

N.S. Nurkasheva^{1*}, **A.E. Imataeva¹**,
A.R. Andossova², **Y.U. Uzun³**

¹Narxoz University, Kazakhstan, Almaty

²Turan University, Kazakhstan, Almaty

³Bitlis Eren University, Turkey, Bitlis

*e-mail: nursulu_1975@mail.ru

FEATURES OF THE ORGANIZATION OF ENVIRONMENTAL ACCOUNTING IN THE REPUBLIC OF KAZAKHSTAN

The successful functioning of any business entity in a complex and rapidly changing environment of the economy is determined by its competitiveness. A competitive entity is an organization that has a high value and demand for its products. Therefore, one of the most important conditions for business development and expansion is considered to be the correct accounting of environmental costs, along with the skillful Organization of the methodology for accounting for production costs and costing.

This article reveals the need to study environmental accounting in modern conditions aimed at achieving the ultimate goal of any production in order to reduce the impact of environmental damage caused by industrial enterprises.

The purpose of the article is to disclose the methodology of «environmental cost accounting», which reflects the relationship between economic costs and environmental protection costs, which allows ensuring the competitiveness and reliability of products.

During the execution of the article, various research methods were used, including the dialectical approach, monographic research and graphic methods.

The results and conclusions obtained from the study are highlighted by the degree of influence of companies on the effective organization of environmental activities of organizations, in addition to demonstrating the ability of companies to use rational methods of effective management of economic and environmental costs and the formation of cost.

In the scientific article, the definition of the formation of the target cost is formulated, the importance and methods of environmental accounting are studied to determine the competitiveness of products and the impact of production on the environment.

Key words: Environmental accounting, environmental costs, calculation of Target costs, management accounting, costing methods.

Н.С. Нуркашева^{1*}, Ә.Е. Иматаева¹, А.Р. Андосова², Й.У. Узун³

¹Нархоз университеті, Қазақстан, Алматы қ.

²Тұран университеті, Қазақстан, Алматы қ.

³Бітіліс Ерен Университеті, Түркия, Бітіліс қ.

*e-mail:nursulu_1975@mail.ru

Қазақстан Республикасында экологиялық есепті ұйымдастырудың ерекшеліктері

Экономиканың күрделі және тез өзгеретін жағдайында кез келген шаруашылық жүргізуші субъектінің табысты жұмыс істеуі оның бәсекеге қабілеттілігімен анықталады. Бәсекеге қабілетті субъект – бұл өз өнімдеріне жоғары құндылығы мен сұранысы бар ұйым. Соңдықтан бизнесті дамыту мен кеңейтудің маңызды шарттарының бірі өндіріс шығындары мен өзіндік құнын есепке алу әдістемесін шебер ұйымдастырумен қатар экологиялық шығындарды дұрыс есепке алу болып саналады.

Бұл мақалада өнеркәсіптік кәсіпорындар келтіретін экологиялық залалдың әсерін азайту мақсатында кез-келген өндірістің түпкі мақсатына жетуге бағытталған қазіргі жағдайда экологиялық есепті зерделеу қажеттілігі ашылады.

Мақаланың мақсаты – өнімдердің бәсекелестік қабілеті мен сенімділігін қамтамасыз етуге мүмкіндік беретін экономикалық шығындар мен қоршаған ортаны қорғауға жұмсалатын шығындардың байланысын көрсететін «экологиялық шығындар есебінің» әдістемесін ашып көрсету.

Мақаланы орындау кезінде зерттеудің әртүрлі әдістер қолданылды, соның диалектикалық

Зерттеуден алған нәтижелер мен қорытындыларды компаниялардың экономикалық және қоршаған ортаны қорғау шығындарын тиімді басқару мен өзіндік құнды қалыптастырудың ұтымды әдістерін қолдануға мүмкіндіктерін көрсетумен қатар, ұйымдардың экологиялық қызметтерін тиімді ұйымдастыруға ықпал ету дәрежелерімен ершеленеді.

Ғылыми мақалада мақсатты өзіндік құнды қалыптастырудың анықтамасы тұжырымдалады, өнімнің бәсекеге қабылеттілігі мен өндірістің қоршаған ортаға әсерін анықтау үшін экологиялық есептің маңыздылығы мен әдістері зерттеледі.

Түйін сөздер: Экологиялық есеп, экологиялық шығындар, мақсатты шығындарды есептеу, басқару есебі, калькуляциялау әдістері.

Н.С. Нуркашева^{1*}, А.Е. Иматаева¹, А.Р. Андосова², Й.У. Узун³

¹Университет Нархоз, Қазақстан, г. Алматы

²Университет Туран, Қазақстан, г. Алматы

³Битлис Ерен Университет, Түркия, г. Битлис

*e-mail: nursulu_1975@mail.ru

Особенности организации экологического учета в Республике Казахстан

Успешное функционирование любого хозяйствующего субъекта в сложных и быстро меняющихся условиях экономики определяется его конкурентоспособностью.

Конкурентоспособный субъект – это организация, имеющая высокую ценность и спрос на свою продукцию. Поэтому одним из важнейших условий развития и расширения бизнеса считается правильный учет экологических затрат, наряду с умелой организацией методологии учета производственных затрат и калькулирования себестоимости.

Данная статья раскрывает необходимость изучения экологического учета в современных условиях, направленного на достижение конечной цели любого производства с целью снижения воздействия экологического ущерба, наносимого промышленными предприятиями.

Целью статьи является раскрытие методологии «учета затрат на охрану окружающей среды», которая отражает взаимосвязь между экономическими затратами и затратами на охрану окружающей среды, что позволяет обеспечить конкурентоспособность и надежность продукции.

При выполнении статьи были использованы различные методы исследования, в том числе диалектический подход, монографическое исследование и графические методы.

Результаты и выводы, полученные в результате исследования, выделяются степенью влияния компаний на эффективную организацию природоохранной деятельности организаций, в дополнение к демонстрации способности компаний использовать рациональные методы эффективно-го управления экономическими и экологическими затратами и формирования себестоимости.

В научной статье сформулировано определение формирования целевой себестоимости, изучены важность и методы экологического учета для определения конкурентоспособности продукции и воздействия производства на окружающую среду.

Ключевые слова: Экологический учет, затраты на охрану окружающей среды, расчет плановых затрат, управленческий учет, методы калькулирования себестоимости.

Introduction

The United Nations (UN) stressed the importance of the environment as the main and most important prerequisites and point for the formation of a socio-economic scientific system for the purpose of sustainable development.

Also, considering the development of the Republic of Kazakhstan, it should be noted that the fragmentation between the economic and environmental directions is clearly visible. As evidence of this, it can be noted that our country is based on the raw material environment, which initially had a positive effect on the economic situation, but in the long term, neglecting ecology from the point of view of the economy affected

the sensitivity to fluctuations in the prices of raw materials and the low diversification of the economy.

In order to reduce the negative impact of production on the environment as a whole, along with the proper development of production technologies, it will be necessary to improve production standards, environmental quality standards, monitor compliance with laws and methods of environmental accounting and their analysis.

Currently, one of the modern methods of general accounting requires high attention to environmental accounting. In itself, it includes innovations in the development of economic sciences, environmental rules and requirements. At the same time, issues such as the production of waste-free products,

the disposal of industrial waste, their recycling and production require the development of environmental accounting.

Reasonable interaction of environmental standards and requirements with accounting rules contributes to economic growth aimed not only at economic benefits, but also at environmental protection, as well as progress in the field of the most innovative methods of accounting that more effectively affect the reality of the modern world.

Literature review

Since the 70s of the last century, environmental accounting has developed into a new branch of accounting, forming a new concept of general economic development. Since the early 1970s, environmental accounting has been a specific category of management accounting as a means of showing and monitoring economic activity related to environmental protection.

In this regard, for the purpose of sustainable development, the United Nations Organization (UN), the World Bank, the United Nations Environment Program (UNEP) and others. such organizations have made a significant contribution to the development and introduction of environmental reporting.

Authors A. Haleem, Abdul -Nazar, M. C., M-I Mujahid Hilal (2021), «The environmental report was discussed with great interest at the UN conferences in 1987 and 1992. Since then, there have been many studies and discussions about environmental accounting. In the 1990s, Roba Gray's research work entitled «Environmental Accounting: The Professional Accountant After Peirce» is considered a milestone in environmental accounting. That is, at this point, research on environmental accounting has become the main subject area discussed in the world academic environment» (Haleem, et al., 2021). Currently, the problem of environmental protection, which worries the whole world, including Kazakhstan, requires consideration of environmental accounting as an important part of the general accounting system. Elements of environmental reporting and reporting are legislated in Denmark, Norway, France and Great Britain.

The Australian author Dijk, V. A., et al., in their work, points out that the concentrated population density in Europe contributes to the lack of environmental data. In addition, they pointed out that the lack of sufficient environmental management accounting at the required level, the

lack of agreement between accountants and the Department of Environmental Management, is one of the main barriers to entry into the emergency agency (Dijk, et al., 2014).

Foreign scientists Bouma, J. J. and Correlje, A. pointed out that, in general, the environmental report must be duly established in all organizations. In their opinion, environmental accounting can serve as the basis for the formation of Environmental Management Accounting and was able to explain that it is a set of accounting systems and methods that provide financial and non-financial data and information about the environment to decision makers and the owner. (Bouma, 2003).

Japanese scientists Burrirt, R. pointed out that if the proper organization of an environmental management report is insufficient, the achievement of environmental efficiency is slow due to insufficient information about the nizations and is not regulated by law today. In this regard, difficulties arise when accoureport contained in it (Burrirt, 2004).

J. Shen, Y. Chen by fully disclosing information about environmental reporting in their works, enterprises can inform the public about environmental protection measures. It has also shown that social supervision and control allow firms to focus on their environmental behavior, strengthen their focus on Environmental Protection, strengthen organizations sense of Social Responsibility, and achieve a higher degree of harmony between economic and environmental benefits (Shen, Chen., 2020).

Foreign scientists studying the problems of environmental costs and environmental accounting K.M.K. Uddin, M.M. Rahman, S. Saha, the organization of accounting for environmental costs allows companies to quantify the impact of their activities on the environment. Overall sustainability reporting-communicates information to potential stakeholders and parties in a transparent manner. And he stressed that keeping records of carbon losses is an important aspect of the fight against climate change, aimed at measuring gas emissions into the environment (Uddin et al., 2023).

O. Arodudu, O. Therasme, T. Volk, R.Malmsheimer, P. Crovella, R. Germain, D. Kumar, In their next work, they conclude: «Environmental Management Accounting is the means by which companies analyze, evaluate, control and manage environmental indicators that contribute to long – term sustainability and environmental efficiency» (Arodudu et al., 2023). Continuing the views of the authors, we also understand this as an environmental management report, a systematized calculation of costs associated with the receipt and compensation

of damage caused by business entities to the environment.

In the scientific works of these authors Md. S. A. Mondal, N. Akter, A. M. Ibrahim, «Environmental management accounting – serves as a tool for identifying, assessing environmental costs and integrating them into everyday management decision-making. (Md.S.A. Mondal et al., 2024) Environmental costs are essential for making important management decisions that combine and harmonize the economy and the surrounding environment. Therefore, keeping records of environmental costs is necessary to solve environmental problems arising from economic development and ensure a sustainable production process». Joining the reasoning of these authors, we note that the purpose of environmental cost accounting is that when determining the cost of production, including environmental costs, it is necessary to pay special attention to its correct calculation. In addition, the environmental management report – can highly contribute to the demonstration of ways to effectively use natural resources, systematize environmental protection services, determine the impact of harmful waste on human health, and assess the economic and environmental sustainability in the general space masshatab.

According to domestic scientists B.S. Korabaev and N.B. Abdrakhmanova, «The concept of environmental accounting is still unfamiliar to domestic organting for the costs of measures to improve the environmental safety of domestic production (Korabaev, 2020).

According to the analysis of domestic economists A. Samambaeva and V. Kovalenko, on June 26, 2023, the International Sustainability Reporting Standards Board (ISSB) approved the first package of IFRS S1 «General requirements for the disclosure of financial information related to sustainable development» and the first thematic standard IFRS S2 «Climate Change Disclosure», which will be implemented from 1 January 2024. This Standard applies to financial statements issued in 2025. (Samambaeva, 2023).

The ISSB was created on the initiative of IFRS and works alongside the Accounting Standards Board (IASB). The new standards follow in the footsteps of IFRS financial reporting standards used in around 150 jurisdictions and are expected to be recognized worldwide by becoming part of national legislation. Similar to accounting standards, IFRS S1/S2 can be mandatory for large companies, joint-stock companies, commercial banks, leasing

companies, medium-sized businesses and state-owned enterprises (Samambaeva, Kovalenko, 2023).

Studying in detail the work of A. Samambaev and V. Kovalenko, one can give examples that «ignoring climate risks can lead to bankruptcy». For example, California's largest electric utility has gone bankrupt twice in the past 20 years due to drought and wildfires. Drought in Kazakhstan occurs every four years, and heat every five years. As a result, the reserves that ensure the operation of hydroelectric power stations may decrease, the loss of thermal power capacity by 10%, and production delays in regions dependent on river energy (Samambaeva, 2023).

Thus, by not disclosing climate opportunities, companies are missing out on opportunities to attract investors. Recent research from energy companies shows that climate transition risks are not part of the companies' economic model and therefore do not represent a reduction in the cost of carbon-intensive energy sources in the face of increasing regulatory pressure. In addition, renewable energy providers are underestimating their prospects in terms of cash flow growth. This means investors don't see potential losses or gains on their investments, and companies miss out on growth opportunities.

Most companies in the countries of Central Asia and the Caucasus have not yet begun to identify and assess the impact of climate risks on the financial condition of their business and the sustainability of their development strategy. In addition, for global investors, information about the impact of these risks on profits moves from the «nice-to-have» category to the «necessary» category when choosing projects for financing.

IFRS S1/S2 represents a new round in the evolution of reporting standards, starting a multi-year race for sustainable development that curbs global warming. The new standards integrate the world's best practices in financial and non-financial reporting into a single set of standards, thereby showing that the link between sustainable development, namely climate and financial well-being, is no longer a theorem that requires years of proof, but an ineffective axiom to ignore.

Currently, environmental reporting is an urgent issue at the global level, owners (investors) and consumers are interested in and demand more necessary information about the company's economic indicators as well as environmental and social indicators.

On January 2, 2021, the «Environmental Code of the Republic of Kazakhstan» was adopted in the

Republic of Kazakhstan. According to clause 1 of Article 3 of this Code, the purpose of this legislation is to define the legal bases, tasks and principles, as well as mechanisms of implementation of the unified state environmental policy in the country («Environmental Code of the Republic of Kazakhstan», 02.01.2021).

Considering that the law on environmental protection and environmental restoration was adopted only in 2021 since the Republic of Kazakhstan gained independence, we all know that the level of environmental pollution and its consequences are becoming an urgent problem as a result of not paying much attention to environmental issues in the country and wasting time.

In the country, enterprises for the extraction and processing of oil and underground minerals, electric power enterprises leave huge amounts of production waste in the environment. Therefore, enterprises and organizations producing products, in order to comply with the requirements of environmental legislation, must take and implement measures related to the restoration of the polluted environment and compensation for damage caused to the environment. And the implementation of these measures in itself requires capital expenditures.

In connection with these issues, the main problem of environmental accounting is the organization of accounting for environmental protection costs. In the practice of the Republic of Kazakhstan, an environmental report is not disclosed as part of a special report. Only in accordance with Article 573 of the Tax Code of the Republic of Kazakhstan (2024) does a settlement procedure for individual entrepreneurs and legal organizations with the objects of calculation and the basis for calculation «payment for negative impact on the environment» be provided, «Tax code of the Republic of Kazakhstan», as amended in 2024). Therefore, in our opinion, we believe that the time has come to formulate and put into practice a holistic methodology for the correct organization and accounting of environmental costs of domestic manufacturing enterprises and organizations.

Mongush, A. D. Environmental reporting can be carried out by enterprises of any size. Whether they are run by a global corporation or a small business, there are elements necessary for success. The company's senior management should support these practices (Mongush, 2014).

In 1992, at the UN International Conference on Environment and development (1992), he proposed the concept of environmental accounting as a tool for organizing consistent policies in the direction

of sustainable development. The Council of Europe proposed environmental reporting as a system used to identify, systematize, regulate and present data and information about the state of the environment through physical and atmospheric indicators (1992).

As a result of general foreign research, foreign authors consider environmental reporting for the purposes of internal management reporting, external financial reporting, as well as a comprehensive system of product cost and financial performance analysis.

At the same time, considering the works of the authors of the domestic and CIS countries, we found out that there are different approaches to the methods of organization of environmental reporting. For example, domestic authors Begeeva, G. J. and Imanbayeva, Z. O. (Begeeva, 2018) Environmental accounting is considered a part of the accounting system among the operational, accounting and statistical reports that are part of the traditional accounting system of the economic entity (Begeeva, 2018). Continuing the concepts of these authors, we propose to consider environmental accounting as an integral part of production and management accounting, including in its composition elements of tax accounting that regulate the accounting of environmental fees and payments.

Russian scientist Saenko, K. S. considers environmental reporting as one of the branches of the accounting system, which continuously keeps records of environmental payments and debts of an economic entity, depending on the level of damage caused to the environment within the organization Saenko, (Saenko, 2005). This author's concept of environmental accounting is deeper. Here, the author includes the environmental obligations of enterprises in the environmental report, because environmental taxes, fees or payments are considered to be the main source of compensation for environmental damages. Therefore, here again we would like to say that the place of the ecological tax calculation in the ecological accounting is considered important.

It should be remembered that environmental accounting is not only management accounting, including environmental costs, but also an accounting system regulated by a tax return on tax legality.

Therefore, along with financial and tax reports, the environmental report must be highly reliable and documented. We believe that environmental, financial and tax reports should be carried out in accordance with the regulatory and legal documents of the Republic of Kazakhstan (such as the Environmental Code, the Tax Code, the Civil Code).

It should be noted that according to Article 575 (2024) of the Tax Code of the Republic of Kazakhstan, the types of payments for negative impact on the environment include:

- emissions of pollutants;
- spills of pollutants;
- buried waste;
- open sulfur.

Individuals or legal entities, i.e. «facility operators», who own or otherwise legally use facilities that have a negative impact on the environment, are considered payers for environmental impact.

Studying the work of the Russian research scientist E. B. Ilyicheva, it should be noted that he divided the environmental report into the following three groups (Ilyicheva, 2009):

- 1) Accounting for environmental obligations;
- 2) Ecologically oriented reporting;
- 3) Environmental audit.

As a result of studying the scientific works of the authors, we propose to organize environmental reporting in the following areas:

- 1) Calculation of environmental obligations and fees (taxes);
- 2) Ecological and statistical report;
- 3) Environmental cost accounting;
- 4) Environmental audit and analysis.

Therefore, as a result of the literature review, we can summarize the differences between the generally accepted conventional accounting and environmental accounting in the table below (Table 1).

Table 1 – Differences between accounting and environmental accounting

№	Characteristic signs	Accounting	Environmental report
1	According to official figures	Focused on financial results	Environmental aspects of enterprise activity
2	According to the origin of the information	Based on financial and economic information	It is based on quantitative, qualitative, physical, regulatory, limit information depending on the way of obtaining information
Note – the table was compiled using the authors' research			

According to the Kyoto protocol, the most successful definition of accounting environmental accounting can be explained as follows: «environmental accounting is a system of recording, collecting, measuring, processing, preparing relevant information that provides the possibility of planning and forecasting, monitoring and analysis of environmental costs and environmental liabilities. (Kyoto Protocol 10th Anniversary, 1997).

One of the foreign authors Nguyen, T. D. «Environmental accounting» – suggests the use of accounting, economics and the environment as a unifying science. At the same time, he conceptualizes environmental reporting as a discipline that implies the honest and complete collection, verification, registration of environmental requirements in accordance with laws and regulations, national accounting standards and accounting policies, as well as the provision of environmental report data to interested parties using the information (Nguyen, 2020).

Therefore, in the global economic situation, the economy of any country cannot develop at an adequate level without environmental mechanisms, which is first of all manifested by the need to spend

capital on the restoration and compensation of factors and damages that have a negative effect on the environment. And we believe that it is necessary to organize new mechanisms of environmental accounting and reporting as a structure of the economy.

Results and discussion

We all know that in the period of complex development of economic relations, the negative impact of industrial, manufacturing enterprises and means of transport on the environment is becoming an urgent problem not only of an individual country, but of the entire world society.

In addition, nowadays in Kazakhstan, urgent environmental problems related to pollution of air, water and soil, i.e. land, are becoming more complicated day by day.

Air pollution in our country, like the rest of the world, causes:

- 1) Industrial organizations annually release more than 20 billion tons of production waste into the environment, which in itself has a negative impact on the environment.

2) Soot wastes – oil and gas producing enterprises burn and release to nature the waste oil and gases associated with the processing and production of oil and gas.

3) Fuels and gases used by cars emit carbon and lead oxide into the air.

All of these will harm the country's ecology and have a negative impact on its excessive pollution.

Using table 2 below, we can evaluate the environmental efficiency rating of the countries of the world, and compare the environmental efficiency of the Republic of Kazakhstan with other countries, and determine the level of environmental efficiency of our country.

As we can see from this table, in 2002, according to research, the index of ecological efficiency of

the Republic of Kazakhstan was 92nd out of 178 countries. This shows how serious the environmental problem of our country is.

Leading ecologists and eco-activists of the country have been sounding the alarm about increasing environmental problems since independence. If we rely on the research and experience of ecologists and activists, it shows the need to solve the ecological problem of the country at the state level. We would like to emphasize that the need to solve environmental problems not only with the strength of the domestic country, but also with the help of neighboring countries, as well as with the help and cooperation of the entire world eco-communities, is the main task of finding a solution today.

Table 2 – Ranking according to the Environmental Efficiency Index (2022)

Places	Countries	Index	Ecosystem viability	Environmental condition	Climate change
1	Denmark	77,9	61,3	85,5	92,4
2	Great Britain	77,7	62,3	83,9	91,5
3	Finland	76,5	62,0	93,4	83,6
4	Malta	75,2	68,2	76,5	82,3
5	Sweden	72,7	60,6	93,1	75,4
6	Luxembourg	32,3	70,3	86,7	67,4
7	Slovenia	67,3	72,7	64,4	62,9
55	Belarus	48,5	55,4	51,1	39,6
56	Armenia	48,3	58,1	40,7	41,4
84	Moldova	42,7	42,9	42,0	42,9
92	Kazakhstan	40,9	48,1	37,5	34,9
103	Azerbaijan	38,6	44,4	30,7	36,4
111	Russia	37,5	39,0	50,6	29,1
178	India	18,9	19,3	12,5	21,7

Note – information was taken from <https://finprom.kz/>

Capital expenditures from the budget and other sources have been spent on protection of the protected environment by the state for years, and the restoration of its pollution has been spent for years, and how much return is there, and the questions of replacing and restoring environmental disasters have not yet been sufficiently resolved. we see from the table.

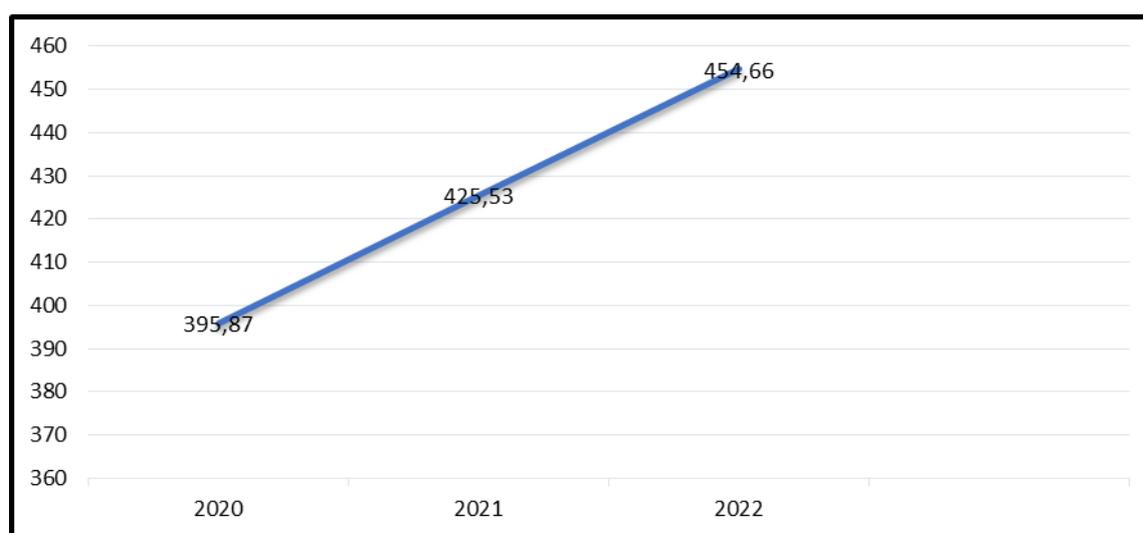
According to the report provided by the agency of Statistics of the Republic of Kazakhstan, the amount of Environmental Protection costs in the country can be indicated in the table below.

During the period under investigation, it can be determined that the level of expenses spent on environmental protection and pollution restoration from the state budget of the Republic of Kazakhstan and extra-budgetary sources is very high. The level of expenses spent on the environment in 2019 was 97,767 billion tenge, in 2020 it was 384,015 billion tenge, and in 2022 it reached 444,514 billion tenge. Therefore, the amount of capital spent on environmental protection in the country is very high.

Table 3 – Dynamics of spending on environmental protection

№	Years	Cost amount, thousand Tenge	Growth rate compared to previous years (%)
1	2019	97 767 570	-
2	2020	384 015 734	395,87
3	2021	416 955 575	425,53
4	2022	444 514 269	454,66

Note – the details of the table were taken from the official website of the Statistics Agency of the Republic of Kazakhstan

**Figure 1** – Growth rate of environmental spending (%)

Note – chart is based on table 3

With the given diagram, we can see the rate of growth of costs related to the restoration of environmental costs in the Republic of Kazakhstan over the last 3 years. Therefore, in 2022, compared to 2019, the amount of expenses will increase up

to 4.5 times (up to 454,66). Now, researching the efficiency of this spent capital is one of the big issues and there is a need to implement it together as a state and society, on the basis of strategic programs.

Table 4 – Dynamics of Environmental Protection costs by type of environmental activities thousand tenge

№	Types of services	2020 year	2021 year	2022 year
	Total	384 015 734	416 955 575	444 514 269
1	Problems of atmospheric air protection and climate change, among them:	88 476 190	82 513 454	127 995 826
1.1	reduction in greenhouse gas emissions	936 307	1 534 936	2 024 375
1.2	sewage treatment	66 978 966	94 165 799	113 096 310
1.3	waste processing	73 248 476	90 899 013	107 096 519
1.4	soil, underground and surface water protection and rehabilitation	16 180 047	26 808 738	23 695 591
1.5	reducing the impact of noise and vibration	38 788	94 492	163 944
1.6	conservation of biodiversity and landscapes	6 038 736	2 199 854	3 307 758

Table continuation

№	Types of services	2020 year	2021 year	2022 year
1.7	radiation safety	955 709	779 270	880 252
1.8	scientific research and development in the field of Environmental Protection	4 502 777	4 921 332	3 479 430
2	Other areas of environmental activity, among them are:	127 596 045	114 573 623	64 798 639
2.1	activities in the field of renewable energy sources energy saving	115 447 352	100 677 264	46 647 977
2.2	technologies and activities in the field of energy efficiency improvement	6 896 744	8 602 944	8 177 847
Note – the data of the table are taken from the official website of the agency for Statistics of the Republic of Kazakhstan				

As we can see, the dynamics of costs in the Republic by types of activities aimed at protecting nature increases every year. The most important tasks of each industrial and industrial entity should be to compensate for the negative impact on the environment, to restore damage. In this regard, it is necessary to demonstrate the possibilities of practical study and application of improved mechanisms and methods for organizing Accounting, Audit and analysis of costs for the recovery of damage caused to the environment.

As a result of studying Western literature, developed countries of the world have already legally introduced environmental accounting and reporting as one of the forms of accounting in countries such as Denmark, France, Great Britain, Norway.

Thus, Shapiguzov, S. M. and Shneidman, L. Z. consider environmental reporting – a system of accounting for environmental services, including accounting for environmental costs, obligations and their audit (Shapiguzov, 1997). Agreeing with these, we understand that environmental accounting is not only accounting for environmental fees and obligations, but also consideration as a system for accounting for environmental protection costs and compensation for damage caused.

Kozhukhova, O. S. summarizes in her work «environmental accounting is an integrated system designed to collect, register, process, evaluate, summarize and reflect information on environmental costs, contingent assets, reserves and liabilities of entities and other environmental data necessary for managing and determining the environmental potential of a company and ensuring environmental safety» (Kozhukhova, 2012). This author comprehensively examines the environmental report, including contingent

liabilities and reserves recognized by entities for negative environmental impacts. We consider it appropriate to include contingent liabilities and reserves in the environmental report. The fact is that according to IFRS 37 «Provisions, Contingent Liabilities and Contingent Assets», it is indicated that the contingent liabilities of an organization include their liabilities arising from past events that depend on the implementation of future actions («Provisions, Contingent Liabilities and Contingent Assets», 2015)

Consequently, they are the costs of eliminating illegal environmental damage. Reimbursement of both leads to the outflow of resources with economic benefits, regardless of the future actions of the organization. Similarly, the organization recognizes the alleged obligation to cover the costs of decommissioning an oil production or nuclear power plant if the organization is obliged to eliminate the damage caused to the environment.

As a result of our research work, we found that there are the following obstacles to the development of environmental reporting:

- lack of a law that fully regulates environmental accounting;
- lack of specific methods for organizing environmental accounting;
- difficulties in assessing environmental costs and insufficient attention to them by economic entities;
- transparency of information in organizations;
- lack of analysis methods based on the specifics of services that have a negative impact on the environment;
- environmental protection measures of subjects are limited only to the calculation and payment of tax obligations.

The main objects of environmental accounting, it must take into account all the processes of the organization for environmental protection. We believe that environmental accounting should be established in connection with certain regulatory

documents that can be regulated by law, as well as general accounting.

As a result of the conducted research, we decided to pre-define the objects of environmental accounting (Picture 2).

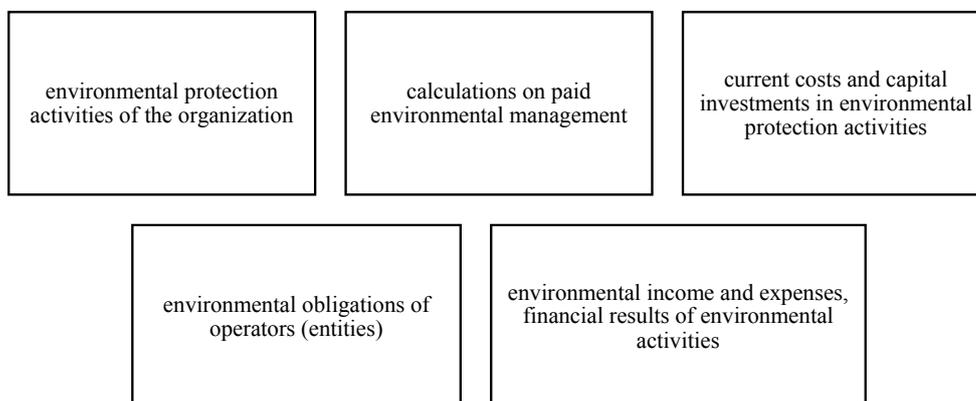


Figure 2 – Objects of environmental accounting
Note – scheme was compiled by the authors

Kazakhstan enterprises' most of the costs of compensation for losses for negative environmental impacts are considered as indirect costs. Sometimes organizations include expenses as expenses of such a period as part of administrative expenses. We believe it is correct that general environmental costs should be considered as overhead costs in the accounting policy of the organization and be attributed to the cost of work and services of products in accordance with the methodology for allocating indirect costs.

Therefore, in order to account for the current costs associated with environmental services, we propose subsection 8410 «Overhead costs» to organize analytical accounting for the following cost items through a special interim account «8410.1 – Environmental costs» (Picture 3).

The classification of these listed costs, taking into account the latest requirements of IFRS for environmental costs related to environmental protection, is considered very important.

A well-established classification of total environmental costs is not fully represented in accounting practice. The reason for this is that the negative environmental impact of industrial enterprises varies. After reviewing the cost classification prepared by the U.S. Environmental

Protection Agency, you can clarify what determines the degree and interest of the organization in using the information. This agency offers the following areas of environmental protection:

- environmentally significant raw materials and energy costs;
- potential hidden costs that are reflected in accounting, but as a component of overhead costs;
- conditional costs that arise in the future period, i.e. contingent assets and contingent liabilities;
- reputational costs.

In domestic accounting practice, it is much easier to organize expenses related to environmental protection according to the following items:

- costs of extraction of natural resources, exploration and development of planned territories;
- costs associated with the organization of environmental infrastructure;
- possible costs associated with the regulation of environmental protection systems (monitoring, taxes and emission payments);
- expenses related to environmental audit and preparation of environmental reports, etc.
- contingent costs, including penalties, fines, compensation for damage to the natural environment, preparation and development of production facilities.

maintenance, operation and repair of objects of fixed assets related to environmental activities;	depreciation of objects related to environmental activities;	raw materials and fuel, energy during the operation of objects related to environmental protection;
salary of employees servicing facilities related to environmental activities;	payments for insurance of structures and equipment related to environmental activities;	expenses for the collection, storage (disposal) and processing (decontamination), disposal, placement of production and consumption waste on their own;
expenses for the organization of independent control of harmful effects	environmental monitoring activities, scientific and technical research work	expenses for current measures to preserve and restore the quality of the environment, which were previously damaged as a result of economic activities;
expenses for compulsory civil liability insurance of an organization operating a hazardous production facility;	payment and taxes and insurance contributions for negative impact on the environment	expenses for other current measures to reduce harmful impacts on the environment and prevent climate change.

Figure 3 – Analytical classification of environmental costs

Note – scheme was compiled by the authors

Therefore, as a result of the conducted research, we propose to organize the accounting of environmental costs using the following methods:

- 1) calculation of «cost-production»;
- 2) calculation of material flow costs;
- 3) accounting for environmental costs by type of activity;
- 4) accounting for environmental costs over the life cycle.

«*Calculation of cost-production*». According to this method, the consumption of materials is compared with the consumption of raw materials and refers to the comparison of the total volume of manufactured products with the amount of materials consumed.

«*Calculation of material flow costs*». According to this method, environmental costs are considered in parallel not only with the expenditure of materials, but also with the organizational structure. In this method, the accounting of the physical amount of material costs and related costs is carried out in parallel. Accounting for material costs on this issue is divided into three categories:

- materials;
- system costs;
- transportation or disposal of waste.

This method is aimed at saving material costs in the organization and allows you to spend all the costs of the enterprise for a long time.

«*Accounting for environmental costs by type of activity*». According to this method, the internal expenses of the organization are classified by cost centers and carriers.

«*Accounting for environmental costs in the life cycle*». Accounting for environmental costs according to this method allows you to carry out from the beginning to the end of the production process in relation to the production of a particular product.

So, summing up our scientific article on the problems of environmental costs and the organization of environmental accounting, the Russian researcher Khan, F. noted that «environmental accounting is an important strategy that makes business economically successful and leads to the Future Through Environmental Protection. Environmental

accounting-protects against risks, helps to identify companies as responsible guardians of the environment. Therefore, in the development of all sectors of the economy, this will become regulatory criteria and strategic choices on the way to stability and long-term success through the adoption of paradigm» (Khan, 2024). Continuing this author's point of view, we believe that environmental protection and Prevention of harm in general, the calculation and mandatory introduction of environmental costs into business entities is an urgent problem today.

Conclusion

As a result of the conducted research, considering the main directions of the organization of environmental accounting in economic entities, we came to the following conclusions:

- 1) the author's recommendations on environmental costs and environmental accounting related to environmental protection are given.
- 2) the need and objects of individual environmental accounting, reflecting assets,

liabilities, income and expenses related to their compensation for negative environmental impacts.

3) in accounting, classifications of cost items are proposed to correctly reflect environmental costs in accounting.

4) the methods of organization of accounting for environmental costs are proposed.

We believe that the results of this research work on the organization of environmental accounting provide many possible opportunities for business entities in solving theoretical and practical problems of organizing cost accounting related to environmental protection.

In conclusion, there is a need to include in the General Accounting legislation the requirements for the mandatory organization of environmental accounting in order for the organization to reflect information on environmental costs in its accounting. At the same time, the main problem of today should be the need for accountants to systematize important information in the correct calculation of costs allocated to environmental protection measures.

References

1. Bouma, J. J. and Correlje, A. (2003). Institutional Changes and Environmental Management Accounting: Decentralisation and Liberalization. In: *Environmental Management Accounting—Purpose and Progress*, Springer, Berlin, P. 257-279.
2. Burritt, R. L. (2004). Environmental management accounting: Roadblocks on the way to the green and pleasant land. *Business Strategy and the Environment*, 13(1), P. 13–32.
3. Dijk, V.A., Richard Mount, B. C., Gibbons Ph., Vardon, M., Canadell, P. (2014). Environmental Reporting in Australia: Progress, Prospects and Research Priorities. *Science of The Total Environment / Vol: 473–474*, 1 March 2014, P. 338-349.
4. Haleem, A., Abdul-Nazar, M. C., Mujahid Hilal, M-I. (2021) «A Systematic Review On Environmental Accounting» *Academy of Entrepreneurship Journal*, Vol:27, //https://www.abacademies.org/articles/a-systematic-review-on-environmental-accounting-10913.
5. K.M.K. Uddin, M.M. Rahman, S. Saha (2023). The impact of green tax and energy efficiency on sustainability: evidence from Bangladesh. *Journal: Energy Reports*, Vol. 10 (2023), pp. 2306-2318; https://www.sciencedirect.com/journal/energy-reports.
6. Kyoto Protocol 10th Anniversary (2015). The UNFCCC secretariat. 2015, 13 February. https://unfccc.int/news/kyoto-protocol-10th-anniversary-timely-reminder-climate-agreements-work.
7. Md. S. A. Mondal, N. Akter, A. M. Ibrahim (2024). Nexus of environmental accounting, sustainable production and financial performance: An integrated analysis using PLS-SEM, fsQCA, and NCA. *Journal of Environmental Challenges*, Vol. 15, April 2024, 100878https://www.sciencedirect.com/science/article/pii/S2667010024000441?via%3Dihub.
8. Nguyen, T. D. (2020). Factors influencing environmental accounting information disclosure of listed enterprises on Vietnamese stock markets. *The Journal of Asian Finance, Economics, and Business*, 7(11). – P. 877-883 //DOI:10.13106/jafeb.2020.vol7.no11.877.
9. O, Arodudu, O, Therasme, T, Volk, R, Malmsheimer, P, Crovella, R, Germain, D, Kumar (2023). Towards a Carbon Accounting Framework for Assessing the Benefits of Biogenic Wood Carbon to Net Zero Carbon Targets. *Journal: Forests*, Vol.14., Issue 10, (2023), P. 1959-1967; https://doi.org/10.3390/f14101959.
10. RIO Declaration on environment and development (Rio de Janeiro, 3-14 June 1992) // https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf. 1992.
11. Shen, J and Chen. Y. (2020). A Comparative Study of Environmental Accounting Information Disclosure between China and Developed Countries [C] /Proceedings of 2020 6th International Conference on Energy Materials and Environment Engineering, Vol: 1., (2020): 64- 68.DOI:10.26914/c.cnkihy.2020.073222.
12. www. https://online.zakon.kz/Document/?doc_id=30792076 37 – «Бағалау міндеттемелері, шартты міндеттемелер және шартты активтер» ХКЕС (2015). (21/02/2024).
13. www: adilet.zan.kz/kaz/docs/K070000212 «ҚР-ның Экологиялық Кодексі» (02.02.2024).
14. www: adilet.zan.kz/kaz/docs/K1700000120 «ҚР-ның Салық Кодексі» (02.02.2024).

15. [www: finprom.kz/ru/article/zelyonoe-finansirovanie-v-rk-aktivno-razvivaetsya-summa investitsij -napravlenykh-na-ohranu-okruzhayushey-sredy-uvelichilas-na-22-za-god](http://www.finprom.kz/ru/article/zelyonoe-finansirovanie-v-rk-aktivno-razvivaetsya-summa-investitsij-napravlenykh-na-ohranu-okruzhayushey-sredy-uvelichilas-na-22-za-god) (17/02/2024).
16. [www:old.stat.gov.kz](http://www.old.stat.gov.kz) ҚР Статистика Агенттігінің ресми сайты (17/02/2024).
17. Бегеева, Г. Ж. Иманбаева З. О. (2018). Экологический учет в Казахстане: проблемы становления и развития // scienceforum.ru/2018/article/2018002334.
18. Ильичева, Е. В. (2009). Модель экологического бухгалтерского учета в соответствии с положениями Киотского протокола // *Журнал Фундаментальные исследования*. – 2009. – № 1 – С. 67-68.
19. Кожухова, О. С. (2012). Бухгалтерский учет и отчетности в системе экологического контроллинга нефтегазовых компаний: монография. Новосибирск: Изд.: НГТУ, 2012. – 232 с.
20. Қорабаев, Б. С., Абдрахманова, Н. Б., (2020). Экологиялық есептілік: қаржылық есептіліктегі маңызы мен әдістемесі // *Қозыбаев ат. СҚМУ Хабаршысы*. №1 (46). – 2020. – 108-115 бб.
21. Монгуш, А. Д. (2014). Экологический учет на микроуровне // *Электронный журнал: Science Time*. – 2014. – №7. – С. 272–278.
22. Саенко, К. С. (2005). Учет экологических затрат. – М.: Финансы и статистика, 2005. – 376 с.
23. Самамбаева, А. И Коваленко, В. (2023). Новые стандарты МСФО: как подружить климат и деньги // <https://fobes.kz/actual/expertise> (қарау уақыты: 16.02.2024).
24. Хан Ф. (2024). Что такое экологический учет? [www https://sigmaearth.com/ru/what-is-environmental-accounting](https://sigmaearth.com/ru/what-is-environmental-accounting). (23/02/2024).
25. Шапигузов, С. М. (1997). Система учета природоохранной деятельности предприятия. – М.: ФБК-ПРЕСС, 1997. – 200 с.

References

1. Begeeva, G. ZH. Imanbaeva Z. O. (2018). *Ekologicheskij uchet v Kazahstane: problemy stanovleniya i razvitiya* // scienceforum.ru/2018/article/2018002334.
2. Bouma, J. J. and Correlje, A. (2003). Institutional Changes and Environmental Management Accounting: Decentralisation and Liberalization. In: *Environmental Management Accounting—Purpose and Progress*, Springer, Berlin, P. 257-279.
3. Burritt, R. L. (2004). Environmental management accounting: Roadblocks on the way to the green and pleasant land. *Business Strategy and the Environment*, 13(1), P. 13–32.
4. Dijk, V.A., Richard Mount, B. C., Gibbons Ph., Vardon, M., Canadell, P. (2014). Environmental Reporting in Australia: Progress, Prospects and Research Priorities. *Science of The Total Environment / Vol: 473–474*, 1 March 2014, P. 338-349.
5. Haleem, A., Abdul-Nazar, M. C., Mujahid Hilal, M-I. (2021) «A Systematic Review On Environmental Accounting» *Academy of Entrepreneurship Journal*, Vol:27, // <https://www.abacademies.org/articles/a-systematic-review-on-environmental-accounting-10913>.
6. Han F. (2024). Что такое экологический учет? [www https://sigmaearth.com/ru/what-is-environmental-accounting](https://sigmaearth.com/ru/what-is-environmental-accounting). (23/02/2024).
7. Ильичева, Е. В. (2009). Model' ekologicheskogo buhgalterskogo ucheta v sootvetstvii s polozheniyami Kiotskogo protokola // *ZHurnal Fundamental'nye issledovaniya*. – 2009. – № 1 – С. 67-68.
8. K.M.K. Uddin, M.M. Rahman, S. Saha (2023). The impact of green tax and energy efficiency on sustainability: evidence from Bangladesh. *Journal: Energy Reports*, Vol. 10 (2023), pp. 2306-2318; <https://www.sciencedirect.com/journal/energy-reports>.
9. Kozhuhova, O. S. (2012). *Buhgalterskij uchet i otchetnosti v sisteme ekologicheskogo kontrollinga neftegazovykh kompanij: monografiya*. Novosibirsk: Izd.: NGTU, 2012. – 232 s.
10. Kyoto Protocol 10th Anniversary (2015). The UNFCCC secretariat. 2015, 13 February. <https://unfccc.int/news/kyoto-protocol-10th-anniversary-timely-reminder-climate-agreements-work>.
11. Md. S. A. Mondal, N. Akter, A. M. Ibrahim (2024). Nexus of environmental accounting, sustainable production and financial performance: An integrated analysis using PLS-SEM, fsQCA, and NCA. *Journal of Environmental Challenges*, Vol. 15, April 2024, 100878 <https://www.sciencedirect.com/science/article/pii/S2667010024000441?via%3Dihub>.
12. Mongush, A. D. (2014). Экологический учет на микроуровне // *Elektronnyj zhurnal: Science Time*. – 2014. – №7. – С. 272–278
13. Nguyen, T. D. (2020). Factors influencing environmental accounting information disclosure of listed enterprises on Vietnamese stock markets. *The Journal of Asian Finance, Economics, and Business*, 7(11). – P. 877-883 //DOI:10.13106/jafeb.2020.vol7.no11.877.
14. O, Arodudu, O, Therasme, T, Volk, R, Malmshaimer, P, Crovella, R, Germain, D, Kumar (2023). Towards a Carbon Accounting Framework for Assessing the Benefits of Biogenic Wood Carbon to Net Zero Carbon Targets. *Journal: Forests*, Vol.14., Issue 10, (2023), P. 1959-1967; <https://doi.org/10.3390/f14101959>.
15. Qorabaev B. S., Abdrahmanova, N. B., (2020). Экологиялық есептілік: қаржылық есептіліктегі маңызы мен әдістемесі // *Қозыбаев ат. СҚМУ Хабаршысы*. №1 (46). – 2020. – 108-115 бб.
16. RIO Declaration on environment and development (Rio de Janeiro, 3-14 June 1992) // https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_CONF.151_26_Vol.I_Declaration.pdf. 1992.
17. Saenko, K. S. (2005). Учет экологических затрат. – М.: Финансы и статистика, 2005. – 376 с.
18. Samambaeva, A. I Kovalenko, V. (2023). Novye standarty MSFO: kak podruzhit' klimat i den'gi // <https://fobes.kz/actual/expertise> (қарау уақыты: 16.02.2024).

19. SHapiguzov, S. M. (1997). Sistema ucheta prirodoohrannoј deyatel'nosti predpriyatiya. – M.: FBK-PRESS, 1997. – 200 s.
20. Shen, J and Chen. Y. (2020). A Comparative Study of Environmental Accounting Information Disclosure between China and Developed Countries [C] /Proceedings of 2020 6th International Conference on Energy Materials and Environment Engineering, Vol: 1., (2020): 64- 68.DOI:10.26914/c.cnkihy.2020.073222.
21. www. https://online.zakon.kz/Document/?doc_id=30792076 37 – «Baғalau mindettemeleri, shartty mindettemeler zhөne shartty aktivter» HҚES (2015). (21/02/2024).
22. www: adilet.zan.kaz/docs/K070000212 «ҚР-ның Экологиялық Кодексі» (02.02.2024).
23. www: adilet.zan.kaz/docs/K1700000120 «ҚР-ның Салық Кодексі» (02.02.2024).
24. www: finprom.kz/ru/article/zelyonoe-finansirovanie-v-rk-aktivno-razvivaetsya-summa-investicij-napravlenyih-na-ohranu-okruzhayushej-sredy-uvelichilas-na-22-za-god (17/02/2024).
25. www: old.stat.gov.kz ҚР Статистика Агенттігінің ресми сайты (17/02/2024).

Information about authors:

Nurkasheva Nursulu Sultaniyarovna, Candidate of Economic Sciences, Assistant Professor of the EP “Accounting and Auditing” at Narxoz University, ORCID.ORG 0000-0002-3798-3130 (Almaty city, Kazakhstan, nursulu_1975@mail.ru)

Imataeva Aliya Ersayynkyzy, Master of Economic Sciences, senior lecturer of the EP “Information Systems” of Narxoz University, ORCID.ORG 0000-0001-5841-9232 (Almaty city, Kazakhstan, aliya.imataeva@narxoz.kz)

Andosova Akmaral Ryskubekovna, Master of Economic Sciences, Senior Lecturer at the Department of Accounting and Auditing, University of Turan, ORCID.ORG/0000-0002-7154-668X, (Almaty city, Kazakhstan, andossova.a@mail.ru).

Y. U. Uzun, Bitlis Eren University, Bitlis, Turkey e-mail: yuzun@beu.edu.tr

Авторлар туралы мәліметтер:

Нуркашева Нурсулу Султанияровна, э.ғ.к., Нархоз университетінің «Есеп және аудит» БББ-ның ассистент-профессоры, ORCID.ORG 0000-0002-3798-3130 (Алматы қ., Қазақстан, nursulu_1975@mail.ru)

Иматаева Әлия Ерсайынқызы, экономика ғылымдарының магистрі, Нархоз университетінің «Ақпараттық жүйелер» БББ-ның аға оқытушысы, ORCID.ORG 0000-0001-5841-9232 (Алматы қ, Қазақстан, aliya.imataeva@narxoz.kz)

Андосова Ақмарал Рысқұлбекқызы, экономика ғылымдарының магистрі, Тұран университеті, «Есеп және аудит» кафедрасының аға оқытушысы, ORCID ORG/0000-0002-7154-668X, (Алматы қ., Қазақстан, andossova.a@mail.ru).

Йылмаз У. Узун, Бітліс Ерен Университеті, Бітліс қ., Түркия, e-mail: yuzun@beu.edu.tr

Received: 1 March 2024

Accepted: 06 June 2024