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The influence of demographics and sustainable “net zero” transition on the demoeconomic quality of life in the implementation of “Demoethics” values

Abstract

Object: The goal of the work is to develop components of demoeconomics based on the value of demoethics that contribute to the achievement of sustainable development goals, which stipulates their consideration in the context of the influence of demographic processes and the transition to “net zero”.

Methods: A systematic approach was applied, aimed at a theoretical analysis of the development of the concept of demoeconomy components based on demoethical values and consideration of their impact on demographic processes and the transition to “net zero”. Theoretical analysis of the literature made it possible to identify promising directions for the components of demoeconomics.

Findings: Based on the value of demoethics, components of the concept of demoeconomics were developed in the context of social cohesion (SC), social responsibility (SR), social justice (SJ), social rationality (SR), social security (SS), which contribute to the achievement of a sustainable transition of a “net zero” and stabilization of demographic processes, increasing the quality of life of the population.

Conclusions: The proposed method, together with the demo-economic components of social cohesion (balance), responsibility (SR), justice (SJ), rationality (SR), security (SS), will allow the formation of a strong and competitive civil society. It is also a tool for resolving contradictions during the transition to sustainable development and ensuring the implementation of the Sustainable Development Goals.

Keywords: sustainable development of society, demoeconomics, social cohesion (balance), social responsibility (SR), social justice (SJ), social rationality (SR), social security (SS), ethical rationality, quality of life.

Introduction

Global warming and climate change are caused by anthropogenic greenhouse gas (GG) emissions resulting from increased energy consumption due to population growth and economic growth. Moreover, migration due to climate change will be one of the defining trends in population movements in the 21st century (Brown, 2017). All five Central Asian countries are experiencing an increase in climate change in the future. At the meeting of the heads of state of Central Asia on September 15, 2023, President Kassym-Jomart Tokayev noted that the volume of water resources of the Aral Sea has decreased by 30 % over the past 50 years. By 2050, droughts in this region could cause damage in the amount of 1.3 % of GDP per year, and this could lead to the appearance of about 5 million “climate” migrants in Central Asia.

The region also faces problems of inefficient use of water and neglect of environmental impacts. According to a World Bank report, after 2050, the pace of internal climate migration may accelerate if countries do not reduce greenhouse gas emissions, and by the thirtieth year of the twenty-first century, climate migration between regions will begin to appear — people will begin to move to countries that are safer in terms of climate conditions (Zhanbayev et al., 2023a).

Rapid growth in production and consumption and the accompanying dramatic environmental degradation are among the most pressing challenges of the sustainable development agenda. Increasing human de-

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mand for economic and social development has led to the (un)conscious consumption of various natural resources well beyond the Earth's biocapacity (Jorgenson et al., 2017). Implicit in this argument are environmental impacts such as global warming, climate change, biodiversity loss, land degradation and pollution. Today, more than 85 % of the world's population lives in a state of environmental overstress. In line with SDG 13 (climate action and peace), efforts must be made to improve regional resilience to the negative impacts of climate change. This requires a large-scale transformation of society and its institutions.

In the quest for a sustainable future, understanding the relationship between demographic change and net zero (climate change) becomes paramount, as demographic shifts directly impact energy consumption patterns and the effectiveness of policies.

Literature review

Kazakhstan, in the face of the global climate crisis, demonstrated its commitment to sustainable development goals by signing the Paris Agreements in August 2016. And in this regard, according to the Strategic Goal Plan of Kazakhstan, adopted by Presidential Decree in February 2023, it is necessary to achieve carbon neutrality by 2060. Achieving this goal could set the country's direction towards a low-carbon future and create a sustainable framework that will guide the country's specific efforts in the coming decades.

In today's modern complex conditions, there is a transformation in the formation of ideology and policies of cohesion, which occurs in various social structures, affects the lives of ordinary residents, various members of society, the social roles of leaders in society and vulnerable segments of the population, this is due to the transformation of the social ideals of modern people. One of the important social issues in society is the degree of "agreement" and "disagreement", which affect the socio-ethnic, socio-cultural, socio-economic and socio-political spheres of life of the population. International experts believe that achieving public harmony requires taking into account and coordinating the interests of various groups and sectors of society, searching for and consolidating social compromises.

The growing gap between rich and poor contributes to the emergence and intensification of social tension (confrontation, etc.). To overcome this situation, measures are recommended to regulate existing differences by maintaining a social balance that does not threaten social cohesion. In our opinion, the basis of social cohesion is achieved on the basis of a compromise of society and the consent of members of society, which helps reduce the level of inequality and prevent social instability.

As a result of the research, we came to the following conclusion: climate change aggravates the social situation in society, which requires transformation of social measures.

Growing climate-related risks are also affecting the ability of countries and institutions to respond adequately to growing needs for social protection. Effective access to social benefits and social security services is critical to reducing the negative social and economic impacts of climate change and environmental degradation. However, climate change and environmental degradation affect countries differently and in most cases require solutions beyond monetary and in-kind measures to alleviate the plight of affected members of society and group of communities.

The authors emphasize that different members of society differ in their vulnerability to disasters and risks associated with climate change, and also note the need to pay attention to social factors such as cohesion, responsibility, justice, rationality and well-being.

Social cohesion. The development stage of the modern economy requires the formation of social cohesion of society, which is already part of the strategic goals of many international organizations, including the United Nations (UN, 2007), the United Nations Children's Fund (UNICEF), the European Commission (CDCS, 2004) and the basis of social politicians.

Moreover, over the past 15–20 years, social cohesion has become a hot topic in global forums, which take place on all continents (Jakobson, 2008). Many countries use it to develop strategies and mechanisms for social justice, social inclusion and trust (Aleshina, 2012).

Today's growing gap in the interests of social institutions in some EU countries determines the fragmentation of society, as well as the tendency of members of society to individualize. Indicators such as social trust show the level of signs of the socio-economic condition of citizens and demographic discrimination of the population, on the basis of which one of the main system indicators of the state of social cohesion is reflected. In practice, such system indicators are studied by developing countries based on the successful practices of Europe (Orlova, 2012).

Existing global challenges such as climate change and the growing "demographic gap" are affecting socio-economic conditions, causing problems such as migration, lack of permanent jobs, deteriorating public

health, poor education and corruption, which contribute to increasing social tensions in society. Solving these problems requires social cohesion among members of society.

In the same context, a group of authors is conducting research. L.V. Alieva, T.G. Khrishkevich, L.V. Antonova, V.A. Dmitriev (Alieva, et al., 2021), exploring "social cohesion". The authors believe that increasing social cohesion will help people adapt to their environment, overcome material and psychological risks in emergency situations, and strengthen future cohesion and resilience.

Social responsibility is the social nature of human behavior. Implemented and appropriate social responsibility systems contribute to the sustainable development of the company, including the health and well-being of society, taking into account the expectations of stakeholders. Actions and decisions taken by business communities, government agencies and individuals should not cause harm to members of society and the environment.

Government bodies bear social responsibility for the provision of quality services in the field of healthcare, education, social security, protection and protection of children's rights, in turn, the business community, based on state policy, supports the social direction of the state and helps improve the quality of life of the population for the purpose of sustainable development of society. In addition, family heads are socially responsible in strengthening and creating conditions for their families, using opportunities to improve the quality of life within the framework of the state's demographic programs.

Responsibility to a human-oriented economy, that is, a demoeconomic quality of life, cannot be only the prerogative of the state; this should be remembered and the business community should actively participate in improving the quality of life when building a socially responsible relationship between members of society in the economy. A decrease in social responsibility on the part of the state and business communities causes discomfort and will contribute to a deterioration in the demoeconomic quality of life.

Social justice. Kamila Olimova believes that social justice includes equality before the law and the protection of people. This also suggests that justice can be seen as a universal human value, since justice, like other "eternal values" such as culture and knowledge, is a natural expression of a healthy society, human life, peace and ethics, responsibility (Olimova, 2020).

In the development of these approaches, according to the United Nations, social justice is seen as the main goal of achieving a fair globalization. Protecting fundamental freedoms and rights, creating employment opportunities and promoting constructive dialogue between government, business and labor are essential to laying the foundation for achieving social justice (UN, 2009). The authors note that ensuring stability within and outside the country is one of the priorities of social justice, which allows for the balanced observance of all human rights and fundamental freedoms.

Moreover, Plato said that justice is a harmonious force that regulates the relationships of people in society (Bhandari, 2018). The state, non-profit organizations, social institutions pursue a policy of social justice. These active economic actors are responsible for developing public policies that address social justice issues, and their effectiveness depends on the degree of public trust in these organizations (Sotsialnaia spravedlivost, 2022).

Kormishkina L.A., Kormishkina Ye.D., Korolyova L.P., Yermakova E.R. believe that there is an inequality of opportunity, regardless of qualifications, labor intensity and entrepreneurial activity, which degrades human dignity and leads to a negative lifestyle, provokes deviant behavior and trust in society and undermines justice. According to the authors, the desire for social justice should contribute to the development of human potential, motivate social and demographic groups both "from below" and "from above" to influence the reaction of politicians, otherwise this development process may slow down and may not be fully useful for further development (Kormishkina et al., 2020).

And further, thinkers of the Renaissance period (E. Rotterdam, M. Montaigne), developing the theory of social justice, note the need for a virtuous leader with knowledge and skills, capable of independently assessing the world around him and the place he occupies in it.

Scientists T. Hobbes, J. Locke and S. Mill consider this problem from the point of view of justice on the part of society and the state, compliance with the requirements of the law by society and the state. Reward for behavior in this society must comply with the legal and moral norms of justice of society and the state (Grigoreva, 2008).

P. Sorokin, T. Parsons, J. Rawls believe that the problem of social justice is solved through a gradual transition to the ethical level. J. Rawls, in his famous work "The Theory of Social Justice", substantiates that social justice is "the virtue of all social institutions".

Indian researcher Thyagarajan Jayaraman notes that the main environmental problem threatening humanity will not be easy if issues of equality and social justice are not taken into account. According to the researcher, it seems natural that the fight against climate change should go in parallel with the strengthening of social justice. By social justice, he means "the existence of a regime or socio-economic order that promotes the valorization, expansion and development of human capabilities" (Jayaraman, 2019).

Social rationality. Rationality is a multidimensional and multifunctional phenomenon that should be studied within the framework of global processes. In modern society, sustainable and unsustainable development of society can be associated with the rationalization of social life, which can create social and cultural changes. The reason for the use of social problem rationality in modern research is its universality in determining the structure of social problems in human and social life.

Social rationality includes the following elements:

– development of effective thinking;

– training in self-criticism and reflection on problematic situations;

– formation of a culture of rational thinking.

Some researchers believe that rationality can be used as an element of expediency, order, logic and proportionality. In sociological science, rationality is associated with social rationality and the theoretical diversity of social life.

Social rationality can be described as follows (Sivirinov, 2003):

1) a set of norms of collective behavior of a particular society to achieve socially significant goals;

2) the effectiveness of cognitive changes in individuals and social groups and the functioning of social systems that arise as a result of social interaction with individuals and social institutions.

In our time, rationality is understood as a method that reveals the truth from different points of view and forecasts, balancing the relationship between social groups and society, necessary for creating internal self-discipline of society.

Experts believe that the level of N_2O in the atmosphere is rising largely due to the inappropriate use of fertilizers and the development of livestock farming. Without reducing N_2O levels, successfully combating climate change may be impossible, scientists fear. Nitric oxide (N_2O) is a gas with a greenhouse gas effect 300 times greater than carbon dioxide (CO_2) and requires careful use of chemical fertilizers, pesticides and fertilizers. In nature, it is constantly released into the atmosphere, but most often during chemical processes it settles and no serious heating of the atmosphere occurs. Nitrogen has been increasingly used in agriculture over the past 100 years, and the introduction of such fertilizers has helped lead to breakthroughs in growing food. The use of nitrogen fertilizers upset the balance of N_2O in the atmosphere, and nature could no longer cope with the growth of the gas. As a result, the growing concentration of N_2O began to produce an increasingly greater greenhouse effect, scientists conclude. An international group of experts found that nitrogen oxide emissions into the atmosphere have increased by 30 % over the past 40 years. This increase in greenhouse gases corresponds to the most negative scenarios of the climate crisis, scientists emphasize. N_2O emissions continue to rise, driven mainly by agricultural development in Brazil, China, India and Africa. In Europe, emissions began to gradually decrease, while in the USA they practically stopped growing (Ponomarenko, 2020).

Segundo Urquiaga, a researcher at the Brazilian Agricultural Research Corporation, notes that one sustainable agricultural practice for managing chemical fertilizers, pesticides and manure is the development of a "green manure method" that helps farmers use resources wisely: it is estimated that the cost of organic fertilizer is only about 1 dollar per kilogram of nitrogen, which could lead to savings of up to $13 billion per year. Thanks to the increased use of green manure, Brazil is successfully implementing decarbonization policies. It also notes that the target of reducing greenhouse gas emissions by 43 % by 2030 will be achieved. Agriculture accounts for about 24 % of global greenhouse gas emissions.

Social security. Researchers emphasize that the state takes a number of legal, political, ideological, economic and organizational measures to protect the vital interests of the family, individual and society from internal and external threats, thereby ensuring social security. In our opinion, social security is considered as a set of measures in the social sphere aimed at protecting the interests of the state and its population, developing the social structure and attitude of members of society, and ensuring social life.

S.A. Chernikova, V.P. Cherdantsev, G.A. Vshivkova consider the concept of social security as the protection of members of society and the state from socio-economic, socio-ecological and socially dangerous acts. At the same time, it should be noted that in order to provide sociological information, it is necessary to determine the minimum level of social security and vulnerability. Timely analysis through monitoring is

necessary to protect the population and prevent internal and external threats and their entry into the zone of social degradation (Chernikova, 2015; Botsiev, 2018).

Ensuring social security and trust in social networks is important for several reasons. Above all, security protects users' personal data and protects them from cyber threats. As practice shows, online social networks study and collect various information regarding the confidential personal data of members of society, for example: daily browsing habits, information about the contact list, which increases the risk of confidential personal information falling into the wrong hands, identity theft and fraud. Implementing strong security measures helps prevent them (Jethava & Rao, 2024).

Pozza and Field (2020) note that food and soil security are among the top priorities for every state. This is, firstly, due to the fact that soil is a "fragile" resource and tends to degrade, which may result in an inability to meet the demand of a rapidly growing population for food and other types of materials that can be obtained from the soil. Secondly, lack of nutrition, due to soil depletion, leads to a loss of food security in the country. This study placed soil safety among the key elements of the SDG. We conclude that the social aspect of sustainable development of the state is becoming increasingly important today (Zhanbayev et al., 2022a).

At this time, despite the current situation in the world, many countries are addressing issues of sustainable development. However, in our opinion, comprehensive research has not been presented in domestic and foreign science. Thus, demoeconomics is a human-oriented economy that transforms demoethical values of "spirituality and morality", "rationality", "responsibility", "justice" and "security" (Zhanbayev et al., 2024) into demoeconomic components such as social cohesion (balance), social responsibility (SR), social justice (SJ), social rationality (SR), social security (SS) in the context of the influence of demography and the sustainable transition of "net zero" on the demo-economic quality of life when introducing the values of "Demoethics".

The authors propose a new tool that needs to be implemented in the unity of components of demoeconomics such as social cohesion (balance), responsibility (SR), justice (SJ), rationality (SR), security (SS) in order to form and develop a competitive and strong civil society.

Methods

The goal of the work is to develop components of demoeconomics based on the value of demoethics, contributing to the achievement of sustainable development goals, which stipulates their consideration in the context of the influence of demographic processes and the transition to "net zero".

Through a literature review and analysis, this study identifies key issues for sustainable development of the demographic component of the economy based on the demoethical model and provides practical recommendations for stakeholders involved in digital transformation.

The conceptual and methodological basis of the study is the article "Demoethical Model of Sustainable Development of Society: A Roadmap towards Digital Transformation" (Zhanbayev et al., 2023b), which presents a new concept of climate change. The proposed study argues that the demoethical basis of sustainability is based on the concept of spirituality as the basis of a new model of social development, which consists in the integration of socio-economic, demographic and environmental components of the modeling processes.

Based on the value of demoethics, components of the concept of demoeconomics were developed in the context of social cohesion (balance), social responsibility (SR), social justice (SJ), social rationality (SR), social security (SS), which contribute to the achievement of a sustainable transition to "net zero" and stabilization of demographic processes, increasing the quality of life of the population.

The proposed method, together with the demo-economic components of social cohesion (balance) (SC), responsibility (SR), justice (SJ), rationality (SR), security (SS), will allow the formation of a strong and competitive civil society. Because it is a tool for resolving contradictions during the transition to sustainable development and ensuring the implementation of the Sustainable Development Goals.

Results

According to statistics as of April 1,20,095,963 people lived in Kazakhstan. Since the beginning of the year, the number of Kazakhstanis has increased by 62,121 people, in one month — by 20,692 people. The most densely populated regions of Kazakhstan continue to be the city of Almaty (2,236,751 people), Turkestan (2,143,693 people) and Almaty (1,534,521 people) regions. As of April 1, 1,440,821 and 1,226,931 people lived in Astana and Shymkent, respectively. Regions with a population of over a million are also Zhambyl (1,222,702 people) and Karaganda (1,135,142 people) regions.

The majority of Kazakhstanis (12,482,103 people) lived in cities. The village residents were 7,582,800 people. Remind you that in March, according to statistical data, 20,075,271 people lived in Kazakhstan.

Table 1. Total population of the regions of Kazakhstan (January 1, 2024 — April 1, 2024), people

	Number at the beginning of 2024	Total population growth	Including		Headcount as of April 1, 2024	For the billing period	
			natural increase	migration balance		growth rate, percent	average number
population of the region of Kazakhstan							
The Republic of Kazakhstan	20 033 842	62 121	58 435	3 686	20 095 963	0.31	20 064 903
Abay	607 589	-1 062	972	-2 034	606 527	-0.17	607 058
Akmola	787 976	542	695	-153	788 518	0.07	788 247
Aktobe	939 405	2 360	3 095	-735	941 765	0.25	940 585
Almaty	1 531 167	6 707	5 811	896	1 537 874	0.44	1 534 521
Atyrau	704 074	2 637	3 063	-426	706 711	0.37	705 393
West Kazakhstan	693 261	820	1 406	-586	694 081	0.12	693 671
Zhambyl	1 222 593	218	4 213	-3 995	1 222 811	0.02	1 222 702
Zhetisu	697 987	-1 011	1 885	-2 896	696 976	-0.14	697 482
Karaganda	1 135 351	-419	1 063	-1 482	1 134 932	-0.04	1 135 142
Kostanay	829 984	-1 199	160	-1 359	828 785	-0.14	829 385
Kyzylorda	841 929	1 454	3 670	-2 216	843 383	0.17	842 656
Mangystau	786 837	4 526	4 036	490	791 363	0.58	789 100
Pavlodar	753 933	-449	416	-865	753 484	-0.06	753 709
North Kazakhstan	530 089	-2 609	-319	-2 290	527 480	-0.49	528 785
Turkestan	2 142 172	3 041	10 633	-7 592	2 145 213	0.14	2 143 693
Ulytau	221 582	-51	573	-624	221 531	-0.02	221 557
East Kazakhstan	727 053	-669	-44	-625	726 384	-0.09	726 719
Astana city	1 430 117	21 408	5 509	15 899	1 451 525	1.50	1 440 821
Almaty city	2 228 677	16 147	5 527	10 620	2 244 824	0.72	2 236 751
Shymkent city	1 222 066	9 730	6 071	3 659	1 231 796	0.80	1 226 931

Note — compiled by the authors based on static data from the Bureau of National Statistics of the Agency for Strategic Planning and Reforms of the Republic of Kazakhstan (Bureau of national statistics agency..., 2024).

Currently, more than half of the world's population lives in cities around the world, and the urbanization rate of the population has reached 56.20 % and is expected to reach 60.40 % by 2030. The population urbanization rate reached 51.10 % in Asia in 2020. At the same time, the level of urbanization of the population exceeded 60.00 % in 93 countries. In the next 10 years, the world will be dominated by urbanization. However, in highly urbanized countries in Europe and America, population growth rates will continue to slow. About 96.00 % of urban growth will occur in the less developed regions of East Asia, South Asia and Africa. According to the 2011 World Urbanization Prospects Review, Africa's urban population will increase to more than 1.20 billion people by 2050, while in Asia it will grow to 3.30 billion people. Among them, urban population growth will be 35.00 % in countries such as India, China and Nigeria between 2018 and 2050 (Wang et al., 2024).

The effects of climate change will affect demographic rates of fertility, migration, population size, height, age, gender and geographical distribution of the population. Climate change increases the socioeconomic and socioenvironmental determinants of health (clean air, clean water, sanitation, good nutrition and safe housing), affecting nutrition and sexual and reproductive health.

As many countries around the world are currently experiencing rapid and profound demographic changes, exemplified by population decline and/or aging (Jarzebski et al., 2021), it has become critical to understand how these changes will affect the prevalence of households with different characteristics that, essentially dictate different profiles of energy use and emissions, as well as different propensities to adopt mitigation strategies.

However, since the Paris Accords there have been persistent calls for effective plans to reduce emissions. There are increasing efforts to promote the adoption of green technologies and the transition to low-carbon lifestyles (Shigetomi et al., 2021; Koide et al., 2021), especially in the household sector (Mi et al., 2020; Koide et al., 2019). Since most energy resources are actually consumed in the household sector, they are responsible for the corresponding increase in greenhouse gas emissions. The share of energy consump-

tion by households can be seen using the example of the USA and Japan in terms of total greenhouse gas emissions:

1. The share in the USA accounts is for about 80 %;

2. Japan accounts — for more than 60 %.

Therefore, reducing greenhouse gas emissions requires implementing “net zero” policies.

Stability of the “net zero” transition

UN Secretary-General Antonio Guterres stresses that any commitment to achieving net-zero emissions must be translated into an ongoing global movement.

Net zero emissions means reducing greenhouse gas emissions as close to zero as possible, with the remaining emissions being absorbed into the atmosphere.

As quality of life declines due to climate change, the world is changing rapidly and often unpredictable. For this reason, it should be noted that no country can achieve economic sustainability without finding solutions to social and environmental problems.

Central Asia is located in Central Eurasia and includes five countries: the Republic of Kazakhstan, the Kyrgyz Republic, the Republic of Tadzhikistan, the Republic of Turkmenistan and the Republic of Uzbekistan, with a population of over 76 million people. Temperatures are rising unevenly across regions (Table 2).

Table 2. State of temperature rise (^{0}C) in Central Asia for the period from 1976–2021

Central Asian countries	Year	Winter	Spring	Summer	Autumn
Kazakhstan	0.32	0.19*	0.65	0.22	0.22*
Kyrgyzstan	0.23	0.25*	0.46	0.12*	0.08*
Tadzhikistan	0.17	0.16*	0.30	0.03*	0.07*
Turkmenistan	0.37	0.47	0.48	0.38	0.20*
Uzbekistan	0.33	0.32*	0.55	0.31	0.16*
Note – developed by the authors					

According to the UN Development Program, the average temperature in Central Asia has increased by 0.5 degrees Celsius over the past three decades. According to forecasters, by 2085 the temperature will increase by 2.0–5.7 degrees. The greenhouse effect threatens agriculture, healthcare, transport, nature and water use.

According to international experts, today the share of anthropogenic greenhouse gas emissions consists of energy emissions, which amount to more than 75 % (Cabrita, 2023). The energy sector must therefore reduce carbon emissions to support climate change mitigation efforts across the energy supply chain. All sectors and end users need to consider circularity issues to make more efficient use of energy consumption and associated resources, reduce energy demand and accelerate the energy transition (Ritchie, 2020). Thus, it is clear that reducing greenhouse gas emissions plays an important role in curbing current climate change trends (UN-OHCHR, 2023). This strongly suggests that emissions must be halved by 2030 and net emissions reduced to zero by 2050 to avoid the worst impacts of climate change. To this end, we must end our dependence on fossil fuels and invest in clean, cheap, sustainable and reliable alternative energy sources. Energy is necessary to maintain and improve quality of life. Based on the above scientific evidence, we believe that in the near future, due to sustainable economic growth that improves the quality of life of the population, the demand for the use of non-renewable fossil fuels may increase, resulting in increased environmental impacts. As technology advances, the energy efficiency of renewable energy sources such as wind, solar and nuclear power can help reduce emissions. To prevent climate change, more electricity needs to be produced from renewable energy sources such as wind power.

The global clean energy transition is expected to increase by 17 % ($1.8 trillion) in 2023, according to a report released Jan. 30 by Bloomberg New Energy Finance. This is a record level, but not enough to achieve zero emissions.

These costs include:

1) Investments in renewable energy systems (RES),

2) Purchase of electric vehicles,

3) Creation of hydrogen production capacities and introduction of other technologies.

China remains the largest market, spending $67.6 billion last year.

However, compared to 2022, this growth rate is only 6 %. Investments in the US, UK and Europe rose by at least 22 % to $718 billion.

Global spending on electric vehicles increased by 36 % ($634 billion). The largest investments have been made in this area. While renewable energy investment increased by 8 % ($623 billion), grid investment increased by $310 billion. Some new technologies are developing at a rapid pace. For example, investment in the hydrogen industry has tripled to $10.4 billion. This shows that interest in technology is growing.

The increase in spending reflects the growing urgency of international efforts to combat climate change. The last nine years, from 2015 to 2023, were the hottest on record, according to the World Meteorological Organization (WMO). The record for the highest temperature is expected to be broken in 2024. The opportunities are huge and the costs are rising, but more needs to be done, stresses Albert Chung, deputy CEO of BloombergNEF. He predicts the world will need to increase investment by 170 % to achieve net-zero carbon emissions. Consequently, the world will need to invest more than twice as much in clean technologies to achieve net-zero emissions by mid-century, as confirmed by Bloomberg New Energy Finance.

Recognizing that energy is an important element of sustainable development of society, humanity should strive to develop by minimizing the impact of human activities on human health and the environment, while simultaneously improving the quality of life. Our goal is to develop energy supply methods that provide the best guarantees and improve the quality of life. The article highlights the possible achievement of a demoeconomic quality of life for all members of society.

World Development Report notes that education is critical to human well-being, especially in the context of economic and social transformation (World Development Report, 2018). Muhammad Wasif Zafar, Syed Anees Haider Zaidi, Naveed R. Khan, Faisal Mehmood Mirza, Fujun Hou, Syed Ali Ashiq Kirmani believe that human capital contributes to expanding the ability of countries to use renewable energy sources and other environmental technologies in the industrial, household and transport sectors (Zafar et al., 2019; Ahmed et al., 2020). Langnel, Z., Amegavi, G.B., Donkor, P., Mensah, J.K. note that improving the quality of human capital strengthens a society's ability to reduce emissions through improved energy efficiency, and protects and improves overall environmental quality. Improving it not only promotes energy security and efficiency, but also has positive spillover effects such as environmental compliance, reduced inequality, and reduced crime rates (Langnel et al., 2021). The authors point out that with population growth and an improvement in the quality of life, humanity will need more energy to power homes and cars. Therefore, to successfully combat climate change, we must source energy from operators that do not emit carbon into the atmosphere.

Creativity, new technologies and innovation can help increase energy production and make it more environmentally friendly.

SDG 12, the Sustainable Development Goals, explicitly mentions ensuring “sustainable consumption and production patterns”. All over the world, people are increasingly concerned about globalization, industrialization, global population growth and the rapid exploitation of natural resources.

Consumers around the world are now beginning to show interest in products that produce less waste, are recyclable after use, and are made in an environmentally friendly manner. Consumer behavior is key as ideas of sustainability and green consumption become increasingly popular as environmental concerns grow (Dikici et al., 2022).

As Dolan (2002) notes, an important issue facing humanity today is its sustainable development and how sustainable consumption will mitigate negative impacts on the environment.

Human behavior and actions play an important role in protecting the environment. Consumers are encouraged to change their lifestyle and consumption habits to more environmentally friendly alternatives. We believe that every member of society has a responsibility to protect and preserve the environment. When choosing to support the green transition policy, preference is given to purchasing environmentally friendly products (Zhanbayev et al., 2023).

The value of green consumption means that a person's purchasing and consumption habits can show that they value the environment. Green consumer values indicate a preference for consuming those products that are environmentally friendly and sustainable. The ideals associated with green consumerism strongly influence the purchasing habits of green consumers. Consumers who value organic products believe that consuming them will not harm the environment. Recent studies have shown that green consumer values mediate consumer attitudes and environmental behavior. In addition, the relationship between green consumer behavior and green consumer values may be mediated by green purchase intention. However, it should be noted that consumer attitudes towards environmentally friendly products are a subjective concept and therefore may vary depending on the product. Sustainable products are those that can be recycled and benefit both society and the environment (Zhanbayev et al., 2023).

Discussions

Ensuring a sustainable population transition to net zero and stable demographic development requires innovative, creative solutions focused on the effective implementation of technologies and policies that meet the needs of global change.

The sustainable transition of population to net zero and the stable development of demographic processes must be based on demoeconomic components and serve as a theoretical basis for the multiplier effect in achieving the sustainable development goals.

Demoeconomic quality of life

The authors emphasize that the concepts of sustainability and socio-economic stability have the same fundamental basis. Many socio-economic processes influence sustainable development. The article emphasizes that the quality of life, including environmental issues, is not only closely interconnected, but also represents the basis of socio-economic development and a priority that ensures sustainable development. It is also worth noting that social stability can be viewed from different perspectives. Social factors play an important role in the sustainable development of society. With the increase in the number of destroyers, the social situation will develop negatively, and a social boom will occur. All these instabilities will slow down the process of development of social equilibrium.

Kazakhstan's National Economic Development Plan successfully measures improvements in the population's quality of life, the country's socio-economic growth and environmental sustainability. In 2023, Kazakhstan achieved SDGs in terms of Country dynamics, 66th place. However, Kazakhstan still lags behind the CIS countries (Belarus — 34, Kyrgyzstan — 45, Azerbaijan — 53, Russia — 49) (Sachs et al., 2023).

In 2015, the United Nations adopted the Sustainable Development Goals and established them as a key paradigm for global development. Kazakhstan also took part in the global process of achieving sustainable development. The concept of sustainability is focused on developing economic growth while respecting environmental principles and values (Zhanbayev et al., 2022a). It should be noted that at all times, humanity has addressed issues of social well-being and economic development. Solving these problems is relevant given the modern challenges of ensuring global sustainability. From our position, the solution involves the use of completely new approaches, in particular (Zhanbayev et al., 2022b), we have made attempts to consider the quality of life in the context of demoeconomics along with its components. This is due to the fact that demo-economic quality of life is considered when human activity corresponds to a balanced quality of life and the Sustainable Development Goals of the modern economy. Sustainable development is designed to meet the needs of people without harming nature and is possible only if the five main components of the "Demoeconomy" are in balance. These are social cohesion (balance), social responsibility, social justice, social rationality, social security and environmental balance. The objectives of the "Demoeconomic Quality of Life" are to collect them together, smoothing out all the contradictions. Therefore, the success of sustainable development depends on how comprehensive and effective the transformation of the following five main components of the "Demoeconomy" will be:

social cohesion (balance), an indicator necessary for social transformation, overcoming and eliminating the destructive socio-economic aspects of society, through which it is possible to realize demoethical values and achieve sustainable development goals. The concept of sustainable social cohesion is the development of social and cultural integrations that support the transformation of values and principles for the equal enjoyment of fundamental social rights by society. From a strategic perspective, the main goal of social cohesion is to ensure that all citizens and individuals in society have the opportunity to meet their basic needs, develop, protect themselves and enjoy their legal rights, and gain dignity and social trust. In addition, society must collectively combat all forms of discrimination and inequality within the framework of existing laws. The authors believe that social cohesion is understood primarily as the ability of society to ensure the improvement and development of the spiritual and moral qualities of members of society and its well-being, to minimize inequality and prevent polarization;

social responsibility is a type of relationship between an individual and society, the state, the team, other social groups and everyone who surrounds him. The sustainability of government demographic programs aimed at stimulating the birth rate, ensuring a reduction in mortality and increasing the life expectancy of the population depends on the level of quality actions or decisions in the implementation of the social responsibility of the authorities and the business community, contributing to the improvement of the demoeconomic quality of life;

social justice is the value of social policy, which should be implemented on the basis of ethical rational decisions of virtuous leaders (heads of government agencies, business circles and heads of families) to ensure an effective balance between the implementation of institutional decrees and socio-economic realities;

social rationality is an indicator of the cost-effective use of natural and human resources to improve the quality of life of the population and the competitiveness of the region. The problems of climate change and demographic processes on a global scale must be made on the basis of ethical, rational decisions focused on transforming human resources to overcome climate change and achieve the Sustainable Development Goals;

social security is the creation of a safe and healthy environment that promotes the adoption of effective demographic measures to maintain reproductive health from the point of view of public health and its impact on the health of offspring. In the transition to net zero, it is critical to ensure safe production, food safety, labor safety, process safety, biosafety and chemical safety, which directly impact demographics and the environment. At the same time, human behavior and actions play an important role in protecting the environment and ensuring balanced demographic changes. The behavior of producers and consumers is of paramount importance as the ideas of sustainable development and environmentally friendly clean consumption become increasingly popular as environmental problems develop and require mitigation of negative environmental impacts.

Conclusions

Demoeconomic components improve the quality of life of the population and are aimed at increasing the effectiveness of population adaptation to climate change, which can mitigate global problems. Moreover, the integration of the five main indicators of demoeconomics is the driving force and transformation of increasing the demoeconomic quality of life and improving the conditions of demographic processes and the sustainable transition of "net zero" based on the introduction of the values of "Demoethics", such as "spirituality and morality", "rationality", "responsibility", "justice" and "security" contribute to the effective provision of balance in the five main components of the "Demoeconomy".

These are: social cohesion (balance); social responsibility; social justice; social rationality; social security. The components of Demoeconomics are used to maintain a balance between the socio-economic and socio-ecological needs of society, the manifestation of morality, sustainability and competitiveness of society in all situations. This approach is intended to form the basis of scientific research and decision-making frameworks for defining sustainable economic development. We are talking about achieving the ultimate goal of social sustainability and sustainable development of society (Zhanbayev et al., 2022b).

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«Демоэтика» құндылықтарын енгізілгенде демография мен «таза нөлдің» тұрақты ауысуының демоэкономикалық өмір сапасына әсері

Аңдатпа:

Мақсаты: Тұрақты даму мақсаттарына қол жеткізуге ықпал ететін демоэтиканың құндылығы негізінде демоэкономика компоненттерін әзірлеу, яғни бұл оларды демографиялық процестердің әсері контексінде қарастыруға және «таза нөлге» көшуге әкеледі.

Әдісі: Демоэкономиканың демоэтикалық құндылықтарға негізделген компоненттерінің тұжырымдамасын әзірлеуде теориялық талдауға және олардың демографиялық процестерге әсерін қарастыруға және «таза нөлге» көшуге бағытталған жүйелік тәсіл қолданылды. Әдебиеттерді теориялық талдау демоэкономика компоненттерінің перспективалық бағыттарын анықтауға мүмкіндік берді.

Қорытынды: Демоэтиканың құндылығына сүйене отырып, «таза нөлдің» тұрақты ауысуына қол жеткізуге және халықтың өмір сүру сапасын арттыра отырып, демографиялық процестерді тұрақтандыруға ықпал ететін әлеуметтік бірлік (тепе-теңдік), әлеуметтік жауапкершілік (ӘЖ), әлеуметтік әділеттілік (ӘӘ), әлеуметтік ұтымдылық (ӘҰ), әлеуметтік қауіпсіздік (ӘҚ) контексінде демоэкономика тұжырымдамасының компоненттері әзірленді.

Тұжырымдама: Ұсынылған әдіс әлеуметтік бірліктің (ӘБ), әлеуметтік жауапкершіліктің (ӘЖ), әлеуметтік әділеттіліктің (ӘӘ), әлеуметтік ұтымдылықтың (ӘҰ), әлеуметтік қауіпсіздіктің (ӘҚ) демоэкономикалық компоненттерімен бірге күшті және бәсекеге қабілетті азаматтық қоғамды қалыптастыруға мүмкіндік береді. Сондай-ақ, Тұрақты дамуға көшу кезіндегі қайшылықтарды реттеу және тұрақты даму мақсаттарының орындалуын қамтамасыз ету құралы болып саналады.

Кілт сөздер: қоғамның тұрақты дамуы, демоэкономика, әлеуметтік бірлік (тепе-теңдік), әлеуметтік жауапкершілік (ӘЖ), әлеуметтік әділеттілік (ӘӘ), әлеуметтік ұтымдылық (ӘҰ), әлеуметтік қауіпсіздік (ӘҚ), этикалық ұтымдылық, өмір сапасы.

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Влияние демографии и устойчивого перехода «чистого нуля» на демоэкономическое качество жизни при внедрении ценностей демоэтики

Аннотация:

Цель: Разработка компонентов демоэкономики на основе ценности демоэтики, способствующей достижению целей устойчивого развития, что обусловливает рассмотрение их в контексте влияния демографических процессов и переход к «чистому нулю».

Методы: Применен системный подход, направленный на теоретический анализ разработки концепции компонентов демоэкономики, основанный на демоэтических ценностях, и рассмотрено их влияние на демографические процессы и переход к «чистому нулю». Теоретический анализ литературы позволил определить перспективные направления компонентов демоэкономики.

Результаты: На основе ценности демоэтики были разработаны компоненты концепции демоэкономики в контексте социальной сплочённости, социальной ответственности, социальной справедливости, социальной рациональности, социальной безопасности, которые способствуют достижению устойчивого перехода «чистого нуля» и стабилизации демографических процессов, повышая качество жизни населения.

Выводы: Предлагаемый метод в совокупности с демоэкономическими компонентами социальной сплоченности, ответственности, справедливости, рациональности, безопасности будет способствовать формированию сильного и конкурентоспособного гражданского общества. Также он является инструментом урегулирования противоречий при переходе к устойчивому развитию и обеспечению выполнения Целей устойчивого развития.

Ключевые слова: устойчивое развитие общества, демоэкономика, социальная сплочённость, социальная ответственность, социальная справедливость, социальная рациональность, социальная безопасность, этическая рациональность, качество жизни.

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