ISSN 2518-1467 (Online),
ISSN 1991-3494 (Print)

«ҚАЗАҚСТАН РЕСПУБЛИКАСЫ ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫ» РҚБ

ҚАЙЫРЫМДЫЛЫҚ ҚОРЫ HALYK CHARITY FOUNDATION

«ҚАЗАҚСТАН РЕСПУБЛИКАСЫ
ҰЛТТЫҚ ҒЫЛЫМ АКАДЕМИЯСЫ» РҚБ
«ХАЛЫҚ» ЖҚ

Х А Б А Р Ш Ы С Ы

ВЕСТНИК

РОО «НАЦИОНАЛЬНОЙ
АКАДЕМИИ НАУК
РЕСПУБЛИКИ КАЗАХСТАН»
ЧФ «Халық»

THE BULLETIN

OF THE ACADEMY OF SCIENCES
OF THE REPUBLIC OF
KAZAKHSTAN
«Halyk» Private Foundation

PUBLISHED SINCE 1944

5 (405)

SEPTEMBER-OCTOBER 2023

ALMATY, NAS RK

BULLETIN OF NATIONAL ACADEMY OF SCIENCES
OF THE REPUBLIC OF KAZAKHSTAN
ISSN 1991-3494
Volume 5. Number 405 (2023), 398-418
https://doi.org/10.32014/2023.2518-1467.599

UDC 331.522

© L.M. Davidenko*, S.K. Kunyazova, M.A. Amirova, Z.A. Arynova, T.Ya. Ernazarov, A.K. Bakpayeva, 2023
Toraighyrov University, Pavlodar, Kazakhstan.
E-mail: *davidenkolm@rambler.ru*

RESOURCE SUPPORT OF ECO-BRANDING OF INDUSTRIAL COMPANIES (KAZAKHSTAN AND FOREIGN EXPERIENCE)

Davidenko Ludmila Mikhailovna — Associate Professor of the Department of Economics, Candidate of Economic Sciences, PhD, «Toraigyrov University» NCJSC, Department of Economics, Pavlodar, Republic of Kazakhstan
E-mail: *davidenkolm@rambler.ru*. ORCID: 0000–0002–7541–8677;
Kunyazova Saule Kairbekovna — Candidate of Economic Sciences, Associate Professor, Professor of the Department of Economics, «Toraighyrov University» NCJSC, Faculty of Economics and Law, Pavlodar, Republic of Kazakhstan
E-mail: *kunjazovas@mail.ru*. ORCID: 0000-0002-5538-5839;
Amirova Maral Akbayevna — Associate Professor of the Department of Economics, PhD, «Toraighyrov University» NCJSC, Faculty of Economics and Law, Pavlodar, Republic of Kazakhstan
E-mail: *maral.pvl@mail.ru*. ORCID: 0000-0003-0260-9760;
Arynova Zulfiya Amangeldinovna — Candidate of Economic Sciences, Associate Professor, Professor of the Department of Economics, «Toraighyrov University» NCJSC, Faculty of Economics and Law, Pavlodar, Republic of Kazakhstan
E-mail: *zaryn24@mail.ru*. ORCID: 0000-0003-0123-6667;
Ernazarov Takhir – Candidate of Technical Sciences, Associate Professor, Professor of the Department of Economics, «Toraighyrov University» NCJSC, Faculty of Economics and Law, Pavlodar, Republic of Kazakhstan
E-mail: *ernazarov.takhir111@gmail.com*. ORCID: 0000-0002-9357-0103;
Bakpayeva Assiya — Master of Economics, Department of Economics, «Toraighyrov University» NCJSC, Faculty of Economics and Law, Pavlodar, Republic of Kazakhstan
E-mail: *mustik.mak@mail.ru*. ORCID: 0000-0002-3606-4853.

Abstract. The main purpose of the work is a multifactorial study of the resource provision of environmental branding by reviewing the experience of foreign countries and Kazakhstani industrial companies. The object of the study was the complex processes of transformation of the traditional economy into a green economy in developed countries and the Concept of the «green economy» of Kazakhstan, aimed at improving the efficiency of resource use and promoting new technologies to ensure sustainable growth. The authors used methods of scientific cognition: analysis, synthesis, deduction, induction, generalization and grouping, comparison of

statistical information. Using the method of qualimetry by means of correlation and regression analysis, the resource provision of environmental branding at industrial enterprises of European countries was investigated. A generalization of institutional, regulatory, and programmatic elements contributing to the development of a green economy is presented. The authors focus on the importance of the formation of institutional conditions for the resource provision of environmental branding for the sustainable development of economies. The importance of environmental initiatives as a global trend that changes the work of international corporations is emphasized. The connection between the transformation of production processes and consumption patterns in order to reduce environmental pollution and increase the efficiency of the use of resources, materials and energy is substantiated.

Keywords: environmental branding, sustainable development, environmental policy, regional economy, «green» economy

Financing: This research was carried out under the project «Development of technology and promotion of ecological branding of the industrial complex of the region» and is funded by the Science Committee of the Ministry of Science and Higher Education of the Republic of Kazakhstan (Grant No. AP19676924).

Conflict of interest: The authors declare that there is no conflict of interest.

© Л.М. Давиденко*, С.К. Кунязова, М.А. Амирова, З.А. Арынова, Т.Я. Эрназаров, А.Қ. Бакпаева, 2023
Торайғыров университеті, Павлодар, Қазақстан.
E-mail: davidenkolm@rambler.ru

ӨНЕРКӘСІПТІК КОМПАНИЯЛАРДЫҢ ЭКО БРЕНДИНГІН РЕСУРСТЫҚ ҚАМТАМАСЫЗ ЕТУ (ҚАЗАҚСТАНДЫҚ ЖӘНЕ ШЕТЕЛДІК ТӘЖІРИБЕ)

Давиденко Людмила Михайловна — экономика ғылымдарының кандидаты, PhD, экономика кафедрасының доценті, «Торайғыров университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы
E-mail: davidenkolm@rambler.ru. ORCID: 0000–0002–7541–8677;
Кунязова Сауле Каирбековна — экономика ғылымдарының кандидаты, доценті, Экономика кафедрасының профессоры «Торайғыров университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы
E-mail: kunjazovas@mail.ru. ORCID: 0000-0002-5538-5839;
Амирова Марал Акбаевна — PhD докторы, «Экономика» кафедрасының қауымдастырылған профессоры «Торайғыров университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы
E-mail: maral.pvl@mail.ru. ORCID: 0000-0003-0260-9760;
Арынова Зульфия Амангельдиновна — экономика ғылымдарының кандидаты, доценті, Экономика кафедрасының профессоры «Торайғыров университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы E-mail: *zaryn24@mail.ru*. ORCID: 0000-0003-0123-6667;
Эрназаров Тахир Яздурдиевич — техника ғылымдарының кандидаты, доценті, Экономика кафедрасының профессоры «Торайғыров университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы

E-mail: *ernazarov.takhir111@gmail.com*. ORCID: 0000-0002-9357-0103;
Бақпаева Асия Құдайбергенқызы — экономика ғылымдарының магистрі, «Торайғыров Университеті» КЕАҚ, Экономика және құқық факультеті, Павлодар, Қазақстан Республикасы
E-mail: *mustik.mak@mail.ru*. ORCID: 0000-0002-3606-4853.

Аннотация. Жұмыстың негізгі мақсаты шет елдер мен Қазақстандық өнеркәсіптік компаниялардың тәжірибесін шолу арқылы экологиялық брендингті ресурстық қамтамасыз етуді көп факторлы зерттеу болып табылады. Зерттеу объектісі ретінде дамыған елдердегі дәстүрлі экономиканы жасыл экономикаға айналдырудың кешенді процестері және тұрақты өсуді қамтамасыз ету үшін ресурстарды пайдалану тиімділігін арттыруға және жаңа технологияларды ілгерілетуге бағытталған Қазақстанның «Жасыл экономика» тұжырымдамасы болды. Авторлар ғылыми таным әдістерін қолданды: талдау, синтез, дедукция, индукция, жалпылау және топтастыру, статистикалық ақпаратты салыстыру. Корреляциялық және регрессиялық талдау арқылы Квалиметрия әдісін қолдану Еуропа елдерінің өнеркәсіптік кәсіпорындарында экологиялық брендингті ресурстық қамтамасыз ету зерттелді. Жасыл экономиканың дамуына ықпал ететін институционалдық, нормативтік-құқықтық, бағдарламалық элементтерді жалпылау ұсынылған. Авторлар экономиканың тұрақты дамуының экологиялық брендингін ресурстық қамтамасыз ету үшін институционалдық жағдайларды қалыптастырудың маңыздылығына назар аударады. Халықаралық корпорациялардың жұмысын өзгертетін жаһандық тренд ретінде экологиялық бастамалардың маңыздылығы атап өтіледі. Қоршаған ортаның ластануын азайту және ресурстарды, материалдар мен энергияны пайдалану тиімділігін арттыру мақсатында өндірістік процестер мен тұтыну үлгілерін трансформациялаудың байланысы негізделген.

Түйін сөздер: экологиялық брендинг, тұрақты даму, экологиялық саясат, аймақтық экономика, «жасыл» экономика

Қаржыландыру: Бұл зерттеу «Технологияны дамыту және регионның өнеркәсіптік кешенінің экологиялық брендін ілгерілету» жобасы шеңберінде орындалды және Қазақстан Республикасы Ғылым және жоғары білім Министрлігінің Ғылым Комитеті қаржыландырады (Грант № AP19676924).

Мүдделер қақтығысы: Авторлар осы мақалада мүдделер қақтығысы жоқ деп мәлімдемейді.

© Л.М. Давиденко, С.К. Кунязова, М.А. Амирова, З.А. Арынова, Т.Я. Эрназаров, А.К. Бакпаева, 2023
Торайгыров университет, Павлодар, Казахстан.
E-mail: *davidenkolm@rambler.ru*

РЕСУРСНОЕ ОБЕСПЕЧЕНИЕ ЭКОБРЕНДИНГА ПРОМЫШЛЕННЫХ КОМПАНИЙ (КАЗАХСТАНСКИЙ И ЗАРУБЕЖНЫЙ ОПЫТ)

Давиденко Людмила Михайловна — кандидат экономических наук, PhD, ассоциированный профессор (доцент) кафедры «Экономика», НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *davidenkolm@rambler.ru*. ORCID: 0000–0002–7541–8677;
Кунязова Сауле Каирбековна — кандидат экономических наук, доцент, профессор кафедры «Экономика» НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *kunjazovas@mail.ru*. ORCID: 0000-0002-5538-5839;
Амирова Марал Акбаевна — доктор PhD, ассоциированный профессор кафедры «Экономика», НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *maral.pvl@mail.ru*. ORCID: 0000-0003-0260-9760;
Арынова Зульфия Амангельдиновна — кандидат экономических наук, доцент, профессор кафедры «Экономика» НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *zaryn24@mail.ru*. ORCID: 0000-0003-0123-6667;
Эрназаров Тахир Яздурдиевич — кандидат технических наук, доцент, профессор кафедры «Экономика» НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *ernazarov.takhir111@gmail.com*. ORCID: 0000-0002-9357-0103;
Бакпаева Асия Кудайбергеновна — магистр экономических наук, НАО «Торайгыров университет», факультет экономики и права, Павлодар, Казахстан
E-mail: *mustik.mak@mail.ru*. ORCID: 0000-0002-3606-4853.

Аннотация. Основной целью работы является многофакторное исследование ресурсного обеспечения экологического брендинга путем обзора опыта зарубежных стран и казахстанских промышленных компаний. В качестве объекта исследования выступили комплексные процессы преобразование традиционной экономики в зеленую экономику в развитых странах и Концепция «зеленой экономики» Казахстана, направленная на повышение эффективности использования ресурсов и продвижение новых технологий для обеспечения устойчивого роста. Авторы использовали методы научного познания: анализ, синтез, дедукция, индукция, обобщение и группировка, сравнение статистической информации. Посредством метода квалиметрии посредством корреляционного и регрессионного анализа, было исследовано ресурсное обеспечение экологического брендинга на промышленных предприятиях европейских стран. Представлено обобщение институциональных, нормативно-правовых, программных элементов, способствующих развитию зеленой экономики. Авторы акцентируют внимание на важности формирования институциональных условий для ресурсного

обеспечения экологического брендинга устойчивого развития экономики, подчеркивают значимость экологических инициатив как глобального тренда, который меняет работу международных корпораций и обосновывают связь трансформации производственных процессов и моделей потребления с целью сокращения загрязнения окружающей среды и повышения эффективности использования ресурсов, материалов и энергии.

Ключевые слова: экологический брендинг, устойчивое развитие, экологическая политика, региональная экономика, «зеленая» экономика

Финансирование: Данное исследование выполнено в рамках проекта «Разработка технологии и продвижение экологического брендинга промышленного комплекса региона» и финансируется Комитетом науки Министерства науки и высшего образования Республики Казахстан (Грант № AP19676924).

Конфликт интересов: авторы заявляют об отсутствии конфликта интересов.

Introduction

A successful business today cares not only about profit, but also about its own contribution to solving various problems that consumers care about. Climate change is one of these issues that concern millions of people around the world. As a result, more and more large and small companies demonstrate their indifference to the state of the environment and strive to become «green».

Technological progress and mass consumption have not passed without a trace for the ecology of the planet and have caused environmental pollution. In order to conserve natural resources, more and more people are switching to conscious consumption, changing and controlling their daily household habits. Most of these people want companies and brands to help them in this, since the culture of consumption is the result of their work.

Relatively recently, large Kazakhstani companies have introduced the concept of Green Marketing, which is closely related to eco-branding.

Ecological branding is a complex process of developing a «green» product and supporting the voluntary communication of consumers with manufacturers with the help of a stable and reliable type of product that offers them high quality, and also attracts manufacturers in preventing negative environmental impacts. It is also the positioning of the environmental properties of the product in the minds of consumers who associate the eco-brand with environmental protection.

Careful attitude to nature has become a trend. Firms and brands that adhere to the principles of environmental friendliness began to be called «green», sustainable (observing the rules of sustainable development), socially responsible and conscious. Such companies use both natural and human resources wisely, and are responsible for their actions.

The result of such work is a whole set of advantages:

1) Customer loyalty.

Buyers choose brands that are close to them in values. By wearing a hoodie or a bag with the logo of a favorite brand, people show that they are in solidarity with

the beliefs of a particular company and also choose sustainable development and conscious consumption.

2) Advantage over competitors.

«Green» brands are growing faster than rivals, this was shown back in 2016 by the example of statistics from such a giant as Unilever, whose «green» brands grew one and a half times faster than the other part of the corporation's brand portfolio.

3) Preservation and growth of profits.

Brands that do not adhere to the economy risk being left on the sidelines of the market. Research results show that 80% of buyers who are willing to pay more for eco-products refuse the services of enterprises that have a bad impact on the environment.

One of the key principles of eco–branding is the conservation of natural resources. This applies to every stage of production, from the selection of suppliers to packaging and sales channels.

For example, the well-known brand of cosmetics Lush has stopped using palm oil in the production of its products, uses exclusively recycled materials for packaging. The result is an annual water saving of 450 thousand liters.

Another example, the clothing brand Patagonia has released a collection sewn entirely from scraps of cloth. Even though these clothes are more expensive, the demand for them is higher than for other collections.

The next principle of sustainable companies is increased attention to the well–being of people. The extent to which working conditions comply with safety standards, and salaries correspond to average market indicators, how transparent management is – all this concerns people who have chosen conscious consumption.

That's why eco-brands are willing to tell who and under what conditions sews their clothes or collects smartphones. For example, Acne Studios, a clothing brand from Sweden, periodically publishes reports on monitoring working conditions at garment factories on its web resource.

And the last basic principle of sustainable development is helping customers.

It is not enough to declare that the brand adheres to the values of environmental friendliness. It is necessary to help clients live in accordance with the same values. And use the company's products along the way, of course. For example, like Colgate, urging not to waste water when brushing your teeth.

Research methodology

The rating of the most environmentally friendly countries in the world is compiled annually by the Center for Environmental Policy and Law at Yale University (Yale Center for Environmental Law and Policy). The Environmental Performance Study measures the achievements of a country in terms of the state of ecology and natural resource management based on 22 indicators in 10 categories that reflect various aspects of the state of the environment and the viability of its ecological systems, conservation of biological diversity, countering climate change, the health of the population, the practice of economic activity and the degree of its impact on the environment, as well as the effectiveness of state policy in the field of ecology.

The rating of The Environmental Performance Index is updated on average once every 2 years.

Table 1 – Rating of the most environmentally friendly countries in the world. Environmental efficiency research https://envirocenter.yale.edu/

Position in the rating	Country	Index	Change in 10 years
1	Denmark	77.90	14.90
2	Great Britain	77.70	23.00
3	Finland	76.50	21.00
4	Malta	75.20	25.40
5	Sweden	72.70	15.80
6	Luxembourg	72.30	13.50
7	Slovenia	67.30	8.60
8	Austria	66.50	7.20
9	Switzerland	65.90	8.20
10	Iceland	62.80	4.40
11	Netherlands	62.60	5.90
12	France	62.50	6.40
13	Germany	62.40	2.20
14	Estonia	61.40	6.10
15	Latvia	61.10	8.20
16	Croatia	60.20	17.20
17	Australia	60.10	10.30
18	Slovakia	60.00	3.20
19	Czech	59.90	5.20
20	Norway	59.30	5.80

The rating of the most environmentally friendly countries in the world is compiled annually by the Center for Environmental Policy and Law at Yale University (Yale Center for Environmental Law and Policy). One of the main indicators in this assessment is air quality (the Air Quality index in the rating of The Environmental Performance Index). Yale University experts assessed the freshness of the air based on 3 indicators: exposure to PM2.5 particles (an air pollutant that poses a great threat to the body), the level of carbon monoxide, the level of ozone exposure. The higher the index value, the cleaner the air.

Table 2 – Rating of the most environmentally friendly countries in the world / Air Quality Air Quality Index / The Environmental Performance Index https://envirocenter.yale.edu/

Position in the rating	Country	Index
1	Iceland	96.00
2	Sweden	94.00
3	Finland	93.50
4	New Zealand	93.20
5	Norway	92.40
6	Australia	91.10
7	Irish	89.10

Position in the rating	Country	Index
8	Canada	88.00
9	Switzerland	84.30
10	France	82.00
11	Luxembourg	81.00
12	Denmark	80.50
13	Japan	78.90
14	Great Britain	78.60
15	Portugal	78.10
16	USA	77.00
17	Netherlands	76.80
18	Germany	75.20
19	Austria	75.00
20	Belgium	74.60

One of the most interesting indicators of energy development in the country is the level of energy use from alternative sources. To date, the most popular alternative energy source is solar energy. This is a very eco-friendly and efficient way to generate electricity. In order to assess the level of use of such a method of energy production in the country, it is necessary to consider the statistics of its production volumes. But there is a classic relativity trap here: large countries will always produce more energy than small ones. Therefore, for a more adequate assessment of the level of development of alternative energy in the country, the indicator of solar energy consumption per capita (per person) is used i.e., this indicator shows how much on average one citizen consumes solar electricity per year (in kWh).

To compile a ranking of countries in the world by the level of solar electricity consumption per capita, data from a report by the British company BP (formerly known as British Petroleum) called Statistical Review of World Energy was used. The same data is used in its similar report by the well-known statistics portal Our World In Data (Renewable Energy, Per capital energy consumption from solar). As statistics show, the leaders in this industry are most often countries with a high level of GDP per capita, that is, economically developed countries.

Table 3 – Solar energy consumption per capita (kWh)/ Our World In Data https://ourworldindata.org/

Position in the rating	Country	Solar energy consumption per capita (kWh)
1	Australia	1 764
2	Japan	1 469
3	Germany	1 409
4	UAE	1 056
5	Italy	995
6	Greece	936
7	Belgium	847
8	Chile	823
9	USA	815

Position in the rating	Country	Solar energy consumption per capita (kWh)
10	Spain	797
11	Israel	790
12	Netherlands	752
13	Switzerland	651
14	Bulgaria	648
15	South Korea	587
16	Czech	529
17	Europe	513
18	Luxembourg	484
19	Great Britain	465
20	France	446

At the moment, most of the electricity from solar power plants is consumed by residents of Australia. Optimal weather conditions, high GDP per capita, as well as tariffs that stimulate the transition to solar energy help them to maintain their leadership positions. Many countries, in order to stimulate the development of production and consumption of solar electricity, issue state subsidies for the installation of power plants and set special «green» tariffs.

For example, some municipalities in India have introduced property tax discounts for users of solar water heaters. In some cases, this discount reaches 6...10 % of the property tax. Another type of tax benefits, often used to stimulate the production of energy from renewable sources, is accelerated depreciation. It allows the investor to amortize the value of the eligible fixed assets faster and thereby reduce his taxable profit. In Mexico, accelerated depreciation has been allowed for investors investing in infrastructure that does not have a negative impact on the environment since 2005. The introduction of energy production technologies from renewable sources is successfully promoted by price support measures and methods of net metering of electricity.

In many countries, the net accounting method is also used to stimulate small-scale energy based on the use of renewable sources. When using this method, the consumer receives a deduction from future electricity bills if the amount of electricity entering the national energy system from the consumer's generator running on renewable raw materials exceeds the amount of energy taken by the consumer from the system. Net accounting is widespread in the United States, as well as implemented in Mexico and Thailand.

One of the most developed sectors of the green economy is renewable energy. The information and analytical agency fDiIntellegence, specializing in the study of cross-border investments, carries out a rating of direct investments in this area. Companies from Western Europe invest most actively in renewable energy in the host countries: they account for more than half of the projects (790). A significant number of foreign projects have been implemented by companies from the Asia-Pacific region (APR), including TNCs from developing countries. The distribution of attracted projects implemented by foreign investors is more uniform: about 1/3 (454)

falls on the Asia–Pacific region, on the countries of Western Europe, as well as Latin America and the Caribbean - 1/4. The rating of the agency fDi Intelligence identifies those countries that have attracted the largest number of projects implemented by foreign investors to renewable energy. According to data for 2020, these are the USA in America, Spain in Europe, Egypt in the Middle East and Africa, Vietnam in the Asia-Pacific region (Table 4).

Table 4 – Leading countries in the implementation of renewable energy projects involving FDI in 2022 fDi Intelligencehttps://www.fdiintelligence.com/

America		Europe		Middle East and Africa		Asia-Pacific region	
Country	Number of projects	Country	Number of projects	Country	Number of projects	Country	Number of projects
USA	36	Spain	19	Egypt	5	Vietnam	23
Mexico	19	France	11	Iran	5	Australia	20
Brazil	12	Russia	10	Morocco	3	India	12
Chile	10	Great Britain	9	UAE	3	Japan	12
Canada	3	Netherlands	8	Kenya	2	Kazakhstan	2

One of the most authoritative sources in the field of air quality statistics in the world is IQAir, a Swiss manufacturer of air purification systems. The special analytical department of this company is annually compiled taking into account where, apparently, the most polluted countries of the world are located. Statistics show that the freshest and cleanest air is in the Nordic countries. In table 5, the countries are arranged from top to bottom: from the dirtiest to the cleanest. The lower the index value, the better the situation with the environment in the country.

Table 5 – Rating plan to improve air quality until 2022 / (The most polluted countries in the world

Position in the rating	Country	Pollution index	Population, people.
1	Bangladesh	83.30	166 368 149
2	Pakistan	65.81	200 813 818
3	Mongolia	62.00	3 121 772
4	Afghanistan	58.80	36 373 176
5	India	58.08	1 354 051 854
6	Indonesia	51.71	266 794 980
7	Bahrain	46.80	1 566 993
8	Nepal	44.46	29 624 035
9	Uzbekistan	41.20	32 364 996
10	Iraq	39.60	39 127 900
11	China	39.12	1 415 045 928
12	UAE	38.94	9 541 615
13	Kuwait	38.30	4 197 128
14	Bosnia and Herzegovina	34.58	3 503 554
15	Vietnam	34.06	96 491 146
16	Kyrgyzstan	33.20	6 389 500
17	Macedonia	32.40	2 085 051

Position in the rating	Country	Pollution index	Population, people.
18	Syria	32.20	17 070 135
19	DR Congo	32.10	5 380 508
20	Myanmar	31.00	54 339 766
21	Ghana	30.30	30 280 800
22	Uganda	29.10	44 270 563
23	Armenia	25.51	2 957 500
24	Bulgaria	25.49	7 036 848
25	Sri Lanka	25.20	20 950 041
26	South Korea	24.78	51 164 435
27	Iran	24.27	82 011 735
28	Thailand	24.25	69 183 173
29	Kazakhstan	23.60	18 403 860
30	Macau	23.50	632

The rating of the countries of the world on the effectiveness of combating climate change is published annually in a special report by the NewClimate Institute, Germanwatch and Climate Action Network (Climate Change Efficiency Index). The assessment of each country consists of the volume of greenhouse gas emissions, the level of development of renewable energy, the level of electricity consumption, total primary energy reserves, common foreign and domestic state policy in the field of countering climate change. Thus, this report shows how effectively each country participates in solving the problem of global warming.

None of the countries took the first three places. It is noted that none of the countries has done enough to prevent climate change.

Table 6 – Rating of countries on combating climate change / Climate Change Performance Index Creates the basis for financing the «Net Zero» project *https://www.msci.com/*

Position in the rating	Country	Index
1	-	-
2	-	-
3	-	-
4	Sweden	75.77
5	Denmark	71.14
6	Morocco	70.63
7	Great Britain	69.80
8	Lithuania	66.22
9	India	66.02
10	Finland	63.25
11	Chile	62.88
12	Norway	61.14
13	Luxembourg	60.91
14	Malta	60.76
15	Latvia	60.75
16	Switzerland	60.61
17	Ukraine	60.60

18	France	57.90
19	Egypt	57.53
20	Croatia	56.97
21	Brazil	55.82
22	European Union	55.82
23	Germany	55.78
24	Romania	54.85
25	Portugal	54.10
26	Italy	53.92
27	Slovakia	52.69
28	Greece	52.59
29	Netherlands	50.89
30	China	48.16

153 Apple partners around the world recycle used electronic equipment. The recycling program since 1994 has rid landfills of 151,504 tons of waste. The company recycles more than 70% of used gadgets and computers. The company receives more than 18 % of its energy from alternative sources – wind farms and solar panels.

H&M uses organic cotton grown without chemical pesticides for tailoring. The company also focuses on the production of cotton fabrics from old clothes and remnants of production. By 2020, H&M intends to switch completely to recycled cotton. Now it occupies 15 % of the cotton used by the company. The company uses lyocell, a cellulose–based textile fiber, as a material. The properties of the fabric are similar to cotton. Bamboo and eucalyptus are used for the production of lyocell for H&M. These tree species grow quickly and do not require frequent watering, unlike cotton crops.

According to Henkel Corporation, over the past 11 years, it has managed to reduce water consumption by 44 %, and electricity by 43 %. At the same time, the amount of waste produced decreased by 53 %. This approach is not only environmentally friendly, but also profitable: with lower costs of water, electricity and packaging, the cost of production is necessarily reduced.

The line of Terra household chemicals consists of 85 % natural raw materials. More than 60 % of its surfactants are of natural origin, while coping with dirt at a temperature of 20 degrees. Moreover, the company has not used phosphates in its detergents for a long time.

In Procter & Gamble creates products aimed at saving water. For example, Ariel washing powder can work effectively without using the pre-wash mode of the washing machine, and Tide Coldwater washing powder cleans stains when washing in cold water.

In the German city of Krailsheim there is an environmentally sound distribution center for goods for the European market, energy for which is generated by solar panels with a total area of 13 thousand square meters. They accumulate energy in the amount of about 400 thousand kilowatts per hour.

Under pressure from the eco-community, Procter management & Gamble has decided to oblige its suppliers to provide information about where and how palm oil

is extracted, by 2020 to completely abandon the addition of «dirty» palm oil to their products and thus counteract large-scale deforestation.

Recycling of waste is practiced in many forms: cellulose from a toilet paper factory in Mexico turns into tiles, and waste from the American production of Pampers is used for stuffing upholstered furniture. The company, together with the giant brands Coca-Cola, Heinz, Nike and Ford, created the Plant PET Technology Collaborative (PTC) group, engaged in research, development and introduction into production of 10 % of plant PET materials and fibers used in product packaging.

The American communication agency Dual Citizen has been compiling the index of the greenest national economies since 2010, Figure 1 (Global Green Economy Index – GGEI). The cumulative score of countries takes into account four factors:

1. The quality of the environment and natural capital;
2. Markets and investments in the «green» sector;
3. The position of the political leadership of the state and climate change;
4. Local industry strategy.

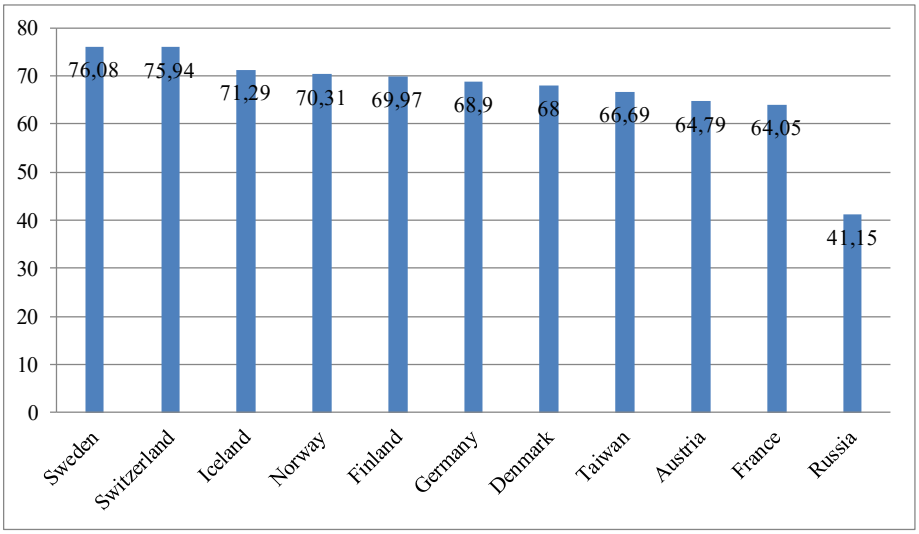

Figure 1 – Index of the greenest national economies / Climate Action Indices https://www.msci.com

According to the strategy, the Government of the Republic of Kazakhstan sets a goal to reduce greenhouse gas (GHG) emissions by 2030 to 230 million tons of CO2-eq., or by 40.5 % from the 1990 level (the commitments of the Republic of Kazakhstan under the Paris Agreement imply a reduction of only 15 % by this time) and achieve almost zero emissions in 2060 year. It is assumed that by that time the country will be able to eliminate 97 % of emissions, the remaining 3 % will be absorbed by the forest fund or carbon capture and storage technologies.

Investments invested in the «green economy» in 2022 amounted to 72,840,764 thousand tenge (Table 7).

Table 7 – Investments aimed at the «green economy» in 2022 (thousand tenge)

Name	Total	Including		
		investments in renewable energy sources	investments in energy efficiency. technologies and energy efficiency improvement.	investments, e.g. to reduce the selection of greenhouse gases
The Republic Of Kazakhstan	72 840 764	70 941 690	1 793 464	105 610
Akmola	7 347 844	27 347 844	-	-
Aktyubinsk	20 154 989	1 154 989	-	-
Almaty	18 571 483	1 571 483	-	-
Jambul	28 611 484	18 611 484	-	-
Karaganda	26 767 364	6 767 364	-	-
Kostanay	17 855	17 855	-	-
Kyzylorda	1 100 152	-	-	x
Mangistau	8 003 528	8 003 528	-	-
Pavlodar	x	-	x	-
Turkistan	7582569	x	-	x
Vost. Kazakhstan	4259631	-	x	-
Nur-Sultan	1 898 945	1 898 945	-	-
Almaty	20084773	-	-	-
Shymkent	6765147	-	6 765	-

Kazakhstan has a huge potential for the use of renewable energy sources (RES), while being the state with the highest greenhouse gas emissions in Central Asia (*https://www.fdiintelligence.com/*, 2023).

Within the framework of energy saving for renewable energy sources, in 2022 Kazakhstan has 19 wind power plants, 37 hydroelectric power plants, 31 solar power plants, and 3 biogas power plants (Table 8) (*https://www.msci.com*, 2023).

Table 8 – Main indicators of RES activity (as of January 1, 2022)

Name of RES	Number of objects	Installed capacity, MW	Output, million kWh for 2021	The number of people employed at renewable energy facilities, people.
Wind farms	19	283,8	717,4	217
Hydroelectric power plants	37	222,2	1105,3	534
Solar power plants	31	541,7	563,14	188
Biogas power plants	3	2,42	14,9	16
Total for all renewable energy facilities	90	1050,12	2400,74	955

Results and discussions

Currently, more than 200 scientific projects in the field of implementation of the «green economy» are carried out by higher educational institutions of the Republic

of Kazakhstan under the grant and targeted funding program in cooperation with foreign universities and research centers.

The main share (46.7 %) in the total amount of environmental protection costs falls on the enterprises of Atyrau (18.4 %), Aktobe (14.2%).

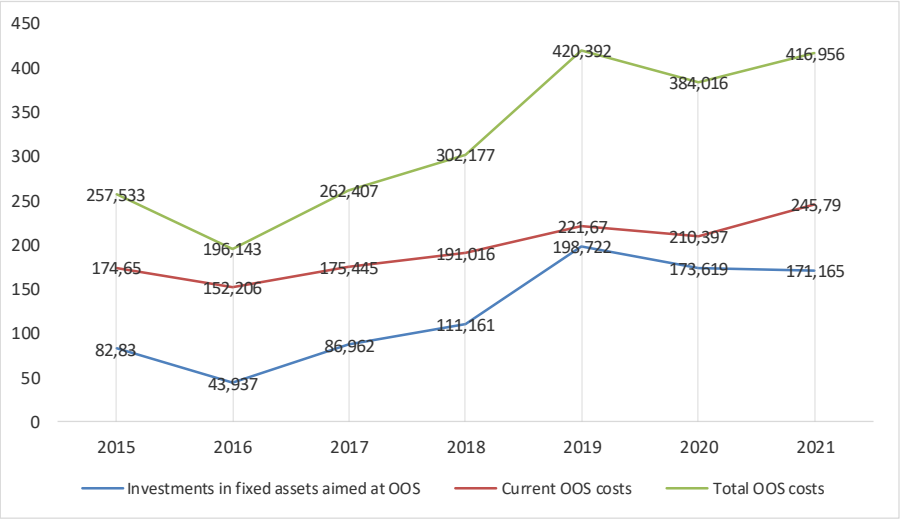

Figure 2 – Dynamics of environmental protection costs 2015-2021, million tenge Republic of Kazakhstan

According to the results of 12 months of 2021, capital investments aimed at environmental protection decreased by 1.6 %, to 171.165 billion tenge. For comparison: in the same period of 2019, investments in the sector amounted to 198.7 billion tenge, minus 13 % for the year.

Industrial and utility companies in the country began to invest less in environmental protection. In January – August of this year, the volume of investments for these purposes amounted to only 42.2 billion tenge against 107.7 billion for the same period last year.

Compared to previous years, the situation is worse in 2022. For eight months, the drop occurred 2.5 times, to 42.2 billion tenge. According to preliminary calculations, with similar volumes of capital investments, the total amount of environmental investments by the end of 2022 will be only 63 billion tenge (2.7 times less than the level of 2021).

Detailing the data by region shows that the biggest «minus» for the period occurred in those regions that were leaders in investment last year. These include Zhambyl (four times less), Aktobe region (eight times less), Nur-Sultan (2.5 times less). The growth was noted by the Karaganda region (3.7 times more), Pavlodar (plus 65 %), Turkestan region (six times more).

In the regional context, the largest volume of capital investments in the sector was registered in Zhambyl region: 52.8 billion tenge – 4 times more than a year earlier.

The main share (46.7 %) in the total amount of environmental protection costs falls on enterprises of Atyrau (18.4 %), Aktobe (14.2 %), Zhambyl (14.1 %) and amounted to 194 billion tenge, Figure 3.

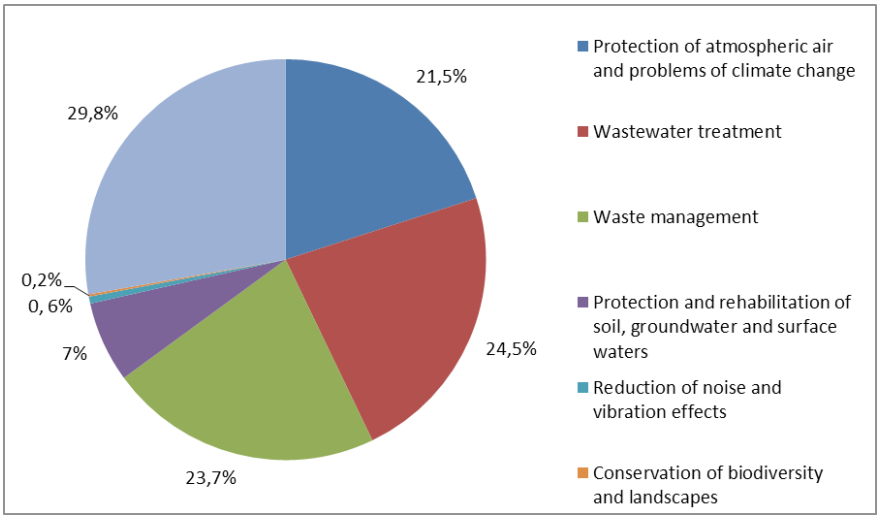

Figure 3 – Environmental protection costs by types of environmental protection activities, RK 2022

The three leading regions also included the capital (26 billion tenge, an increase of 7 times a year) and the Aktobe region (19.8 billion tenge, an increase of 2 times). The top 5 regions included Atyrau and East Kazakhstan regions.

The smallest amount of capital investments was recorded in the Almaty region: 579.6 million tenge. There were no investments in the sector in the North Kazakhstan region last year.

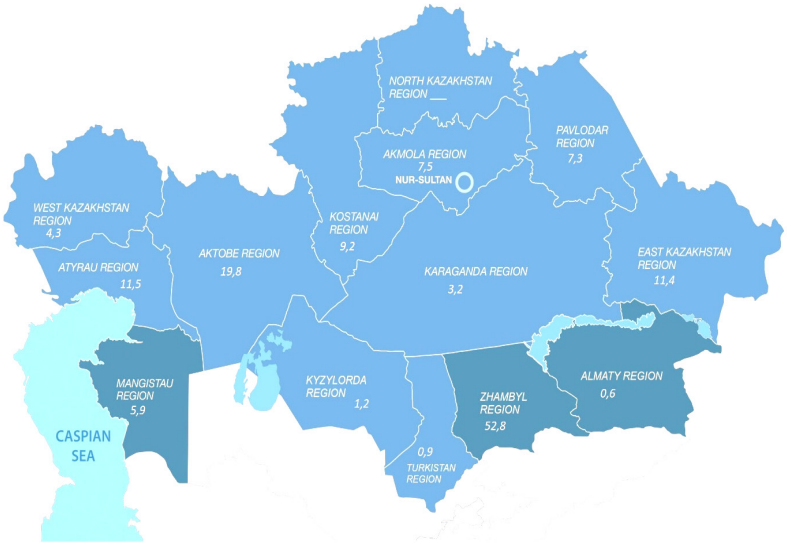

Fig. 4 – Investments in the green economy by regions of the Republic of Kazakhstan

In the regional context, the largest volume of capital investments in the sector was registered in Zhambyl region: 52.8 billion tenge – 4 times more than a year earlier.

The three leading regions also included the capital (26 billion tenge, an increase of 7 times a year) and the Aktobe region (19.8 billion tenge, an increase of 2 times). The top 5 regions included Atyrau and East Kazakhstan regions.

The smallest volume of capital investments was recorded in the Almaty region: 579.6 million tenge. There were no investments in the sector in the North Kazakhstan region last year.

Conclusion. According to the UN definition, the transformation of a traditional economy into a green economy involves the transformation of production processes and consumption patterns in order to reduce environmental pollution and increase the efficiency of the use of resources, materials and energy (Green economy..., 2012: 5). The key element without which the development of a green economy would be impossible is eco–innovation: processes that allow enterprises and industries in general to raise efficiency standards, in particular energy consumption, and thus reduce the negative impact on the environment (Martinez-Fernandez, Hinojosa, Miranda, 2010: 29). They also contribute to the diversification of the economy, the development of technological innovations and the creation of conditions for decent employment, including the creation of so-called green jobs. Green jobs are jobs where work reduces the negative impact of both individual enterprises and entire sectors of the economy on the environment.

The International Labour Organization (ILO) defines green jobs as jobs in agriculture, industry, services and administration that contribute not only to the preservation or restoration of environmental quality, but also meet the requirements for decent work: adequate wages, safe working conditions, workers' rights, social dialogue and social protection of workers.

The transition to a green economy and the growth of green employment requires new skills to work both in emerging new jobs and for the transformation of existing jobs towards their greening.

Green employment presupposes that employees have certain green skills — knowledge, competencies and experience – necessary to perform work tasks in such a way as not to disrupt the ecological balance. Thus, green skills are specific skills needed to adapt products, services or technological operations in accordance with requirements or regulations that contribute to reducing the impact on the environment and combating climate change.

When forming policies that contribute to the greening of the economy, European countries use different approaches to understanding and defining the green economy, green jobs and green skills, which, in turn, causes country differences in the policy of their formation (Skills for green jobs..., 2019).

In Germany, the Federal Agency for Labor (Bundesagentur für Arbeit) has identified 31 types of professional employment as activities to protect the ecological balance in sectors related to environmental protection, conservation of natural resources, environmentally friendly environmental practices, waste recycling. At the

same time, jobs in marketing, trade or information technology are excluded from green employment, since they are not considered directly related to environmental protection. In 2016, 107.4 thousand people worked in professions related to nature protection in the country. people, including: 27.5 % in the water supply and wastewater treatment system, 22.2 % in the sector of environmental technologies and renewable energy sources, 17.9 % in the field of waste processing, 13.6 % in management and consulting related to environmental conservation, etc. (Skills for green jobs in Germany..., 2018: 7).

In Denmark, the green economy is defined as the production of goods and services that contribute to the protection of the environment and/or the conservation of natural resources. Green employment, therefore, represents employment in the production of renewable resources, energy and heat conservation, waste recycling, water purification, etc. In 2015, the green economy of Denmark employed 2.4 % of the total active workforce, and this share has been maintained in recent years (Skills for green jobs in Denmark..., 2018: 9).

In France, the National Observatory of Jobs and Professions in the Green Economy (Observatoire national des employes et des métiers de l'économie verte, Onemev) has developed two approaches to monitoring green employment. Within the framework of the first approach, the development of activities related to environmental protection (eco-activity) is monitored. They include the production of goods and/or services that serve environmental protection or environmentally sustainable management of natural resources, as well as R&D, environmental design, some public services and other activities that are not directly aimed at nature protection, but contribute to improving the quality of the environment. In accordance with this approach, in 2020 there were 440.95 thousand green jobs in France (1.7 % of total employment) and another 455.7 thousand – contributing to the improvement of environmental quality -1.8 % of total employment.

The second approach evaluates the dynamics of the workforce employed in green or «partially green» professions (greening occupations). According to the definition applied by Onemev, green professions require special skills and are related to the measurement, prevention, control and mitigation of adverse environmental impacts. «Partially green» professions do not have as their immediate goal the protection of nature, but the possession of them presupposes the presence of competencies that contribute to the maintenance of ecological balance.

As a result, nine green professions are officially recognized in France in such industries as waste processing and disposal, energy production, energy and water supply, nature protection, as well as about 70 «partially green» professions. According to this approach, in 2014, 146 thousand people were employed in green professions in the country, and about 3.8 million more people were employed in «partially green» professions (14% of total employment). At the same time, about half of the green jobs were in such sectors as environmental protection (32 %), natural resource management (15 %). At the same time, about 40 % were in sectors not directly related to environmental protection (Skills for green jobs in France..., 2020: 12–13).

In the UK, the term «green skills» was defined in the government report «Skills for a Green Economy» from 2011. They include skills that contribute to resource efficiency, reduce carbon emissions in industrial production, increase resilience to climate change, as well as natural resource management skills (Skills for a green economy..., 2011: 8–11).

In Scotland, the approach to the definition of green skills and green jobs is based on the classification of professions of the recruitment agency O*NET, adopted in the USA.

Scots distinguish three types of green jobs depending on the required level of green skills. Firstly, these are new green professions that arise as a result of unique work requirements that contribute to its greening. Secondly, these are professions, the possession of which requires an increase in the level of proficiency in green skills due to changes in professional requirements. For example, the profession of an architect nowadays involves advanced knowledge in the field of energy-efficient materials used in construction. Thirdly, these are traditional professions, the demand for which is growing in a green economy. An example is the growing demand for the services of installers and repairers of power lines associated with increasing energy efficiency and modernization of energy infrastructure (Skills for green jobs in the United Kingdom..., 2018: 18).

In Spain, green skills and green jobs are not separated into a separate type of employment, but are considered as distributed across different sectors and professions. Many new green professions are thus considered on a par with the traditional ones. At the same time, it is pointed out that the processes of greening traditional professions require the development of additional green skills among workers.

There is no unified approach to the classification of green jobs in Estonia, and there is also no allocation of green skills as separate competencies. As a result, in Estonia, as in Spain, green skills and jobs are viewed as heterogeneously distributed across various sectors of the economy. In general, we can identify a number of industries in which the demand for labor with green skills is formed. This is primarily the energy sector, where new green professions are emerging in the field of renewable electricity (solar, wind) and there is a need to retrain those employed in order to acquire green skills. The spread of green skills is growing in the industries of waste processing and disposal, water treatment, construction, processing industry, agriculture and transport (Skills for green jobs. European…, 2020: 28).

Over the past decade, the development of green employment in Europe has been in line with general trends in the development of socio-economic dynamics. Very rarely have European countries developed special regulations or strategic programs directly related to the dissemination of green skills and green employment. Special programs and legislative changes in this area are usually formed as a response to changes in a particular sector of the economy related to the need to reduce hydrocarbon emissions. (Chatzichristou, 2019).

In the absence of regulated systems for responding to emerging needs for updating the content of labor skills, as a rule, separate retraining or advanced

training programs are being developed for representatives of specific professions who have an urgent need to acquire new green skills. As a result, green skills initiatives are quite fragmented. The activities of European organizations involved in the development of national environmental policy are often poorly linked to the activities of organizations that form policies to support employment and develop work skills. As a result, the mechanisms for predicting the needs for green skills are not isolated from the general mechanisms for predicting labor skills, and the data obtained on the supply and demand of green skills are not comprehensive. The exception is the experience of France, where a special institution Onemev at the national level systematically monitors the dynamics of green employment and the need for green skills.

REFERENCES

Ansoff I. (2020). Strategic Management. – M.: Economics, 2020.

Barrett Stephen (2022). «Organic» Foods: certification does not protect consumers. NutriWatch: Your Guide to Sensible Nutrition, October 2021. Available from: http://www.nutriwatch.org/04Foods/organic.html. June 2022

Bell D. (2019). The coming post-industrial Society. Experience of social forecasting. Translation from English. Ed. 2nd, ispr. and add. - M.: Academia, 2018. 788 p. 15. Chatsikhristu S. Skills for "green" jobs: a growing trend // Skill set and compliance. – Luxembourg: Publishing Office of the European Union, 2019. – N 19. – Pp. 8–9.

Climate Action Indexes Electronic resource https://www.msci.com

Coase, Ronald. The Institutional Structure of Production // The American Economic Review. Vol. 82. № 4. –Pp. 713–719, 2022. (Nobel Prize lecture)

Daly Herman E., Joshua Farley (2022). Ecological Economics: Principles and Applications. Hardcover – November 1, 2022

Di Intelligence. Electronic resource: *https://www.fdiintelligence.com/*

Employment: Commission outlines measures to maximise job opportunities in the green economy / European Commission. – Brussels, 2014. – 02.07. – Mode of access: https://ec.europa.eu/commission/presscorner/detail/en/IP_14_765 (date of application: 08.01.2020).

FiBL & IFOAM (2022). Global organic agriculture statistics. The Organic-World.net homepage, FiBL. Available from: www.organicworld.net/statistics.html. June 2022

Giarini O., Stahel W.R. (2021). The Limits to Certainty: Facing Risks in the New Service Economy. Dordrecht, 2021.

Green economy in action: Articles and excerpts that illustrate green economy and sustainable development efforts / UNDP. – 2019. – 58 p. – Mode of access: https:// www.greengrowthknowledge.org/sites/default/files/downloads/resource/GE_compil ation_report_UNDP.pdf (date of application: 08.01.2020).

Green skills and innovation for inclusive growth / Cedefop; OECD. – Luxembourg: Publications office of the European Union, 2019 of access: https://www.cedefop.europa.eu/files/ 3069_en.pdf (date of application: 08.08.2023).

Lockie Stewart, Lyons Kristen, Lawrence Geoffrey, Mummery Kerry Eating «Green»: motivations behind organic food consumption in Australia. Sociologia ruralis, Vol 42, Number 1, January 2022. –Pp. 23–40

Martinez-Fernandez C., Hinojosa C., Miranda G. Greening jobs and skills: Labour market implications of addressing climate change / OECD Local economic and employment development (LEED). – Paris, 2020. – 69 p. – Mode of access: https:// www.oecd.org/cfe/leed/45484420.pdf (date of application: 08.08.2023).

Meadows, D.H., Meadows, D.L., Randers, J. The Limits of Growth (2021). Observatoire national des emplois et métiers de l'économie verte: Rapport d'activité 2017 / Ministère de la Transition

écologique et solidaire; Commissariat général au Développement durable; Service de la donnée et des études statistiques. – 2018. – 69 p. – Mode of access: https://www.statistiques.developpement-durable.gouv.fr/ sites/default/files/2018-10/document-travail-39-observatoire-national-des-emploiset-metiers-de-l-economie-verte-juin2018.pdf (date of application: 08.08.2023).

Official website of the Yale Center for Environmental Law and Policy. Electronic resource: https://envirocenter.yale.edu / Our World In Data.Электронный ресурс: https://ourworldindata.org/.

Pigou A.C. (2021). The Economics of Welfare, 4th ed., London: Macmillan & Co., 2021. – 183 p.

Schmidt-Bleek F. (2021). Carnoules Declaration of the Factor Ten Club. Wuppertal Institute, 2021.

Skills anticipation in Denmark. Skills Panorama / Cedefop. – 2017. – (Cedefop analytical highlights series; N 4). – Mode of access: https://skillspanorama.cedefop. europa.eu/ en/analytical_highlights/skills-anticipation-denmark (date of application: 08.08.2023).

Skills for green jobs in Spain: an update / Cedefop. – 2022. – 39 p. – Mode of access: http://www.cedefop.europa.eu/files/spain_green_jobs_2018.pdf (date of application: 11.08.2023).

Skills for green jobs in the United Kingdom: an update / Cedefop. – 20122. – 48 p. – Mode of access: http://www.cedefop.europa.eu/files/uk_green_jobs_2022.pdf (date of application: 11.08.2023).

Willer H, and Kilcher L. (2019). The World of Organic Agriculture. Statistics and Emerging Trends 2019. IFOAM, Bonn, and FiBL, Frick. 11. Willer, H. 1. And Klicher, L. (2021): The World of Organic Agriculture. Statistics and Emerging Trends 2021. IFOAM & FiBL 2021

What is a green job? // ILO. – 2019. – 13.04. – Mode of access: https://www.ilo. org/global/topics/green-jobs/news/WCMS_220248/lang--en/index.htm (date of application: 11.01.2020).

Working for a Green Britain & Northern Ireland 2019–23. Employment in the UK Wind & Marine Energy Industries. – London, 2019. – 50 p. – Mode of access: https://cdn.ymaws.com/www.renewableuk.com/resource/resmgr/publications/reports/ working-for-a-greener-britai.pdf (date of application: 12.08.2023).

Zanoli Raffaele, Naspetti Simona, (2022) «Consumer motivations in the purchase of organic food: A means-end approach», British Food Journal, Vol. 104. Iss: 8. –Pp. 643–653.