

## State and problems of development of environmental accounting: experience of Kazakhstan

Farida K. Yerdavletova<sup>1</sup>, Myrzabike D. Zhumabayeva<sup>2</sup>, Nursulu S. Nurkasheva<sup>3</sup>

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### Түйін

Мақала экологиялық бухгалтерлік есептің теориясы мен әдістемесінің дамуын кешенді зерттеуге арналған. Зерттеу міндеті ретінде ҚР-дағы экологиялық есептің даму жағдайын бағалау әрекеттері анықталды.

Әр түрлі түсіндірмелерді талдау негізінде экологиялық бухгалтерлік есеп ұғымы қарастырылды: тұжырымдамалық сәттер бөлініп, анықтама берілді. Зерттеу барысында бақылау, салыстыру, сипаттау, жүйелік-аналитикалық тәсіл, теориялық жинақтау, салыстырмалы талдау, ғылыми абстракция, сараптамалық бағалау, себептер мен салдарларды талдау сияқты жалпы ғылыми әдістер қолданылды.

Авторлар компаниялар қызметінің экологиялық қауіпсіздігін және табиғат қорғау қызметінің нәтижелерін ескере отырып, экологиялық шығындарды жіктеу туралы ұсыныстарды тұжырымдады. Экологиялық есеп жүйесін енгізуде оның тиімділігі мен мүмкіндіктері ашылды. Экологиялық бухгалтерлік есептің мазмұнды жағын қалыптастыратын негізгі бағыттар нақтыланды, атап айтқанда: экологиялық шығындарды есепке алу және экологиялық міндеттемелерді есепке алу.

Зерттеу нәтижелерін басшылар, бухгалтерлер, бухгалтер-талдаушылар тәжірибеде қолдана алады. Зерттеу нәтижелерін іс жүзінде пайдалану көп жағдайда компаниялардың экологиялық қызметінің нәтижелілігі мен тиімділігін дұрыс анықтауға ықпал етуі мүмкін.

Мақалада экологиялық есеп дәстүрлі бухгалтерлік есептің бір бөлігі болып табылатыны туралы және оның барлық тұжырымдамалары мен принциптерін қолдануға тиіс екені анықталынды. Экологиялық есепке алу нәтижелері қаржылық есептілікте көрініс табуы тиіс. Мақалада экологиялық есепті дамыту проблемалары, яғни нормативтік актілердің болмауы; экологиялық міндеттемелерді құндық бағалаудың күрделілігі; табиғат қорғау шығындарын есепке алудың реттелмеуі, оларды өзіндік құнға жатқызудың негізсіздігі және т. б. анықталынды.

*Түйін сөздер:* экологиялық есеп, экологиялық шығындар, экологиялық шығындарды жіктеу, экологиялық міндеттемелер, табиғатты қорғау іс-шараларына арналған шығындарды бақылау.

### Аннотация

Статья посвящена комплексному исследованию развития теории и методологии бухгалтерского экологического учета. В качестве исследовательской задачи авторами была определена попытка оценить состояние развития экологического учета в РК.

На основе анализа различных трактовок рассмотрено понятие экологического бухгалтерского учета: выделены принципиальные моменты и дано определение. В процессе исследования применялись такие общенаучные методы, как наблюдение, сравнение, описание, системно-аналитический подход, теоретическое обобщение, сравнительный анализ, научная абстракция, экспертная оценка, анализ причин и последствий.

Авторами сформулировано предложение о классификации экологических затрат с учетом экологической безопасности деятельности компаний и результатов природоохранной деятельности. Раскрыты выгоды и возможности, открывающиеся при внедрении систем экологического учета. Конкретизированы основные направления, формирующие содержательную сторону экологического бухгалтерского учета, а именно учет экологических затрат и экологических обязательств.

Результаты исследования могут быть использованы на практике руководителями, бухгалтерами, бухгалтерами-аналитиками. Практическое использование результатов исследования может во многом способствовать более достоверному определению результативности и эффективности экологической деятельности компаний.

Установлено, что экологический учет является частью традиционного бухгалтерского учета и должен использовать все его концепции и принципы. Результаты экологического учета должны находить отражение в финансовой отчетности. Обозначены проблемы развития экологического учета: отсутствие нормативных актов; сложность стоимостной оценки экологических обязательств; неупорядоченность учета природоохранных затрат, безосновательность их отнесения на себестоимость и др.

*Ключевые слова:* экологический учет, экологические затраты, классификация экологических затрат, экологические обязательства, контроль затрат на природоохранные мероприятия.

1 C.e.s, associate professor, al-Farabi Kazakh National university, 71 al-Farabi Ave., Almaty, Republic of Kazakhstan, A. professor of the Department «Finance and accounting», e-mail: farida.yerdavletova@kaznu.kz, ORCID iD <https://orcid.org/0000-0001-6595-7602>, Researcher ID: AAJ-8310-2020

2 C.e.s, associate professor, Narxoz University, Almaty, Republic of Kazakhstan, Associated professor of the department “Accounting, analysis and audit”, e-mail: myrzabike.zhumabayeva@narxoz.kz, ORCID iD <https://orcid.org/0000-0002-0196-0682>, Researcher ID: AAK-6674-2020

3 Narxoz University, Zhandosov Street 55, Almaty, Republic of Kazakhstan, Associated professor of the department “Accounting, analysis and audit”, e-mail: nursulu.nurkasheva@narxoz.kz, ORCID iD <https://orcid.org/0000-0002-3798-3130>

### **Abstract**

The article is dedicated to a comprehensive study of the development of the theory and methodology of environmental accounting. As a research task, the authors determined an attempt to assess the state of development of environmental accounting in the Republic of Kazakhstan.

Based on the analysis of various interpretations, the concept of environmental accounting is considered: the principal points are highlighted and a definition is given. In the course of research, such general scientific methods were used as observation, comparison, description, system and analytical approach, theoretical generalization, comparative study, scientific abstraction, expert assessment, effect-cause analysis.

The authors have formulated a proposal on the classification of environmental costs, taking into account the environmental safety of companies and the results of environmental activities. The benefits and opportunities arising by implementation of environmental accounting systems are unveiled. The main directions forming the content-related side of environmental accounting are specified, namely: environmental cost accounting and environmental liability accounting.

The results of the study can be applied in practice by managers, accountants, accounting analysts. The practical use of the research results can greatly contribute to a more reliable determination of the effectiveness and efficiency of environmental activities of companies.

Established that environmental accounting forms a part of traditional accounting and should use all its concepts and principles. The results of environmental accounting should be reflected in the financial statements. The problems of development of environmental accounting are outlined: lack of statutory acts; the difficulty of evaluation of environmental liabilities; disordered environmental cost accounting, the groundlessness of attribution of these costs, etc.

*Key words:* environmental accounting, environmental costs, classification of environmental costs, environmental obligations, pollution control adoption and costs.

### **Introduction**

Unfortunately, the unaccountable process of air pollution has led to the fact that our world is currently in a global environmental crisis. In this regard, today the economic processes must be carried out in compliance with all environmental liabilities. Each participant of an economic process must ensure the rational use of natural resources.

According to the Article 38 of the Constitution of the Republic of Kazakhstan, the citizens of the country are obliged to protect the environment and take care of natural resources. This constitutional provision was further developed in the Environmental Code of the Republic of Kazakhstan (hereinafter referred to as the EC RK), where the obligations of individuals are specified: to protect the environment, take care of natural resources; to assist in implementation of measures aimed at the rational use of natural resources, environmental protection and environmental safety; to prevent threats to environmental safety that may arise due to their fault; to carry out their activities in accordance with the environmental laws of the Republic of Kazakhstan (clause 2 of the Article 13 of the EC RK).

Since any economic activity involves the use of various natural resources that have a tendency to depletion. Besides, the processes of consumption and production of finished products are accompanied by environmental pollution. The EC RK also provides for obligations of legal entities and public associations in the field of environmental protection (article 14 of the EC RK).

In order to reduce the adverse environmental impact, all companies and organizations need to implement environmental protection measures. In this connection, the issues of environmental cost accounting are of particular importance. The purpose of the study is to consider the development of environmental accounting in the Republic of Kazakhstan.

The article deals with the organization of accounting of environmental measures through the example of the company Intergas Central Asia JSC.

In our opinion, in order to increase the effectiveness of environmental protection in companies, as well as to control various forms of influence of companies on the environment, the development and implementation of environmental accounting is necessary. This will allow the companies, as well as various groups of users of environmental and economic information, to have full information on environmental management processes.

In recent years, environmental accounting has become especially relevant in the general accounting system of companies, where the group of its users has significantly expanded. At the same time, it should be noted that neither in foreign nor in national science and practice there is a consensus on the essential features of environmental accounting, allowing us to formulate its adequate definition.

### **Literature review**

In 1992, the United Nations Conference on Environment and Development (the Earth Summit in Rio de Janeiro) proposed the concept of environmental accounting as an instrument for conduction of a coherent policy on sustainable development [1]. In Recommendation 1653 «On Environmental Accounting as an Instrument for Sustainable Development» of the Parliamentary Assembly of the Council of Europe (2004), environmental accounting is presented as a system that can be used for identification, organization, regulation and presentation of environmental data and information in physical and value indicators [2].

At the moment, the researchers and practical scientists have no single view on the concept of environmental accounting. The problems of organization and maintenance of environmental accounting are most often associated with the fact that

the theoretical, organizational and methodological regulations of this type of accounting are still not sufficiently developed, including abroad. For example, a study by Branco and Delgado (2009) presents the conclusions: 1. The volume of published research is low and quite recent; 2. Research is more or less evenly split between empirical and theoretical articles; 3. Empirical research is somewhat more qualitative in orientation, and 4. Most empirical papers focus on the countries of origin of the researchers. Hence, there is great scope for expanding the amount of research on SEA in Southern Europe, as well as improving its geographic coverage [3].

More recent studies indicate that the current practices on EA revealed the pragmatism from morphology institutional on their struggle to occupy complexity roles and survival from the competitive economic environment. Another reason for the weak patterns is that the practices are not supported by an unavailable plausible conceptual framework of EA practices, and it highly dealt with technical guidance from accounting regulations. Standard is not only as rule function but as a communication path between regulators and the institutions who required to implement regulations. The findings suggest paradigm on integrated system and activity, environmental disclosure (ED) based on accountable measurements, reducing risk by updating data, funding on most reliable condition, reciprocal commitment to addressing EA practices [4].

Williams (2015) pays attention that accountants are supportive of involvement in sustainability reporting, but their actual level differs significantly from the level of involvement they believe they should have, pointing to the existence of an execution gap. Potential factors are investigated, highlighting the limited integration of sustainability beyond the organizational level, the lack of understanding of sustainability by accountants and the current need for further up-skilling by accountants [5].

Environmental accounting in Kazakhstan is also not yet regulated by national legislation. Despite this fact, many Kazakh scientists have dedicate a lot of works to the study of environmental accounting and environmental reporting.

The first attempts to develop environmental accounting in Kazakhstan were the scientific works of domestic scientists: M. M. Seilova «Accounting and audit of environmental activities» (2003), G. Zh. Zhumabekova «Organization of accounting and audit at agricultural exchanges» (200), G. Zh. Zhumabekova, A. S. Kypshakbaeva «Organization of management accounting of environmental activities» (2012), and others [6 - 9].

The most advanced Kazakh study was presented by the authors A.U. Abdrakhmanova, A.S. Belgibaeva and U. K. Sartov (2019). The following research objectives are considered in the work: the study of environmental measures; identification of possible

costs to eliminate environmental damage; the study of the classification of costs to eliminate environmental damage. Sustainability measurement and accounting can be applied to areas of social impact, especially for those enterprises engaged in international trade, where considerations regarding materials and labor are subject to public scrutiny. Audit and assessment are the basis of environmental and social accounting, so the adoption of proven strategies to study the basic metrics will help accountants conduct an effective analysis. The possibilities of creating an estimated reserve based on the probability of repayment of liabilities and a reliable estimate of the amount of the obligation are considered. The possibilities of creating an estimated reserve based on the probability of repayment of liabilities and a reliable estimate of the amount of the obligation are considered. Methods for determining environmental damage obligations are of practical importance today. When recognizing assets or liabilities in connection with the production process, he must apply his experience, knowledge of relevant financial reporting standards, the requirements of the legislation of the country in which the company operates, as well as professional judgment. As a result of studying the problem of accounting for environmental costs, the authors concluded that a competent and professional approach to cost accounting in the field of environmental protection is necessary [10].

An analysis of the works of foreign scientists allows us to highlight the works of Dr. Gupta (2011), who explores the organization of environmental accounting based on the reporting of companies in the Indian corporate sector [11]. The works of Russian scientists are also of great academic interest.

Noteworthy is the point of view of S. M. Shapiguzov and L. Z. Schneidman (1997), who define environmental accounting as a system of accounting for environmental activities, considering that «in general, organization's environmental accounting system should include four main components: environmental cost accounting, environmental liability accounting, reporting on environmental activities and audit of relevant information» [12].

The Russian scientists also have no single view on the concept of environmental accounting. For example, K. S. Saenko (2005) defines it as an ordered system for collection, registration and consolidation of information on natural resources, environmental liabilities, economic operations of environmental activities of an organization in physical and monetary terms by means of continuous documentary accounting of use of natural resources by a business entity [13]. In a study by E. V. Ilyicheva (2009), environmental accounting is considered as an element of accounting, presented in the form of a system of collection, registration and consolidation of information that will provide the opportunity to identify, evaluate, plan and predict, control and analyze environmental costs and

environmental liabilities. [14]. L. V. Chkhutiashvili (2014) presents environmental accounting as a process of reflection of environmental costs and liabilities of organizations, as well as the social, environmental and economic results of business entities in the accounting system in order to manage business and achieve the optimal environmental and economic niche in the market for goods and services [15]. According to N. N. Rubanova (2005), environmental accounting is the process of collection, registration, consolidation and reflection of environmental costs, natural assets, environmental funds, reserves and liabilities, as well as results of activities of business entities in the system in order to manage and determine the environmental potential of an enterprise [16]. E. K. Murueva (2007) combines in the concept of environmental accounting the information function and environmental management, that is usually associated with natural resource accounting, which, in its turn, is defined as collection and analytical summation of information on amount and quality of available natural resources for the organization of their rational use, planning of business and environmental activities, forecasting of trends in development of branches of natural resources use and environmental changes in the current period and in the future [17].

In general, environmental accounting is understood by many researches as a set of methods of internal management accounting and financial accounting for the purposes of external reporting, as well as analysis of costs and results of actual performance.

At the same time, many economic, organizational, methodological, and regulatory and analytical aspects of environmental accounting and reporting remain an underdeveloped area of financial and economic as well as management activities.

Most of the scientists and practitioners associate environmental accounting with accounting of expenses for environmental protection measures, but they attach a different meaning to it. Therefore, today we can note the absence of a common glossary in the designation of the basic concepts of environmental accounting and reporting.

## **Methodology**

The methodological basis of the study includes such general scientific methods of cognition as observation, comparison, description, system and analytical approach, theoretical generalization, comparative study, scientific abstraction, expert assessment, effect-cause analysis. The use of these methods allowed to make theoretical generalizations and formulate specific recommendations regarding environmental cost accounting.

Triangulation is conducted to get the salient logic of the findings. Data is gathered from three sources as; Regulator Interviews: To answer the first research question about how regulators set standards related

to the environmental accounting practices. It was not easy to get the time to interview the regulator due to bureaucracy, but the good open governance of public policy that has been promulgated by all government agencies primarily associated with the explanation of the state policies and regulations gave researchers the opportunity to ask questions about public policy related to the environment in general and the accounting policy related to the environment. An interview method is an open-ended approach. This method is more flexible to interview regulators because the background of the main persons have different function in institution and each institution represent different area of authority and government policies related to the environment has different characteristics, as the basic laws that are used such as regulatory environments are using a foundation of civil law and accounting regulations are using the legal basis for public (business). Internal Management Interviews: Answering the second research questions about what is the most decisive strategic thinking by firms to incorporate environmental aspects in business and the accounting system in particular.

Managerial interview held from with manager of Intergas JSC. The approach of data collection is semi-structure interview adapted from Schaltegger, Zvezdov and Bennett (2010) which offers items of the questions about the Increasing Involvement of Accountants in Corporate Sustainability Management and issues related to the general knowledge about EA are adopted from Fleischman and Schuele (2006) [18 - 19]. The questions were adjusted to the knowledge of the key person when confronted with issues related to EA. Documents: Evidence needed to strengthen the statement key persons and provide additional information that could not be parsed by the key individuals in the interview. The documents consist of memos from the regulator, notes or magazines owned by the company (issued to the corporate environment), annual reports which are publicly available (company website).

The company uses three generally accepted methods for the implementation of environmental accounting: financial accounting, management accounting and national income accounting. Financial accounting is the process of preparation of financial reports, such as profit and loss accounts, for provision to the investors, creditors, governing bodies and other members of the public.

## **Results and discussion**

At the moment, environmental accounting is an independent area of accounting. Besides, in order to enhance the practical environmental activities of companies, environmental financial accounting and environmental management accounting, as well as reporting on environmental indicators, should be implemented [20].



In the Republic of Kazakhstan, the process of formation and development of environmental accounting is at the initial stage, while in some countries, such as Germany, the Netherlands, Great Britain, the USA and others, there are already examples of the application of environmental accounting systems, and the environmental management rule is widely known, which states that 20 percent of industrial companies are responsible for 80 percent of environmental costs [21-23].

This means that for certain types of companies, environmental accounting systems should become mandatory. First of all, this refers to the large companies that extract and process natural resources and fulfill the requirements of numerous laws and regulations in the field of environmental protection.

Intergas Central Asia JSC adheres to generally accepted international standards, as well as the environmental requirements of the Republic of Kazakhstan.

The company is constantly working on the implementation of measures aimed at protection of environment. This work is carried out in accordance with the requirements of the Environmental Code of the Republic of Kazakhstan and other legislative and regulatory acts in the field of environmental protection, as well as with the international standards.

The environmental policy of the company is conducted in accordance with the goals and obligations of the Environmental Policy, which is aimed at stabilization of environmental risks and provision of environmental safety during production activities.

The purpose of the environmental policy of Intergas Central Asia JSC is to ensure the environmental safety of production activities on the basis of parity of economic, social and environmental values.

The main task in the field of ecology is the continuous reduction of the negative impact on the environment.

JSC "Intergas Central Asia" annually holds activities for setting goals in the field of environmental protection.

The actual values of achievement of environmental goals for 2016-2018 are as follows:

- reduction of the negative impact of environmental aspects on the environment as a result of the company's activities compared to the similar periods has constituted 15 %;

- the level of environmental emissions is within the established limits for emissions and discharges of pollutants into the atmosphere and in wastewater.

A quarterly monitoring of the effectiveness of the process in the field of environmental protection, the indicators of which are qualitatively evaluated and are 100% fulfilled:

- an indicator of compliance with the limits of emissions of pollutants into the atmosphere and water resources;

- an indicator of the implementation of annual environmental action plans.

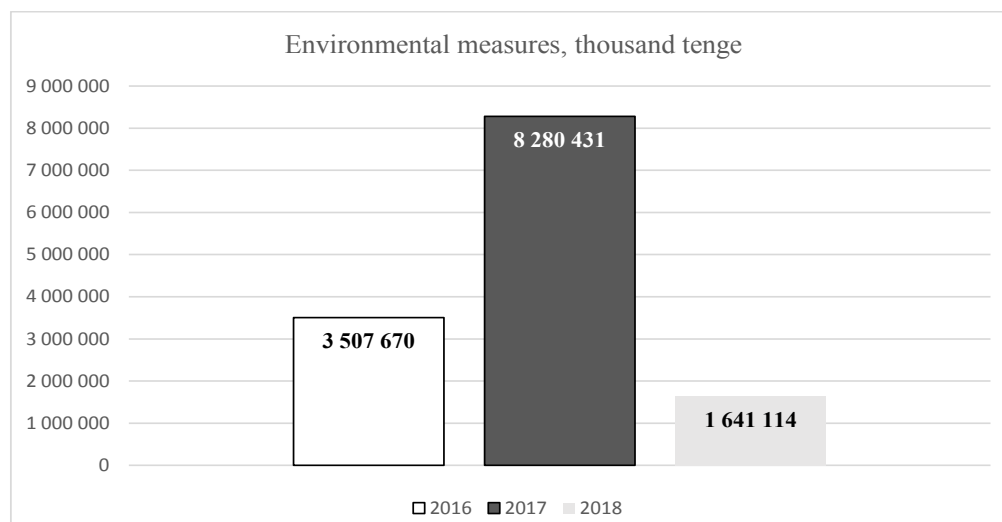
Intergas Central Asia JSC successfully implements the company policies in the field of health protection and occupational safety, in the field of environmental protection, which are aimed at continuous reduction of risks and influence of hazardous and harmful production factors on the health of workers and other interested parties, as well as at the stabilization of environmental risks and environmental safety in the production activities of the company [24].

For the company Intergas Central Asia JSC, environmental accounting and control are dynamically developing areas of activity which include financial and management accounting and reporting on environmental indicators.

In order to effectively manage environmental risks, Intergas Central Asia JSC is constantly improving approaches to environmental management and allocating the necessary resources for environmental protection, in particular, environmental costs, including the payment of taxes for regulatory emissions, and the costs of environmental measures. Figure 1 shows the dynamics of the costs of Intergas Central Asia for environmental measures for the period. At the moment, the development of rules and standards that would cover all the components of environmental management and environmental activities (environmental accounting) of companies: accounting of environmental assets and liabilities, environmental results and their reflection in environmental reporting are under development.

It should be noted that the decisions of the Government contribute greatly to the development of environmental accounting in our Republic of Kazakhstan.

The concept of the transition to the «green economy» of 2013 (revised in 2018) became a "lifeboat" for the environmental sector. The Concept and its Action Plan have contributed to the implementation of significant environmental measures in the sectors of the economy and at local level. At the same time, the Concept does not cover many environmental issues, including the development of environmental accounting.



Source: website Intergas Central Asia JSC

Figure 1 – Environmental measures of Intergas Central Asia JSC, thousand tenge

The concept of the transition to the «green economy» has outlined the way of ensuring the long-term growth based on climate-friendly technologies, measures for improvement of energy efficiency and the rational use of natural resources. The concept has provided the basis for consideration of environmental aspects in a wider political context and facilitated progress towards achievement of several target values. However, the level of environmental pollution is still high, and companies still lack incentives to reduce environmental pollution. Despite significant progress in reducing the administrative burden, the fundamental issues related to the effectiveness of the national system of environmental payments, the provision of incentives to reduce pollution with observation of the principle «polluter pays» remain unresolved. According to the Concept of environmental safety of our Republic, the purpose of the national policy in the field of environmental safety is to ensure the protection of natural systems, vital interests of society and the rights of individuals from threats arising as a result of anthropogenic and natural impacts on the environment.

The necessity to comply with the requirements set by the Government for environmental protection forces domestic companies to incur expenses for environmental measures that are growing worldwide.

At the same time, in domestic accounting, the results of environmental protection measures and their costs are not reflected. This is, first of all, due to the fact that, as noted above, accounting of environmental management and environmental activities (environmental accounting) of companies is currently under development.

In general, all problems of the development of environmental accounting can be represented in the form of the ‘sustainability triangle’ (Figure 2),

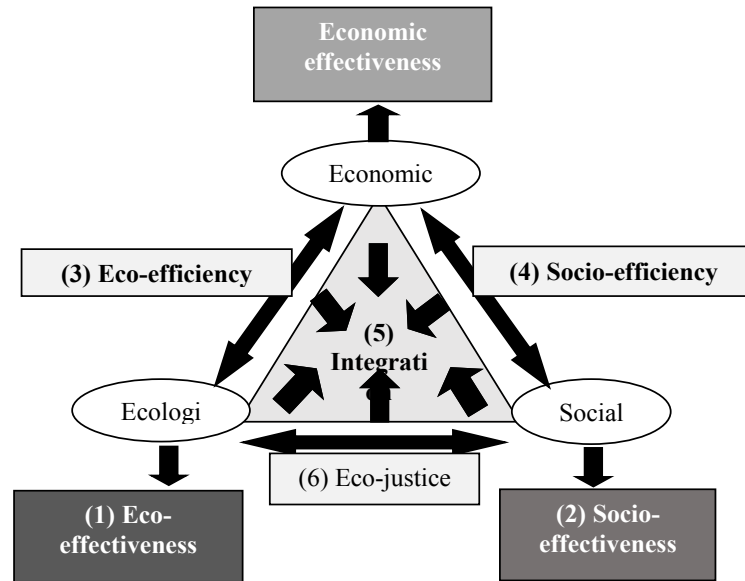
developed by Schaltegger, S. and Burritt, R.L. (2005) [25].

Bennett M, Schaltegger S., Zvezdov D. give the following comments to this figure (2013). In the triangle, each component is represented by one corner, whereas the interrelationships are represented by the lines which connect the corners. The corners represent the company’s effectiveness in achieving each component individually and are measured in absolute terms, whereas the lines represent different ways in which eco-efficiency, socio-efficiency and eco-justice can be defined, by taking different combinations of the three perspectives and expressing the results as relative indicators. The conventional aim of business management is economic effectiveness. This is already supported by conventional management accounting so it is not considered further here. The challenge for sustainability accounting is rather to provide management with information on the other aspects [26].

In our opinion, environmental accounting should be aimed at creation and continuous updating of an information model allowing to objectively assess the level and content of environmental activities of the company for the reporting period based on a system of indicators. In dynamics, this allows us to identify the impact of economic and environmental processes on the financial and economic prospects of functioning of companies.

Unlike other types of accounting, environmental accounting is the most regulated one, and at the same time, priority is given to the determined internal needs.

Further, in order to develop environmental accounting and reporting, we consider individual interpretations of environmental cost. In the analytical theory, the concept of “environmental costs” was interpreted by economists in different ways.



Source: Schaltegger and Burritt 2005, p. 189

Figure 2 - Structuring the information needs of corporate sustainability with the sustainability triangle

For example, Dyllick T. and Hockerts K. (2002) include all kinds of resources, required for environmental activities and expressed in value terms, in the environmental costs [27].

Exploring the pollution control and reduction activities, Burritt, R.L. (2012) understands the environmental costs to be the «direct first-order costs borne by companies involved in the implementation of pollution control measures and ensuring compliance with relevant environmental requirements» [28].

The other authors: Rikhardsson P., Bennett M., Bouma J.J. and Schaltegger S. (2003), proceed from the fact that «environmental costs constitute the costs (material, labor, financial) of the company, connected with environmental measures carried out before or during the production process and included in the production costs or accumulated in the cost of environmental facilities» [29].

According to Bennett, M. (2009), environmental costs and processes shall be considered by areas of environmental management: development, extraction, use of natural resources; negative impact on the environment; environmental activities [30].

Thus, a large number of scientists interpret the full amount of costs of measures for protection of environment from pollution as the amount of costs of research and development, experimental check, technical preparation of production and the development of a new environmentally friendly technology and its introduction into production.

At the same time, the other authors construe the environmental costs as a sum of expenses of a business entity for:

- prevention of ecosystem disturbances through environmental measures;

- prevention of impact of ecosystem disturbances on the population, fixed assets (funds) of industry, facilities of housing and public utility sector, etc.

Besides, as already noted, environmental costs are generally understood to be the costs of maintaining the level of the environment through environmental measures.

Focusing on the definitions specified above, in our opinion, the following types of costs should be considered as the environmental costs:

- associated with the prevention of the negative impact of technological process of companies and organizations on environmental components;

- the introduction of a “green policy” in the production process;

- introduction of changes to the production process connected with the processing of secondary raw materials in order to reduce the negative impact on the environmental complex in general.

The types and specifics of activity of the company itself can serve as criteria for classification of environmental costs.

The classification criteria for environmental costs are the kinds and areas of environmental activities of companies and organizations. According to M. Bartolomeo [31], this set of signs of activity is usually divided by the following objects of protection:

- activities on protection and rational use of the air basin;

- activities aimed at protection and rational use of water resources;

- activities related to the protection and rational use of land resources;
- activities on protection of physical fields;
- activities on protection of near-Earth space.

Therefore, the most detailed classification of costs by objects of environmental protection tends to be divided into protection:

1. Waters (integrated water basin)
2. Earth (physical fields)
3. Atmospheric air (near-Earth space).

Based on the classification specified above, it is possible to break down the costs into two categories. The first one will include the current costs connected with the maintenance of environmental protection facilities. The second category constitutes the capital costs aimed at creation of environmental complexes in the form of environmental investments.

According to the laws of the Republic of Kazakhstan, the entities engaged in environmental protection use their own or raised funds. Own sources of financing include the reserves of companies formed out of contributions of owners or allocations of the gross profit of the company, while loans and bank credits, revenues from the state and local budgets, financing from international environmental organizations, as well as voluntary contributions from individuals and legal entities act as the raised funds.

The determination of the items of environmental accounting of the company is carried out by dredging the costs of environmental measures. According to this, accounting items include:

- the objects of protection themselves (integrated water basin, physical fields, atmospheric air and near-Earth space);
- fixed assets with an environmental purpose, operating expenses and the results of environmental activities, including those for the objects of protection given above.

The accuracy of measurement of the operating expenses for protection of environment, forming the part of the company resources used in the course of operation of environmental facilities, depends on the reliability of reflection of their composition.

Thus, guided by the opinion of the most of scientists, the composition of the operating environmental costs should include:

1. The costs of maintenance, repair and servicing of fixed assets of environmental purpose;
2. The costs connected with conduction of environmental measures increasing the efficiency of the quality characteristics of environmental components, incurred both due to the core business of the company and other sources of financing;
3. Additional costs connected with the operation of fixed assets of environmental purpose, predetermined by a change in the production technology for reduction of the level of negative impact on the environment.

The costs of production activities in the field of constructing and technological preparation,

purchase of inventory and equipment, construction, installation, exploration and research and development works, are included in the group of capital costs. The accounting of these environmental protection costs is carried out in the same way as the accounting of capital investments.

Moreover, the group of capital costs should also include the costs of environmental measures that not just border the environment, but also pursue the goal of increasing the production efficiency – for example, waste processing technologies, which will result in new products that can be effectively used directly in the area of company activity (isolated water supply system, low-cost technologies, etc.).

Such dredging of a special and highly coordinated internal system of environmental accounting and reporting will not only allow to give an adequate evaluation of the companies' environmental costs in the current and future periods, but can also serve as the basis for making effective decisions on the implementation of a fruitful environmental policy.

Concerning preventive environmental measures, in our opinion, they should include compensation for the use of natural resources and for pollution of environment. The named sections of the grouping of environmental costs should be linked with such classification criteria as:

- nature of costs;
- source of cost recovery;
- availability at a fee (self-repayment).

The first classification criteria combines:

- the cost of capital construction of facilities for environmental protection;
- operating costs of environmental protection purpose.

According to the sources of cost recovery, we shall distinguish:

- costs included in the cost of production (works. services);
- costs covered by profits remaining at the disposal of the company;
- costs covered by the target financing;
- costs credited to the financial results;
- costs covered by non-budgetary environmental funds.

By payment directions:

- costs in the form of fees for the right to use subsurface mineral resources and natural resources;
- costs of reproduction and protection of natural resources and charges for environmental pollution.

By the amount of fee, the costs can be divided into:

- charges for pollution within normal limits;
- charges for pollution exceeding the normal limits, which, in its turn, is divided into the charges for pollution within normal limits; charges for pollution above the normal limits.

The discussed grouping of costs reflects the environmental protection measures associated



with human environmental activities to protect the environment that are fixed to some extent in regulatory documents and methodological regulations.

This classification separates the environmental costs related to the environmentally dependent diseases. They can also take place in the mentioned two aspects: environmental measures of active and preventive nature. As for referring these costs according to the listed criteria, they can be considered in the context of the above mentioned classification.

The costs of environmental measures should be formed in the following areas:

- costs of manufacture of organic products;
- financing of measures for restoration, neutralization of harm caused to nature, manufacture of the company's products;
- costs of environmental monitoring;
- costs of environmental activities that increase production efficiency;
- mandatory deductions and taxes to the centralized bodies and relevant funds for conduction of state measures aimed at environmental remediation and comprehensive monitoring;
- deferred environmental costs.

Covering the issues of organization of accounting of environmental costs, we support the specialists Hopwood, A., Unerman, J. and Fries, J. (2010), who have recommended to create an independent control account «Environmental costs» [32]. We offer to create the following sub-accounts by development of this account:

- Protection of water basin;
- Protection of air basin;
- Protection and restoration of land resources;
- Use of waste;
- Occupational and health safety.

In the section "Production record accounts" it is recommended to create a separate subsection for accounting of environmental costs, and name it "Costs related to environmental activities". This subsection should include the following control accounts:

- costs of manufacture of organic products;
- costs of neutralization of harm caused to nature by production;
- costs of environmental monitoring;
- costs of environmental activities that increase production efficiency.

Add the account «Deferred environmental costs» to the subsection "Deferred costs".

On the debit side of the proposed accounts of the subsection "Costs related to environmental activities", it will be necessary to reflect the costs of environmental activities in correspondence with the accounts of the subsections:

- Amortization of intangible assets;
- Depreciation of fixed assets;
- Materials;
- Deferred costs;
- Trade receivable;

- Bad debt reserve;
- Receivables of subsidiary (associated) partnerships;
- Short-term receivables of employees;
- Short-term advances paid;
- Cash;
- Tax liabilities;
- Settlements with suppliers and contractors;
- Short-term liabilities and accruals;
- Auxiliary production;
- Overhead costs, etc.

The deferred environmental costs posted to the proposed account and related to the reporting period, should be included in the debit of the account «Costs of manufacture of organic products».

### **Conclusion**

Having studied the issues of formation and development of environmental accounting, we have come to the conclusion that application of initial principles of accounting in the environmental accounting is really necessary. As is commonly known, these principles include:

- reliable estimate;
- comparability;
- significance;
- relevance of information;
- identifications;
- conservatism and caution.

The use of these principles creates opportunities and prerequisites for sustainable economic development at all levels and is an essential condition for the creation (organization) of an effective environmental accounting system in companies.

Environmental information should be an integral part in the preparation of financial statements. If there are separate articles of the balance sheet on costs related to environmental activities, we can talk with a degree of certainty of presence and measurement of these costs, their reliable estimate, which will have a great impact on the current rate of development of environmental measures and the state of the environment in general. However, nowadays in Kazakhstan the regulatory acts related to the regulation of accounting activities in the field of ecology are under development, requiring detailed reflection of liabilities and costs associated with environmental activities in the financial statements.

The concept of environmental accounting in Kazakhstan has not yet acquired final understanding and logical completeness in the form of a comprehensively formed system of knowledge in economic and environmental theory and practice, but with the development of a green economy and increased attention to environmental measures it is likely that in the near future, lectures on environmental accounting and reporting will be given in the lecture halls of universities and other educational institutions, as well as practical skills will be applied by the

preparation of environmentally friendly financial statements.

Kazakhstan companies, which set themselves a goal to increase the volume of financing from the foreign capital market, understand that if the environmental liabilities are not accurately reflected in the statements of financial position, this will reduce investor's confidence in the financial statements. The doubts of investors about the existence of such liabilities that have no proper evaluation will entail an increase in the cost of capital for Kazakhstan companies due to increased risk.

Hence, it should be noted that environmental information should be an integral part by the preparation of reliable financial statements. But, as already noted, there is no coordinated system of regulatory acts in Kazakhstan regulating accounting activities in the field of ecology and requiring detailed reflection of liabilities and costs associated with environmental activities in the financial statements.

Due to this fact, as well as for a number of other reasons, the economic, organizational and methodological, as well as regulatory and analytical aspects of environmental accounting and reporting are an underexplored area of environmental support at all levels of financial, economic and management activities, taking into account industry specifics.

Moreover, in many companies there is a disorder in accounting of environmental costs, when they are not only not allocated, but also, especially the operating ones, «dissolve» in the costs of production, and are unreasonably referred to the occupational safety, administrative or other expenses. That's why structuring of the fundamentals of the development of environmental accounting is of social and economic importance for the prevention of crisis phenomena.

In this regard, the actualization of environmental accounting problems is quite understandable.

Differentiating the problems of environmental accounting in Kazakhstan according to the degree of complexity, it should be noted that the issues of accounting of environmental liabilities are the most relevant. Most of the companies in Kazakhstan show that there are environmental liabilities, but, despite this fact, they do not actually have an exact definition of the method for inclusion of these liabilities in certain cost items. A “reliable estimate” of the amounts of the actual liabilities constitutes the biggest problem in this case.

In the light of the areas of sustainable development of the economy of the Republic of Kazakhstan, one of the most important issues is the development and improvement of concepts and principles of environmental accounting and control, which include financial and management accounting, reporting on environmental indicators and environmental audit. In this case, the development of environmental activities and environmental accounting in interconnection is obvious.

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