол максимальный. Если они излучаются в разные стороны, то $tg\alpha = 0$ и такой про-

цесс не может быть реализован. Если они вылетают друг относительно друга под любым произвольным углом, то $tg\alpha$ может, изменяется от максимального угла до минимального, но не равного нулю.

Рассчитаем не упругое сечение рассеяния для пары молекул воды по формуле 6 и получим

$$\sigma_\gamma = 0,35 * 10^{-28,65} м^2, D_\gamma = \sqrt{\sigma_\gamma \frac{4}{\pi}}$$
 диаметр сечения рассеяния или прицельный параметр

$D_\gamma = 0,3 * 10^{-15,4}$ м.

Находим максимально возможный угол рассеяния при котором выполняется закон сохранения импульсов. При малых углах $tg\alpha$ равен углу между импульсом фотона и импульсом молекулы и он равен $\alpha = \frac{v'}{c} = 10^{-5}$. Находим угол между прицельным параметром и радиусом молекулы $\alpha = \frac{D_\gamma}{r_{м.в}} = 0,19 * 10^{-6,4}$ из геометрии данные углы равны рис.4. Сравнивая полученные значения $10^{-5} \geq 1,9 * 10^{-7,4} > 0$. Таким образом, импульс при таком не упругом рассеянии сохраняется.

Определим сечение рассеяния для атома гелия. Для этого возьмём глубину потенциальной ямы [2] для гелия.

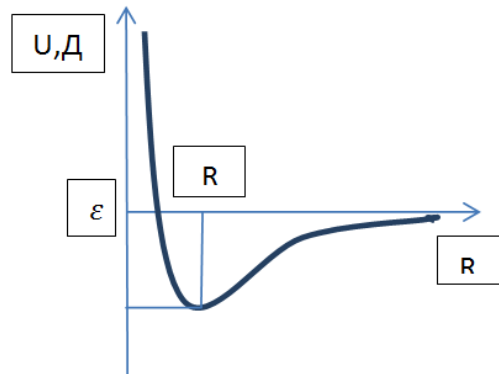


Рис. 3 Потенциальная энергия Ван-дер-Вальса по осям отложена расстояния до центра атома (x) и энергия взаимодействия (y).

Принимая $\epsilon = 10,8$ К, $R_m = 2,98$ А и $n = 3 * 10^{26}$,
 $R_r = 1,05 * 10^{-10}$ м, $m_r = 6,64 * 10^{-27}$ кг.,
 $\epsilon = 1,38 * 10^{-22}$ Дж, $\gamma_r = \frac{\epsilon}{h} = 2 * 10^{12}$ Гц,
 $v_r' = \sqrt{\frac{2h\gamma}{m_r}} = 6,3 * 10^2 \frac{м}{с}$, $\alpha = \frac{v_r'}{c} = 3,1 * 10^{-6}$,

Если эти данные подставить в формулу 6 то получим:

$\sigma_{\gamma,r} = 4,14 * 10^{-34,2} м^2$, прицельный параметр
 $D_p = \sqrt{\sigma_{\gamma,r} \frac{4}{\pi}} = 1,01 * 10^{-17,1}$ м,
 $\alpha' = \frac{D_p}{R_r} = 0,98 * 10^{-7,1}$. Условия сохранения импульса $\alpha \geq \alpha'$, $3,1 * 10^{-6} \geq 0,98 * 10^{-7,1}$. Следовательно, и в данном случае закон сохранения импульса выполняется.

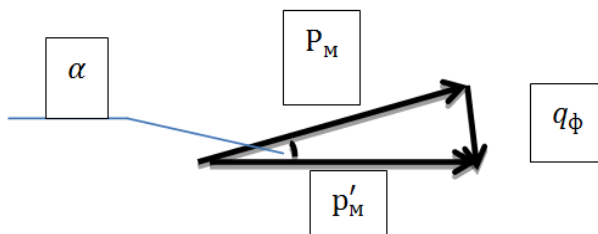
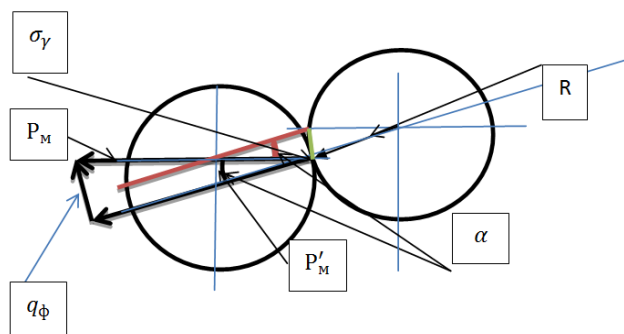
Рис. 4 Распределения импульсов $P'_m - P_m = q_\phi$ 

Рис. 5 Расположения молекул при столкновении

Где P_m -импульс первой молекулы, P'_m -импульс второй молекулы, q_ϕ -суммарный импульс фотонов, α -угол рассеяния, σ_γ -сечения рассеяния, R -радиус молекулы.

Таким образом, в равновесном состоянии газа каждое неупругое взаимодействие атомов или молекул приводит к излучению двух фотонов. Распределение Максвелла по скоростям в газе определяет Планковскоераспределение фотонов по энергии. При таком процессе, как было показано

выполняется, как закон сохранения энергии, так и импульса. Образовавшиеся комплексы являются зародышами процесса конденсации, а конденсация как фазовый переход с излучением электромагнитных волн [6,7,8,9].

Такое излучение может играть существенную роль при теплообмене в атмосфере и приводить к передаче тепла излучением. А так же может быть индикатором конденсации газов в жидкое состояние.

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RADIATION OF ELECTROMAGNETIC WAVES DURING CONDENSATION

Abstract: the paper presents the calculation of inelastic cross section of water molecules on the wavelength of the radiation of electromagnetic waves during condensation. It was found that in a steady state, each gas inelastic interactions of atoms or molecules results in the emission of two photons. Maxwell velocity distribution of the gas determines the Planck distribution of photons energy. Electromagnetic radiation may play a significant role in the heat exchange in the atmosphere and lead to heat transfer by radiation, and can also be an indicator of gas condensation into a liquid state.

Keywords: electromagnetic waves, condensation, radiation, heat transfer