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**ACCOUNTING AND ANALYSIS OF ENVIRONMENTAL COSTS AS
A BASIS FOR INCREASING THE SIGNIFICANCE OF INTEGRATED
REPORTING IN MACHINE-BUILDING COMPANIES OF THE RK**

Abstract. The article deals with the development of production processes in the machine-building industry of Kazakhstan in terms of integration, which allows increasing the competitiveness of the industry, concentrating production, monetary and commodity capital, introducing innovations, producing high value-added products and entering world markets. The features of the growth of the machine-building industry, which determine the energy and material intensity of the economy, labor productivity, the level of innovation generation, the level of environmental safety of industrial production and the economic security of the country, are analyzed. The necessity of focusing on the “complication” of the national economy and the diversification of industries that give the maximum multiplier effect and qualitative growth of the economy has been identified and justified. On the basis of the study, it is proposed to intensify the innovative development of mechanical engineering as a driver for the industrialization of the economy of Kazakhstan.

The development of the economy today in our country is determined by the increased responsibility of economic entities to society for the state of the environment. Each commodity producer, entrepreneur, developing his business process, must remember that the solution of his economic problems is closely related to the preservation and protection of the environment. The development of production requires the achievement of a minimum environmental impact of production on the environment.

Key words: environmental accounting, environmental costs, mechanical engineering, industrialization, integration, innovation.

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ҚР МАШИНА ҚҰРЫЛЫС КОМПАНИЯЛАРЫНДА ИНТЕГРАЦИЯЛЫҚ ЕСЕПТІЛІКТІҢ МӘНІН АРТТЫРУ НЕГІЗІ РЕТІНДЕ ЭКОЛОГИЯЛЫҚ ШЫҒЫНДАРДЫ ЕСЕП ЖӘНЕ ТАЛДАУ

Аннотация. Мақалада саланың бәсекеге қабілеттілігін арттыруға, өндірісті, ақшалай және тауарлық капиталды шоғырландыруға, инновацияларды енгізуге, жоғары қосылған құны бар өнімдер шығаруға және нарыққа шығуға мүмкіндік беретін интеграциялық тұрғыда Қазақстанның машина жасау саласындағы өндірістік процестерді дамыту мәселелері қарастырылған. әлемдік нарықтар.

Экономиканың энергетикалық және материалдық сыйымдылығын, еңбек өнімділігін, инновациялық өндіріс деңгейін, өнеркәсіптік өндірістің экологиялық қауіпсіздік деңгейін және елдің экономикалық қауіпсіздігін анықтайтын машина жасау саласының өсу ерекшеліктері талданады.

Ұлттық экономиканың «күрделісіне» және экономиканың максималды мультипликативті эффекті мен сапалы өсуін беретін салаларды әртараптандыруға назар аудару қажеттілігі анықталды және негізделді. Зерттеу негізінде Қазақстан экономикасын индустрияландырудың драйвері ретінде машина жасаудың инновациялық дамуын белсендіру ұсынылады.

Бүгінгі таңда біздің елімізде экономиканың дамуы шаруашылық жүргізуші субъектілердің қоршаған ортаның жай-күйі үшін қоғам алдындағы жауапкершілігінің артуымен айқындалады. Әрбір тауар өндіруші, кәсіпкер өзінің бизнес-процесін дамыта отырып, өзінің экономикалық мәселелерін шешу қоршаған ортаны сақтау және қорғаумен тығыз байланысты екенін есте ұстауы керек. Өндірістің дамуы өндірістің қоршаған ортаға ең аз экологиялық әсеріне жетуді талап етеді.

Түйін сөздер: экологиялық есеп, экологиялық шығындар, машина жасау, индустрияландыру, интеграция, инновация.

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УЧЕТ И АНАЛИЗ ЭКОЛОГИЧЕСКИХ ЗАТРАТ КАК ОСНОВА ПОВЫШЕНИЯ СУЩЕСТВЕННОСТИ ИНТЕГРИРОВАННОЙ ОТЧЕТНОСТИ В МАШИНОСТРОИТЕЛЬНЫХ КОМПАНИЯХ РК

Аннотация. В статье рассмотрены вопросы развития производственных процессов в машиностроительной отрасли Казахстана в условиях интеграции, которое позволяет повысить конкурентоспособность отрасли, сконцентрировать производственный, денежный и товарный капитал, внедрить инновации, производить продукты с высокой добавленной стоимостью и выходить на мировые рынки.

Проанализированы особенности роста машиностроительной отрасли, определяющие энергоемкость и материалоемкость экономики, производительность труда, уровень генерации инноваций, уровень экологической безопасности промышленного производства и экономическую безопасность страны.

Выявлена и обоснована необходимость концентрации акцента на «усложнение» национальной экономики и диверсификацию отраслей промышленности, дающих максимальный мультипликативный эффект и качественный рост экономики.

На основе проведенного исследования предлагается активизация инновационного развития машиностроения как драйвера индустриализации экономики Казахстана.

Развитие экономики сегодня в нашей стране определяется повышением ответственности экономических субъектов перед обществом за состояние окружающей среды. Каждый товаропроизводитель, предприниматель, развивая свой бизнес-процесс, обязан помнить, что решение его экономических проблем тесно связано с сохранением и охраной окружающей среды. Развитие производства требует достижения минимального экологического воздействия производства на окружающую природную среду.

Ключевые слова: экологический учет, экологические затраты, машиностроение, индустриализация, интеграция, инновация.

Introduction. Severe damage to our planet's natural resources not only affects society's ability to achieve sustainable development, it also poses multiple threats to

negative public health outcomes. Many countries are being forced to ask themselves the extent of the importance of their natural environment as the situation becomes more dire.

Environmental accounting can provide environmental information in its own unique ways. The introduction of environmental accounting is not only a necessity for the sustainable development of the economy, but also necessary for the long-term competitiveness of an enterprise.

To organize a comprehensive environmental accounting at an enterprise, a holistic system of environmental assessments is needed to help identify the bottlenecks of the company and aimed at reducing environmental risks.

Kazakhstani businesses looking to increase funding from Western capital markets are realizing that if the new Kazakhstani balance sheets do not present information on environmental liabilities, this will reduce investor confidence in financial statements. Investors who suspect the existence of such liabilities, but do not have an estimate of them, will increase the cost of capital for Kazakh enterprises due to increased risk (Arynova Z.A. 2020:17).

Therefore, environmental information should be an integral part of the preparation of reliable accounting (financial) statements. However, there are currently no regulations in Kazakhstan that regulate accounting activities in the field of ecology and require detailed reflection in the financial statements of obligations and costs associated with environmental activities.

Research Material and methods. At the same time, the economic, organizational, methodological, regulatory and analytical aspects of environmental accounting and reporting in the environmental management system are a poorly developed area of environmental support at all levels of financial, economic and management activities, taking into account industry specifics.

Moreover, in many enterprises there is a disorder in accounting for environmental costs, when they are not only not allocated, but, especially current ones, are “dissolved” in the cost price, unreasonably attributed to labor protection and safety, or only to general business or other expenses. Therefore, the development of the foundations for the development of environmental accounting is of socio-economic importance for preventing crisis phenomena. (Bashirova A.A. 2017:15).

All this makes it difficult to determine the real situation regarding the environmental activities of enterprises, does not contribute to the organization of control over the effectiveness of environmental costs, does not allow making optimal management decisions on responsibility centers, which affects the final results of financial and economic activities.

Accounting for environmental costs in Kazakhstan, enterprises are required to submit as part of statistical observation (in particular, forms No. 4-OS “Information on current environmental protection costs and environmental payments”, No. 18-KS “Information on investments in fixed assets aimed at protecting environment and rational use of natural resources”, etc.).

At the present stage of development of the economy and society, the development

and application of such management methods that would take into account natural balances in the direction of minimal harmful effects or lead to an improvement in natural potential requires economic entities to assess the impact on the environment and carry out environmental protection measures. The main tool designed to solve this problem at the enterprise level is environmental accounting or environmental accounting.

Scientific research and practical experience show that the costs and obligations associated with environmental activities are becoming so significant that insufficient attention to them significantly increases the risk of an erroneous assessment of the financial position of enterprises and organizations, which is formed in accounting and reporting. This is reflected in the objectivity and efficiency of management decisions that form the environmental viability of business organizations, which can significantly change the level of risk, investment attractiveness, competitiveness and the overall image of the enterprise.

Mechanical engineering is the basic backbone branch of the economy of any industrialized state. By producing all kinds of production equipment (machines, machine tools, mechanisms, devices and assemblies, including cars), as well as consumer goods for the population, this industry ensures the technological sustainability of key sectors of the economy - energy, mining and metallurgical and agro-industrial complexes, construction and transport industries.

At the same time, mechanical engineering is a complex differentiated industry that combines 42 sub-sectors, including metalworking.

All over the world, mechanical engineering is recognized as one of the industries that generate the greatest technological “complexity” of the economy; the provision of the economy with high-quality human capital largely depends on the stable functioning and intensive development of mechanical engineering.

In addition, mechanical engineering has a high multiplier effect on related industries (service, sales, logistics, insurance, banking, marketing), creates demand for highly productive services, being one of the most innovative industries, contributes to the complexity of manufactured products, a steady increase in export earnings, and as a result, replenishment of the state budget, technological progress and a general increase in the quality of life of the population (Vishnyakov Ya.D. 2019:24-32.).

Kazakhstan’s mechanical engineering covers 10 types of economic activity, including the production of steel and finished metal products, metal casting, the production of computers, electronic and optical products, the production of electrical equipment; production of machinery and equipment not included in other categories; auto and other vehicles, repair and installation of machinery and equipment.

During the years of industrialization in Kazakhstan, the production of new types of engineering products has been organized: passenger and freight cars, locomotives, railway wheels, turnouts, transformers, cable and wire products, batteries, production of spare parts for machinery and equipment for mining, oil and gas enterprises mechanical engineering mastered such products as shut-off valves, gas filtering equipment, pumping equipment, etc.

Result and discussion. Oil and gas, electrical engineering, railway, mining and metallurgical, agricultural and motor vehicle engineering are developing dynamically.

For example, Kazakh enterprises have already mastered 5 out of 10 thousand components of spare parts and equipment used in the production of railway transport. In the automotive industry, a real transfer of modern technologies and competencies is taking place, the latest production and technological processes are being introduced, a new generation of highly qualified personnel is being brought up, and the localization of production is deepening.

In total, today in the machine-building industry of Kazakhstan there are more than 3 thousand operating enterprises, which employ 62 thousand workers (Voinov V.V. 2018:208).

The total contribution of the machine-building complex to the industrial production of the country increased by 2.2 times (from 3.1% in 2010 to 6.8% in 2020), the manufacturing industry - by 1.4 times (from 9.8% to 13.9% respectively).

Even at the end of the crisis year of 2021, the volume of production of engineering products amounted to 1.8 trillion tenge, IFO - 16.3%. The share of mechanical engineering was 14% in the manufacturing industry and 7% in the entire industry of Kazakhstan.

The growth in production occurred in the following sectors:

- production of basic pharmaceutical products and pharmaceutical preparations - by 47%;

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The growth in production occurred in the following sectors:

- production of basic pharmaceutical products and pharmaceutical preparations - by 47%;

- manufacture of wood and cork products, except for furniture; production of products from straw and materials for weaving - by 43.2%;

- production of finished metal products, except for machinery and equipment - by 19.7%;

- production of paper and paper products - by 14.6%;

- mechanical engineering - by 16.3%;

- light industry - by 15%.

Table 1 - Dynamics of production volumes by engineering sectors in 2020-2021, million tenge.

Industry sector	2020 year	2021 year	IFO for 2020./2021, in %
mechanical engineering	1 371 956	1 807 421	116,6
Manufacture of cars, trailers and semi-trailers	359 532	612 809	152,5

Manufacture of other vehicles	126 238	205 759	138,5
Manufacture of machinery and equipment n.e.c.	185 117	207 191	107,4
Production of electrical equipment	148 440	174 527	100,8
Repair and installation of machinery and equipment	514 174	569 868	96,3
Manufacture of computers, electronic and optical products	38 454	37 267	89,9

Despite the introduction of a state of emergency due to the spread of coronavirus infection, the engineering industry is showing growth. A decrease in production volumes is observed in the sectors for the repair and installation of machinery and equipment, as well as in the production of computers, electronic and optical products (Vitukhin A.D. 2018: 69-76.).

In general, the high growth rates of industries in 2021 made it possible to maintain the anti-crisis plan adopted on behalf of the Head of State and successfully implemented by the Government of the country to support businesses to overcome the consequences of the pandemic. Enterprises continue to receive support from the state in order to gradually restore business activity compared to last year. Today, domestic enterprises can take advantage of a whole range of state support measures: from concessional financing (Economy of Simple Things, Business Roadmap 2025, Concessional Loan Program) to sales promotion (preferential leasing). NWF Samruk-Kazyna JSC is implementing an import substitution program and an off-take agreement mechanism.

Despite the measures taken and the positive dynamics, it has not yet been possible to realize the full potential of domestic engineering and metalworking. One of the topical issues in this direction is the saturation of the domestic market with domestic engineering products. Additional measures are needed to create the most favorable treatment for the production of domestic goods, including by increasing local content and providing raw materials at affordable prices, as well as increasing the competitiveness of domestic machine builders to enter export markets.

Given the huge range of products manufactured by the engineering industry, as well as the nature of the raw materials used and production processes, it must be understood that environmental problems play a very important role, which have similar features in almost all areas of engineering. At the same time, in some industries, these problems are affected not only by the technological processes themselves and the production profiles of enterprises, but also by their technical equipment.

For example, metalworking enterprises are characterized by the formation of solid waste that enters the atmosphere and sewage, for paint and varnish high levels of chemical waste, such as acids, alkalis, electroplating waste, and so on. It is very difficult or even impossible to dispose of most of the waste in urban landfills, and disposal should be carried out at specialized landfills. But given their scarcity, often most of the waste accumulates on the territory of enterprises, where it gradually mixes with other waste and enters the sewer (Statistical collection: 06/09/2020).

The main environmental problems arising in the engineering industry include pollution of groundwater, soil, air, as well as the depletion of natural resources and climate change. In most large industrial centers, pollution standards exceed the permissible limits by several times.

Only 30% of the station sources of the machine-building industry are equipped with effective cleaners and filters, while they account for almost 32% of all industrial pollution.

There are three main areas of environmental pollution:

Water. Salts of heavy metals, oil products, phosphorus and other toxic substances enter the sewerage system. At the same time, most enterprises are located on the banks of rivers (Code of the Republic of Kazakhstan 06/08/2020).

Atmosphere. In addition to carbon monoxide and sulfur dioxide, as well as a number of other harmful emissions, it is machine-building enterprises that are the source of the emission of chromium oxide (VI), which is an extremely toxic substance, into the atmosphere.

The soil. In addition to slag, ash and oiled sawdust, scrap metal and metal shavings enter the soil.

Almost without exception, machine-building enterprises use substances with a high level of pollution in their technological processes. For example, in the foundry, which is one of the most toxic, not only combustion products enter the atmosphere, but also sulfur, carbon and nitrogen oxides, dust, and a large amount of molding sand is thrown into the wastewater. During welding, chromium (VI) oxide, manganese, sulfur and copper oxides, as well as welding fumes are released. A large amount of electrolytic solutions in galvanization is discharged into wastewater.

All these wastes have a negative impact not only on the environment, but also on human health, since the presence of heavy metals in water leads to an increase in the formation of malignant tumors and metastases, allergies and even mutations.

Despite the fact that the environmental situation is deteriorating every year, there are active government programs designed to reduce pollution and improve the situation around machine-building enterprises. Modern technologies are being introduced to ensure more efficient treatment of wastewater and atmospheric emissions at enterprises, part of the waste is disposed of and sent for recycling, a system for monitoring and monitoring the environmental situation is being introduced (National Report 09.06.2020).

In developed countries, such as Sweden, Germany, Great Britain, specialized environmental monitoring services have long been organized, carefully checking the work of enterprises and ensuring that environmental laws are observed. For example, in Japan, there are very strict environmental safety rules, for violation of which huge fines and even criminal liability are imposed on manufacturers.

In recent years, the concept of transition to sustainable development, the integration of environmental security with a balanced development of the economy, has become a strategic priority for most countries in recent years. The acceleration of this process is facilitated by the use of the potential of the latest technologies,

which not only reduce the negative impact on the environment, but also increase the efficiency of the use of natural resources (Shkuratov A.I. 2017: 207-225.).

The implementation of the concept of transition of the country's machine-building complex to sustainable development is influenced by the following trends: Any production activity is accompanied by harmful emissions. On average, each inhabitant of Kazakhstan annually accounts for 138 kg of pollutants emitted by all enterprises of the country, in the form of soot, hydrogen sulfide, ammonia and other harmful substances. About a third of these emissions are generated by the manufacturing industry. In 2020 alone, emissions from all stationary sources of industry enterprises amounted to 14.2 million tons, and their level increased by 10% compared to the previous year. Despite the fact that 94.5% of the total emissions were captured and neutralized by the treatment facilities of the industry enterprises, 778 tons were nevertheless released into the atmosphere, of which 63.6% bypassed the treatment facilities altogether. In recent years, the concept of transition to sustainable development, the integration of environmental security with a balanced development of the economy, has become a strategic priority for most countries in recent years. The acceleration of this process is facilitated by the use of the potential of the latest technologies, which not only reduce the negative impact on the environment, but also increase the efficiency of the use of natural resources (Shkuratov A.I. 2017: 207-225.).

The enterprises of the manufacturing sector have not yet been able to reduce emissions of pollutants into the atmosphere. Annually, their volumes increase by an average of 2.7%, and emissions without treatment - by 3.7%. But the situation could change dramatically. To do this, it is necessary that enterprises are interested in the transition to "green" production and begin to introduce environmentally friendly technologies and innovations. One of the levers of such a transition is the increase in environmental requirements for the activities of enterprises (Shkuratov A.I. 2017: 225.).

At the moment, the issues of environmental friendliness of production are among the top priorities, requiring additional capital investments from enterprises. At the same time, the use of environmental innovations turns around for enterprises and tax incentives, which for several years can justify the costs of introducing innovative solutions. The transition to a "green" economy can be accelerated by the maximum coverage of enterprises with technologies with a lower negative environmental impact index, the introduction of environmental innovations and environmental expertise of production and finished products

In the context of Kazakhstan's integration into the world market and with the transition to international accounting and reporting standards, many large enterprises practice the development of environmental policy, a comprehensive program for its implementation, planning activities for environmental protection and ensuring environmental safety, analyzing financial aspects and conducting environmental audits. However, such standards and rules have not yet been developed that would cover all components of accounting for environmental management and

environmental activities (environmental accounting) of enterprises: accounting for environmental assets, environmental liabilities, environmental results and their reflection in environmental reporting.

Conclusion. One of the problems of ecological economics in the light of the concept of sustainable development is the development and improvement of the directions and principles of environmental accounting and control, which include financial and management accounting, reporting on environmental performance and environmental audit. At the same time, the relationship between environmental management and environmental accounting is quite clear.

In this regard, accounting science cannot but respond to a clearly expressed discrepancy between the theory of environmental accounting and reporting and the domestic environmental and economic practice of economic entities. In the activities of enterprises, this problem has not received sufficient development for the purposes of the internal structure of the enterprise.

Thus, environmental information should be an integral part of the preparation of clear and reliable reports. However, there are currently no environmental accounting regulations in Kazakhstan that require detailed disclosure of obligations and costs associated with environmental activities in financial statements. Therefore, the development of the foundations for the development of environmental accounting and audit is of social and economic importance for preventing crisis phenomena.

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МАЗМҰНЫ

ПЕДАГОГИКА

Э.А. Абдыкеримова, А.Б. Туркменбаев, Б.У. Қуанбаева, Р.Е. Жақиянова РОБОТОТЕХНИКА ПӘНІН ОҚЫТУ ҮДЕРІСІНДЕ ОҚУШЫЛАРДЫҢ ЗЕРТТЕУ ДАҒДЫЛАРЫН ҚАЛЫПТАСТЫРУ.....	5
Н.С. Әлқожаева, Қ.Б. Жұмабекова, Г.Қ. Шашаева, Р. Жәлиқызы БОЛАШАҚ ПЕДАГОГТАРДЫ ИННОВАЦИЯЛЫҚ ПЕДАГОГИКАЛЫҚ ІС-ӘРЕКЕТКЕ ДАЙЫНДАУ.....	19
М. Бектурова, А. Жайтапова, С. Тулепова, Г. Дянкова БОЛАШАҚ ШЕТ ТІЛІ МҰҒАЛІМДЕРІНІҢ АКАДЕМИЯЛЫҚ ЖАЗУ ҚҰЗЫРЕТТІЛІГІН ҚАЛЫПТАСТЫРУҒА ӘЛЕУМЕТТІК-АФФЕКТИВТІ ФАКТОРЛАРДЫҢ ӘСЕРІ.....	33
Ж.М. Есіркепов, Б.С. Омаров, Б.І. Құрманбаев, Н.Б. Омаров ЖАРЫС КЕЗІНДЕ ЖОҒАРЫ ДӘРЕЖЕЛІ ВОЛЕЙБОЛШЫЛАРДЫҢ ТЕХНИКАЛЫҚ-ТАКТИКАЛЫҚ ӘРЕКЕТТЕРІНІҢ ЕСЕБІН ЖҮРГІЗУДІҢ ТИІМДІЛІГІ.....	48
А.Б. Жолмаханова, Б.Д. Карбозова, Е. Рыбина ЭМИГРАНТ ЕСТЕЛІКТЕРІН ОҚЫТУДЫҢ ҒЫЛЫМИ-ӘДІСТЕМЕЛІК АСПЕКТІЛЕРІ.....	58
А.А. Куралбаева, Б.М. Баймуханбетов, Г.Е. Абылова «САУАТ АШУ» ОҚУЛЫҒЫНДАҒЫ ТАРАУЛАР МЕН ТАҚЫРЫПТАРҒА МАЗМҰНДЫҚ ТАЛДАУ.....	68
Ж.Б. Кдыралиева, Г.С. Балтабаева, М.А. Батырбаева, Н.Р. Суранчиева ЖОҒАРҒЫ ОҚУ ОРНЫНДАРЫНДА ЕЖЕЛГІ ӘДЕБИ МҰРАЛАРДЫ ОҚЫТУДАҒЫ ИННОВАЦИЯЛЫҚ ТЕХНОЛОГИЯЛАРДЫ ПАЙДАЛАНУ НЕГІЗДЕРІ.....	81
А.Ж. Мәуітбекова, К.Н. Булатбаева ОМОНІМДІК ПАРАДИГМА АҒЫЛШЫН ТІЛІН ОҚЫТУДЫҢ БІРЛІГІ РЕТІНДЕ.....	87
Ф.Д. Наметкулова, Г.Т. Шойынбаева, А.Қ. Сугирбекова БОЛАШАҚ МҰҒАЛІМДЕРДІ ФИЗИКАЛЫҚ ЭКСПЕРИМЕНТ АРҚЫЛЫ ОҚУШЫЛАРДЫҢ ФУНКЦИОНАЛДЫҚ САУАТТЫЛЫҒЫН ҚАЛЫПТАСТЫРУҒА ДАЯРЛАУ.....	100

Ғ.А. Орынханова, Ж.К. Қиынова, А.Т. Оңалбаева АУЫЛ МЕКТЕПТЕРІ МҰҒАЛІМДЕРІНІҢ ЦИФРЛЫҚ САУАТТЫЛЫҒЫН ҚАЛЫПТАСТЫРУ МӘСЕЛЕЛЕРІ.....	113
А.Р. Рымханова, С.К. Абильдина, Р.К. Дюсембинова СТУДЕНТ ЖАСТАР ЕРІКТІЛІГІНІҢ ЖЕКЕ-ПСИХОЛОГИЯЛЫҚ ДЕТЕРМИНАНТТАРЫ.....	125
Г.А. Сейдуллаева, Г.Ж. Жалелова, Г.С. Сапар ЦИФРЛЫҚ ТЕХНОЛОГИЯЛАР АРҚЫЛЫ ЦИФРЛЫҚ БІЛІМ БЕРУ РЕСУРСТАРЫН ЖОБАЛАУ.....	138
А.С. Тастанова, Н.Т. Шындалиев, Ж.Е. Зулпыхар МАШИНАЛЫҚ ОҚЫТУДА РҮТНОН БАҒДАРЛАМАСЫНЫҢ МҮМКІНДІКТЕРІ.....	150
С. Тлеубай, Ж. Жауыншиева, С. Есимкулова, Ж. Оралканова УНИВЕРСИТЕТТЕ БОЛАШАҚ МАМАНДЫ ДАЙЫНДАУДА ЭМОЦИОНАЛДЫҚ КОМПОНЕНТТІ ДАМЫТУДЫҢ РӨЛІ.....	161
А.А. Туктасинова, К.Ш. Бакирова ПӘН МЕН ТІЛДІ КІРІКТІРІП ОҚЫТУДА ОҚУ МАТЕРИАЛДАРЫН ПАЙДАЛАНУ ТУРАЛЫ.....	173
З.Н. Утегулова, Ф.Ш. Оразбаева, Э.Н. Оразалиева АЙТЫЛЫМ МЕН ЖАЗЫЛЫМ ПРОЦЕСТЕРІНІҢ КОММУНИКАТИВТІК АСПЕКТІЛЕРІ.....	183
Г.Т. Шүкенай, А.М. Абызова, Г.А. Тлегенова ПЕДАГОГ ТІЛІНІҢ ЛИНГВОЭКОЛОГИЯСЫ.....	194

ЭКОНОМИКА

Л.О. Абылкасимова, М.Б. Молдажанов, А.Ж. Зейнуллина, К.Е. Хасенова, А.Б. Рахешева ҚАЗАҚСТАНДАҒЫ ЭКОТУРИЗМНІҢ ҚАЗІРГІ ЖАҒДАЙЫ МӘСЕЛЕЛЕРІ МЕН ДАМУ ЖОЛДАРЫ.....	207
Г. Азретбергенова, З. Есымханова, Ы. Узын ЭКОНОМИКАЛЫҚ ӨСУ МЕН ЭКСПОРТ БАЙЛАНЫСЫН ДАМУШЫ ЕЛДЕР НЕГІЗІНДЕ ПАНЕЛЬДІК ТАЛДАУ.....	220

О.А. Дагмирзаев ҚАЗАҚСТАН ЭКОНОМИКАСЫ НАҚТЫ СЕКТОРЫНЫҢ АЙМАҚТЫҚ КӨРСЕТКІШТЕРІНІҢ ВАРИАТИВТІЛІГІН ФАКТОРЛЫҚ ТАЛДАУ.....	232
Б.А. Жакупова, А.Т. Сексенова, А.С. Рахманова, К.Б. Тлеуқабылова КОМПАНИЯДА ДАҒДАРЫСТЫҢ АЛДЫН АЛУ - КАПИТАЛДЫ ОҢТАЙЛЫ БАҒАЛАУДЫҢ НӘТИЖЕСІ.....	243
Р.А. Жанбаев, Г.Р. Темирбаева, Д.А. Айбосынова, А.Е. Еркін, Д.Г. Максимов КВАЗИМЕМЛЕКЕТТІК СЕКТОР: ТҰРАҚТЫ ДАМУ МАҚСАТТАРЫ (ТДМ) ЖӘНЕ ОЛАРДЫ КОРПОРАТИВТІК СТРАТЕГИЯЛАРҒА ИНТЕГРАЦИЯЛАУ ҚҰРАЛДАРЫ.....	253
З.О. Иманбаева, Д.А. Амержанова, Н.Б. Давлетбаева, Х.Х. Кусаинов, Э.Ш. Дуйжанова ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ АУЫЛШАРУАШЫЛЫҒЫН ДАМУДЫҢ ЖОЛДАРЫ.....	270
Л. Кан, Т. Мухамедьярова-Левина, А. Анесова ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ПАЙЛЫҚ ҚОРЛАРДЫҢ ЖАҒДАЙЫ МЕН ДАМУ БОЛАШАҒЫН ТАЛДАУ.....	286
Г.К. Кенжетәева, Г.Т. Кунуркульжаева, Л.А. Шафеева, В. Есмагзам, И.Т. Иманғалиева ҚАЗАҚСТАН РЕСПУБЛИКАСЫНДАҒЫ ЖҰМЫССЫЗДЫҚ ДЕҢГЕЙІН ТАЛДАУ.....	298
Ғ.Е. Керімбек, М.Ғ. Қайырғалиева, Г.Е. Нурбаева, Н.А. Умбеталиев, К.Б. Сатымбекова КОМПАНИЯДА АҚША ҚАРАЖАТТАРЫН БАСҚАРУ ЖӘНЕ БАҒАЛАУ СТРАТЕГИЯСЫН ЖЕТІЛДІРУ.....	311
А.А. Муталиева, С. Дырка, В.Н. Сейтова, А.Б. Махатова, М.Қ. Ускенов ҚАЗАҚСТАНДА СҮТ ӨНДІРІСІНІҢ ДАМУЫН ТАЛДАУ ЖӘНЕ БОЛЖАУ.....	322
А.А. Нурғалиева, С. Дырка АУЫЛШАРУАШЫЛЫҒЫ ӨНДІРІСІН ДАМУЫНДАҒЫ ИНВЕСТИЦИЯЛАРДЫҢ НЕГІЗГІ РӨЛІ.....	332

А.Ж. Панзабекова, И.Д. Тургель, Ж.Г. Имангали АЗАМАТТЫҚ ҚОҒАМ СЫБАЙЛАС ЖЕМҚОРЛЫҚҚА ҚАРСЫ МЕМЛЕКЕТТІК САЯСАТТЫҢ ТИІМДІЛІГІН АРТТЫРУДЫҢ ӘЛЕУМЕТТІК РЕСУРСЫ РЕТІНДЕ.....	344
А.С. Садвақасова, Б.С. Корабаев, Г.Д. Аманова, С.С. Донцов, Б. Куантқан, А.В. Заякина ҚР МАШИНА ҚҰРЫЛЫС КОМПАНИЯЛАРЫНДА ИНТЕГРАЦИЯЛЫҚ ЕСЕПТІЛІКТІҢ МӘНІН АРТТЫРУ НЕГІЗІ РЕТІНДЕ ЭКОЛОГИЯЛЫҚ ШЫҒЫНДАРДЫ ЕСЕП ЖӘНЕ ТАЛДАУ.....	361
М. Саймова, Ж.Қ. Басшиева, С.И. Игильманова, А.Ж. Бұхарбаева, А.Б. Тасмағанбетов НАРЫҚ ЖАҒДАЙЫНДА МАРКЕТИНГТІК ИННОВАЦИЯЛАРДЫ ӘЗІРЛЕУ ЖӘНЕ ЕНГІЗУ.....	372
Р.Б. Саргова, А.С. Кадырова, А.А. Ниязбаева, Г.К. Демеуова, Ж.Қ. Басшиева АГРАРЛЫҚ СЕКТОРДЫ ЖАҢҒЫРТУ: ҚАРЖЫЛЫҚ ҚОЛДАУ ШАРАЛАРЫ.....	388

СОДЕРЖАНИЕ

ПЕДАГОГИКА

Э.А. Абдыкеримова, А.Б. Туркменбаев, Б.У. Куанбаева, Р.Е. Жақиянова ФОРМИРОВАНИЕ ИССЛЕДОВАТЕЛЬСКИХ НАВЫКОВ УЧАЩИХСЯ В ПРОЦЕССЕ ОБУЧЕНИЯ РОБОТОТЕХНИКЕ.....	5
Н.С. Алгожаева, К.Б. Жумабекова, Г.К. Шашаева, Р. Жәлиқызы ПОДГОТОВКА БУДУЩИХ ПЕДАГОГОВ К ИННОВАЦИОННОЙ ПЕДАГОГИЧЕСКОЙ ДЕЯТЕЛЬНОСТИ.....	19
Бектурова М., Жайтапова А., Тулепова С., Дянкова Г. ВЛИЯНИЕ СОЦИАЛЬНЫХ И ЭМОЦИОНАЛЬНЫХ ФАКТОРОВ НА ФОРМИРОВАНИЕ КОМПЕТЕНЦИИ АКАДЕМИЧЕСКОГО ПИСЬМА БУДУЩИХ ПЕДАГОГОВ ИНОСТРАННОГО ЯЗЫКА.....	33
Ж.М. Есиркепов, Б.С. Омаров, Б.И. Курманбаев, Н.Б. Омаров ЭФФЕКТИВНОСТЬ ВЕДЕНИЯ УЧЕТА ТЕХНИКО-ТАКТИЧЕСКИХ ДЕЙСТВИЙ ВОЛЕЙБОЛИСТОВ ВЫСОКОГО КЛАССА ВО ВРЕМЯ СОРЕВНОВАНИЙ.....	48
А.Б. Жолмаханова, Б.Д. Карбозова, Е. Рыбина НАУЧНО-МЕТОДИЧЕСКИЕ АСПЕКТЫ ОБУЧЕНИЯ ЭМИГРАНТСКИХ ВОСПОМИНАНИЙ.....	58
А.А. Куралбаева, Б.М. Баймуханбетов, Г.Е. Абылова АНАЛИЗ СОДЕРЖАНИЯ ГЛАВ И ТЕМ УЧЕБНИКА «САУАТ АШУ».....	68
Ж.Б. Кдыралиева, Г.С. Балтабаева, М.А. Батырбаева, Н.Р. Суранчиева ОСНОВЫ ИСПОЛЬЗОВАНИЯ ИННОВАЦИОННЫХ ТЕХНОЛОГИЙ В ОБУЧЕНИИ ДРЕВНЕМУ ЛИТЕРАТУРНОМУ НАСЛЕДИЮ В ВУЗАХ.....	81
А.Ж. Мәуітбекова, К.Н. Булатбаева ОМОНИМИЧЕСКАЯ ПАРАДИГМА КАК ЕДИНИЦА ОБУЧЕНИЯ АНГЛИЙСКОМУ ЯЗЫКУ.....	87
Ф.Д. Наметкулова, Г.Т. Шойынбаева, А.Қ. Сугирбекова ПОДГОТОВКА БУДУЩИХ УЧИТЕЛЕЙ К ФОРМИРОВАНИЮ ФУНКЦИОНАЛЬНОЙ ГРАМОТНОСТИ УЧАЩИХСЯ ПОСРЕДСТВОМ ФИЗИЧЕСКОГО ЭКСПЕРИМЕНТА.....	100

Г.А. Орынханова, Ж.К. Киынова, А.Т. Оналбаева ПРОБЛЕМЫ ФОРМИРОВАНИЯ ЦИФРОВОЙ ГРАМОТНОСТИ УЧИТЕЛЕЙ СЕЛЬСКИХ ШКОЛ.....	113
А.Р. Рымханова, С.К. Абильдина, Р.К. Дюсембинова ИНДИВИДУАЛЬНО-ПСИХОЛОГИЧЕСКИЕ ДЕТЕРМИНАНТЫ ВОЛОНТЕРСТВА У СТУДЕНЧЕСКОЙ МОЛОДЕЖИ.....	125
Г.А. Сейдуллаева, Г.Ж. Жалелова, Г.С. Сапар ПРОЕКТИРОВАНИЕ ЦИФРОВЫХ ОБРАЗОВАТЕЛЬНЫХ РЕСУРСОВ СРЕДСТВАМИ ЦИФРОВЫХ ТЕХНОЛОГИЙ.....	138
А.С. Тастанова, Н.Т. Шындалиев, Ж.Е. Зулпыхар ВОЗМОЖНОСТИ ПРОГРАММЫ RYTHON В МАШИННОМ ОБУЧЕНИИ.....	150
С. Тлеубай, Ж. Жауыншиева, С. Есимкулова, Ж. Оралканова РОЛЬ РАЗВИТИЯ ЭМОЦИОНАЛЬНОГО КОМПОНЕНТА В ПОДГОТОВКЕ БУДУЩЕГО СПЕЦИАЛИСТА В ВУЗЕ.....	161
А.А. Туктасинова, К.Ш. Бакирова ОБ ИСПОЛЬЗОВАНИИ УЧЕБНЫХ МАТЕРИАЛОВ В ПРЕДМЕТНО-ЯЗЫКОВОМ ИНТЕГРИРОВАННОМ ОБУЧЕНИИ.....	173
З.Н. Утегулова, Ф.Ш. Оразбаева, Э.Н. Оразалиева КОММУНИКАТИВНЫЕ АСПЕКТЫ ПРОЦЕССОВ ГОВОРЕНИЯ И ПИСЬМА.....	183
Г.Т. Шүкенай, А.М. Абызова, Г.А. Тлегенова ЛИНГВОЭКОЛОГИЯ ПЕДАГОГИЧЕСКОЙ РЕЧИ.....	194

ЭКОНОМИКА

Л.О. Абылкасимова, М.Б. Молдажанов, А.Ж. Зейнуллина, К.Е. Хасенова, А.Б. Рахешева СОВРЕМЕННОЕ ПОЛОЖЕНИЕ ЭКОТУРИЗМА В КАЗАХСТАНЕ: ПРОБЛЕМЫ И ПУТИ РАЗВИТИЯ.....	207
Г. Азретбергенова, З. Есымханова, Ы. Узын ПАНЕЛЬНЫЙ АНАЛИЗ ЭКОНОМИЧЕСКОГО РОСТА И ЭКСПОРТА В РАЗВИВАЮЩИХСЯ СТРАНАХ.....	220

О.А. Дагмирзаев

**ФАКТОРНЫЙ АНАЛИЗ ВАРИАТИВНОСТИ РЕГИОНАЛЬНЫХ
ПОКАЗАТЕЛЕЙ РЕАЛЬНОГО СЕКТОРА ЭКОНОМИКИ
КАЗАХСТАНА.....232**

Б.А. Жакупова, А.Т. Сексенова, А.С. Рахманова, К.Б. Тлеукабылова
**ПРЕДУПРЕЖДЕНИЕ КРИЗИСА В КОМПАНИИ – РЕЗУЛЬТАТ
ОПТИМАЛЬНОЙ ОЦЕНКИ КАПИТАЛА.....243**

**Р.А. Жанбаев, Г.Р. Темирбаева, Д.А. Айбосынова, А.Е. Еркін,
Д.Г. Максимов**
**КВАЗИГОСУДАРСТВЕННЫЙ СЕКТОР: ЦЕЛИ УСТОЙЧИВОГО
РАЗВИТИЯ (ЦУР) И ИНСТРУМЕНТЫ ИХ ИНТЕГРАЦИИ
В КОРПОРАТИВНЫЕ СТРАТЕГИИ.....253**

**З.О. Иманбаева, Д.А. Амержанова, Н.Б. Давлетбаева,
Х.Х. Кусайнов, Э.Ш. Дуйжанова**
**ПУТИ РАЗВИТИЯ СЕЛЬСКОГО ХОЗЯЙСТВА В РЕСПУБЛИКЕ
КАЗАХСТАН.....270**

Л. Кан, Т. Мухамедьярова-Левина, А. Анесова
АНАЛИЗ СОСТОЯНИЯ И ПЕРСПЕКТИВЫ РАЗВИТИЯ ПИФОВ В РК.....286

**Г.К. Кенжетаетаева, Г.Т. Кунуркульжаева, Л.А. Шафеева, В. Есмагзам,
И.Т. Имангалиева**
**АНАЛИЗ УРОВНЯ БЕЗРАБОТИЦЫ В РЕСПУБЛИКЕ
КАЗАХСТАН.....298**

**Г.Е. Керимбек, М.Г. Кайыргалиева, Г.Е. Нурбаева,
Н.А. Умбеталиев, К.Б. Сатымбекова**
**СОВЕРШЕНСТВОВАНИЕ СТРАТЕГИИ УПРАВЛЕНИЯ И
ОЦЕНКИ ДЕНЕЖНЫХ СРЕДСТВ В КОМПАНИИ.....311**

**А.А. Муталиева, С. Дырка, В.Н. Сейтова, А.Б. Махатова,
М.Қ. Ускенов**
**АНАЛИЗ И ПРОГНОЗ РАЗВИТИЯ ПРОИЗВОДСТВА МОЛОКА
В КАЗАХСТАНЕ.....322**

А.А. Нургалиева, Стефан Дырка
**ОСНОВНАЯ РОЛЬ ИНВЕСТИЦИЙ В РАЗВИТИИ
СЕЛЬСКОХОЗЯЙСТВЕННОГО ПРОИЗВОДСТВА.....332**

А.Ж. Панзабекова, И.Д. Тургель, Ж.Г. Имангали ГРАЖДАНСКОЕ ОБЩЕСТВО КАК СОЦИАЛЬНЫЙ РЕСУРС ПОВЫШЕНИЯ ЭФФЕКТИВНОСТИ ГОСУДАРСТВЕННОЙ АНТИКОРРУПЦИОННОЙ ПОЛИТИКИ.....	344
А.С. Садвакасова, Б.С. Корабаев, Г.Д. Аманова, С.С. Донцов, Б. Куанткан, А.В. Заякина УЧЕТ И АНАЛИЗ ЭКОЛОГИЧЕСКИХ ЗАТРАТ КАК ОСНОВА ПОВЫШЕНИЯ СУЩЕСТВЕННОСТИ ИНТЕГРИРОВАННОЙ ОТЧЕТНОСТИ В МАШИНОСТРОИТЕЛЬНЫХ КОМПАНИЯХ РК.....	361
М. Саймова, Ж.К. Басшиева, С.И. Игильманова, А.Ж. Бухарбаева, А.Б. Тасмаганбетов РАЗРАБОТКА И ВНЕДРЕНИЕ МАРКЕТИНГОВЫХ ИННОВАЦИЙ В РЫНОЧНЫХ УСЛОВИЯХ.....	372
Р.Б. Сартова, А.С. Кадырова, А.А. Ниязбаева, Г.К. Демеуова, Ж.К. Басшиева МОДЕРНИЗАЦИЯ АГРАРНОГО СЕКТОРА: МЕРЫ ФИНАНСОВОЙ ПОДДЕРЖКИ.....	388

CONTENTS

PEDAGOGY

E. Abdykerimova, A. Turkmenbaev, B. Kuanbayeva, R.E. Zhakiyanova
FORMATION OF STUDENTS RESEARCH SKILLS IN THE PROCESS
OF TEACHING ROBOTIC.....5

N.S. Algozhaeva, K.B. Zhumabekova, G.K. Shashaeva, R. Zhalikyzy
PREPARATION OF FUTURE TEACHERS FOR INNOVATIVE
PEDAGOGICAL ACTIVITY..... 19

M. Bekturova, A. Zhaitapova, S. Tulepova, G. Diankova
THE IMPACT OF SOCIAL AND AFFECTIVE FACTORS ON THE
FORMATION OF ACADEMIC WRITING COMPETENCE AMONG
FUTURE EFL TEACHERS.....33

Zh.M. Yessirkepov, B.S. Omarov, B.I.Kurmanbayev, N.B. Omarov
EFFECTIVENESS OF KEEPING RECORDS OF TECHNICAL AND
TACTICAL ACTIONS OF HIGH-CLASS VOLLEYBALL PLAYERS
DURING COMPETITIONS.....48

A. Zholmakhanova, B. Karbozova, E. Rybina
SCIENTIFIC AND METHODOLOGICAL ASPECTS OF TEACHING
EMIGRANT MEMORIES.....58

A.A. Kuralbayeva, B.M. Baimukhanbetov, Abylova G.E.
ANALYSIS OF CONTENTS OF CHAPTER AND TOPICS IN
«SAUAT ASHU» TEXTBOOK.....68

Zh.B. Kadyralieva, G.S. Baltabayeva, M.A. Batyrbayeva, N.R. Suranchieva
FUNDAMENTALS OF THE USE OF INNOVATIVE TECHNOLOGIES IN
TEACHING ANCIENT LITERARY HERITAGE
IN HIGHER EDUCATIONAL INSTITUTIONS.....81

A. Mauitbekova, K. Bulatbayeva
HOMONYMIC PARADIGM AS A UNIT OF TEACHING ENGLISH.....87

F. Nametkulova, G. Shoiynbaeva, A. Sugirbekova
PREPARATION OF FUTURE TEACHERS FOR THE FORMATION
OF FUNCTIONAL LITERACY OF STUDENTS THROUGH A PHYSICAL
EXPERIMENT.....100

G. Orynkhanova, Zh. Kiynova, A. Onalbayeva PROBLEMS OF FORMATION OF DIGITAL LITERACY OF RURAL SCHOOL TEACHERS.....	113
A.Р. Рымханова, С.К. Абильдина, Р.К. Дюсембинова INDIVIDUAL PSYCHOLOGICAL DETERMINANTS OF VOLUNTEERING AMONG STUDENTS.....	125
G. Seidullayeva, G. Zhalelova, G. Sapar DESIGNING DIGITAL EDUCATIONAL RESOURCES BY MEANS OF DIGITAL TECHNOLOGIES.....	138
A.S. Tastanova, N.T. SHyndaliev, Zh.E. Zulpykhar PYTHON PROGRAM FEATURES IN MACHINE LEARNING.....	150
S. Tleubay, Zh. Zhauynshiyeva, S. Yessimkulova, Zh. Oralkanova THE ROLE OF THE DEVELOPMENT OF THE EMOTIONAL COMPONENT IN THE PREPARATION OF THE FUTURE SPECIALIST IN THE UNIVERSITY.....	161
A. Tuktassinova, K. Bakirova ON THE USE OF LEARNING MATERIALS IN CONTENT AND LANGUAGE INTEGRATED LEARNING.....	173
Z. Utegulova, F. Orazbaeva, E. Orazaliyeva COMMUNICATIVE ASPECTS OF SPEAKING AND WRITING PROCESSES.....	183
G. Shukenai, A. Abyzova, G. Tlegenova LINGUOECOLOGY OF TEACHER'S SPEECH.....	194

ECONOMICS

L. Abylkassimova, M. Moldazhanov, A. Zeinullina, K. Khassenova, A. Rakhisheva CURRENT STATE OF ECOTOURISM IN KAZAKHSTAN: PROBLEM AND OPPORTUNITIES FOR DEVELOPMENT.....	207
G. Azretbergenova, Z. Yessymkhanova, Y. Uzun A PANEL ANALYSIS OF THE RELATIONSHIP OF ECONOMIC GROWTH AND EXPORTS BY DEVELOPING COUNTRIES.....	220
O.A. Dagmirzaev	

FACTOR ANALYSIS OF THE VARIABILITY OF REGIONAL INDICATORS THE REAL SECTOR OF THE ECONOMY OF KAZAKHSTAN.....	232
B. Zhakupova, A. Seksenova, A. Rakhmanova, K. Tleukabylova PREVENTION OF A CRISIS IN THE COMPANY AS A RESULT OF AN OPTIMAL CAPITAL ASSESSMENT.....	243
R.A. Zhanbayev, G.R. Temirbaeva, D.A. Aibossynova, A.Y. Yerkin, D.G. Maksimov QUASI-PUBLIC SECTOR: SUSTAINABLE DEVELOPMENT GOALS (SDG) AND TOOLS FOR THEIR INTEGRATION INTO CORPORATE STRATEGIES.....	253
Z. Imanbayeva, N. Davletbayeva, D. Amerzhanova, K. Kussainov, E. Duizhanova DEVELOPMENT METHODS OF AGRICULTURE IN THE REPUBLIC OF KAZAKHSTAN.....	270
L. Kan, T. Mukhamedyarova-Levina, A. Anessova ANALYSIS OF THE STATE AND PROSPECTS FOR THE DEVELOPMENT OF MUTUAL FUNDS IN THE REPUBLIC OF KAZAKHSTAN.....	286
G. Kenzhetayeva, G. Kunurkulzhayeva, L. Shafeyeva, V. Yesmagzam, I. Imangaliyeva ANALYSIS OF THE UNEMPLOYMENT RATE IN THE REPUBLIC OF KAZAKHSTAN.....	298
G. Kerimbek, M. Kaiyrgaliev, G. Nurbayeva, N. Umbetaliev, K. Satymbekova IMPROVING CASH MANAGEMENT AND ASSESSMENT STRATEGY IN THE COMPANY.....	311
A. Mutaliyeva, S. Dyrka, V. Seitova, A. Makhatova, M. Uskenov ANALYSIS AND FORECAST OF MILK PRODUCTION DEVELOPMENT IN KAZAKHSTAN.....	322
A. Nurgaliyeva, S. Dyrka THE MAIN ROLE OF INVESTMENT IN THE DEVELOPMENT OF AGRICULTURAL PRODUCTION.....	332

A.Zh. Panzabekova, I.D. Turgel, Zh.G. Imangali CIVIL SOCIETY AS A SOCIAL RESOURCE FOR INCREASING THE EFFICIENCY OF STATE ANTI-CORRUPTION POLICY.....	344
A. Sadvakassova, B. Korabayev, G. Amanova, S. Dontsov, B. Kuantkan, A. Zayakina ACCOUNTING AND ANALYSIS OF ENVIRONMENTAL COSTS AS A BASIS FOR INCREASING THE SIGNIFICANCE OF INTEGRATED REPORTING IN MACHINE-BUILDING COMPANIES OF THE RK.....	361
M. Saiymova, Z. Basshieva, S. Igilmanova, A. Bukharbayeva, A. Tasmaganbetov DEVELOPMENT AND IMPLEMENTATION OF MARKETING INNOVATIONS IN MARKET CONDITIONS.....	372
R. Sartova, A. Kadyrova, A. Niyazbayeva, G. Demeuova, Z. Basshieva MODERNIZATION OF THE AGRICULTURAL SECTOR: FINANCIAL SUPPORT MEASURES.....	388

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