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Demoeconomics: the interconnection of water resources and demoethical values

Abstract

Object: Application of conceptual analysis within the framework of the concept of demoeconomics to study the relationship of water resources with the values of “Demoethics” as a tool for society sustainable development.

Methods: This work uses a systematic approach to research, which includes a wide variety of techniques, such as the method of logical synthesis, goal setting, goal decomposition, etc.

Findings: The implementation of the demoeconomics concept, based on the demoethics values in the context of “spirituality and morality”, “rationality”, “responsibility”, “justice” and “security” contributes to the effective provision of rational use of water resources and basic needs of the population. The results of the Concept are aimed at achieving ethical rationality. Harmonizing with the Sustainable Development Goals (SDG), they not only promote economic growth and meet the needs of society, but also create the preconditions for reducing socio-economic inequality, increasing economic responsibility and respect for cultural and spiritual values.

Conclusions: The sustainability of ethical rationality requires the transformation of the values of members of society when using natural resources based on the concept of demo-economics, based on the values of demo-ethics in the context of “spirituality and morality”, “responsibility”, “justice”, “rationality” and “security”, which can provide a balance between economic, social and environmental needs of humanity, to the manifestation of moral behavior in any life situation, contributing to the sustainability of the quality of life of members of society and the competitiveness of the region.

Keywords: sustainable development goals (SDG), sustainable development of society, water resources, demoeconomics, demoethical values, “spirituality and morality”, “responsibility”, “justice”, “rationality”, “security”, ethical rationality, quality of life.

Introduction

Water is of paramount importance for the sustainable realization of social and economic development, including energy and food production, healthy ecosystems and harmonious human development, as a link between the environment and society.

The problem of changes in the water cycle requires scientific justification because there is uncertainty in the management and use of water resources (Milly et al, 2008; Sedláček & Knutti, 2014), developing and developed countries, cultural, social, political and ongoing technological changes (Swyngedouw, 2009; Linton & Budds, 2014; Schmidt, 2014).

Currently, the United Nations identifies problems of water resource consumption (Water, 2023):

- more than 70% of fresh water is used in agriculture;
- reuse of wastewater not treated to acceptable standards, about 80%;
- increase in child mortality associated with poor quality of drinking water (297,000 people);
- a significant part of the planet’s population is not provided with the necessary volumes of water resources (more than 2 billion people);
- about 2 billion people in the world use health care facilities that experience problems with water supply.

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Currently, issues of water use are becoming increasingly relevant, requiring solutions not only at the level of individual states that are not provided with water resources, but also at the UN. One such answer to solving emerging issues is the use of demoethics values. The research proposed in this article is based on information that was presented at the 14th International Exergy and Environment Symposium (IEEEES) conference. In which premises were presented about the interaction between demoethical values and energy resources (Zhanbayev et al., 2024).

Literature Review

According to studies conducted in the countries of Central Asia (Vinokurov et al, 2022; Vinokurov et al., 2023) temperatures are rising faster in the Central Asian region than on average on the planet. This negative effect leads to problems such as the reduction of glaciers, which are the basis for the flow of water into the Aral Sea. By 2050, droughts in this region could cause damage in the amount of 1.3% of GDP per year for countries in this region. Moreover, this process could lead to the emergence of about 5 million “climate” migrants in Central Asia (Zhanbayev et al., 2023b). This region also faces problems of inefficient use of water in agriculture, industry, and the environmental consequences of inefficient use.

One of the main problems of the region is the sharp drying of the Aral Sea (Vinokurov et al., 2023). This problem in Central Asia leads to global anthropogenic causes of climate change.

Scientists (Alibekov & Alibekova, 2007; Vinokurov et al., 2023) believe that the exposure of the bottom leads to the appearance of a fairly large area containing harmful substances (pesticides, salts, etc.) that are harmful to humans and the environment. In addition, the melting of snow cover and glaciers is considered to be one of the main factors influencing climate change in the region (including the increase in desert areas) (Zhanbayev et al., 2023b).

The volume of glaciers in Central Asia has decreased by 30% over the past 50 years (Vinokurov et al, 2022). Over the past 60 years, up to 30% of the glaciers in the Pamirs and Tien Shan have melted, and the average rate of glacier melting ranges from 0.2 to 1% per year (Diebold, 2014).

Thus, based on these data, it should be noted that there is an increase in anthropogenic load as a result of extensive environmental management, as well as the emergence of various socio-ecological problems. The President of the Republic of Kazakhstan considers it necessary to create a water policy aimed at the rational use of water resources, on which the well-being and sustainable development of the region depends (Zhanbayev et al., 2023b). The behavior and actions of society members play an important role in the use of water resources and conservation of the environment.

By adopting ethical practices and behavior, we can contribute to water conservation and promote its sustainable use. Water conservation ethics involves making conscious decisions that prioritize responsible consumption of this precious resource.

In recent decades, the world has seen a growing recognition of the ethical implications of our actions on the environment. This has led to the application of ethical standards in government policies as well as in the practice of human behavior towards more sustainable practices. By adopting an ethical approach to water conservation, we can address the challenges associated with increasing water scarcity in the world.

In recent decades, ethical research of an applied nature has become increasingly relevant, which requires a normative and philosophical view to interpret phenomena, in the context of the medical field (Fengqing, 2016; Plöckinger & Auga, 2022), education (Shutaleva et al., 2020) existence information in the media space (Wang, 2020; Podara et al., 2022), political field (Nicholson, 1985; Loginov, 2019), environmental protection (Li et al., 2022; Xu et al., 2022). Also, other studies are conducted in the direction of the influence of ethical leadership on employees' intention to leave the organization (Athanasiadou et al., 2023), the impact of technology on ethics (Shakib & Layton, 2014). We believe that without ethical foundations and principles it is impossible to ensure the sustainability of society. However, when studying the scientific works carried out to date, no studies were identified on the relationship between water resources and demoethics values.

In this study, we will take a deeper look at the concept of demoethical principles, presenting them as fundamental components of people-centered ethics.

The values of demoethics combine the fundamental principles of democracy and ethics to create an integrated ethical framework.

Democracy is now characterized by the principles of equality, freedom and political participation. Ethics is a set of moral principles that define the “right” and “wrong” behavior of a person and his interaction with the environment in accordance with the cultural and ethnic characteristics of a country or region. Com-

binning them, demoethical principles and values put people at the forefront, ensuring collective ethical decision-making, individual autonomy and social harmony.

A demoethical approach to water conservation recognizes people as stewards of the environment and emphasizes that human life and well-being depend on the stability of ecosystems. This means making decisions that will take into account not only the interests of those living today, but also the needs of future generations. These decisions should be aimed at preserving and supporting all ecosystems associated with water resources.

One of the important democratic values aimed at preserving water resources is justice, that is, ensuring equal access to fresh water for all people, regardless of their socio-economic status.

In addition to the value of justice, it is necessary to note the principle of sustainability, which is aimed at caring for water resources and preserving the ecosystems that ensure their availability for long-term use by both our generation and the next.

The value of demoethics “responsibility” involves raising the level of awareness among members of society about the importance and value of water resources, as well as the consequences of their irresponsible use. In this way, we can influence the behavior of members of society and instill in them a sense of responsibility towards water resources.

As a result of applying this concept, SDG 6 will be achieved.

Based on the above, it is necessary to note the importance of the interdisciplinary approach in this study, which considers, within the framework of the concept of demoeconomics, the relationship between water resources and the values of demoethics, and explains how their interaction provides more effective solutions to complex sustainability problems, noting the importance of human behavior and actions playing a key role, role in environmental protection, including the use of water resources.

Methods

Currently, the problem of providing water to agriculture and other sectors of the economy is growing. It is also becoming problematic to provide clean drinking water to the population due to the growing population of the planet. We can consider the solution to this problem in the context of the use of integrated tools of demoeconomics based on demoethical values. Examining the Sustainable Development Goals (SDG), in particular SDG 13 (issues related to climate action and its impacts), SDG 6 (issues related to access to water and sanitation), SDG 7 (issues access to clean and affordable energy), SDG 3 (healthy lives and well-being), SDG 11 (resilient cities and human settlements that are inclusive and safe), We have outlined our recommendations and suggested some strategies that are applicable to defining the relationship between water resources and demo-ethical issues of sustainable development. Essential points of the recommendations are aimed at increasing the parties' interest in the results of decision-making processes.

Results

To achieve SDG 3 (healthy lifestyles and promote well-being), SDG 6 (ensure access to fresh water and decent sanitation for all), SDG 13 (climate change), SDG 7 (clean and affordable energy), SDG 11 (to make cities and human settlements inclusive, safe, resilient and sustainable) measures are proposed to develop the demoeconomy component based on demoethical values.

When introducing into society and observing the principles of demoeconomics based on demoethical values, the implementation of the interconnections of the “water-food-energy-ecosystems” and “water-soil-waste” systems will contribute to the correlation of various sectors of the economy, which, in turn, would make it possible to achieve consistency in the efficient use of resources. In addition, we note the increasing importance of the role of the environmental situation on the quality of life (Fig.).

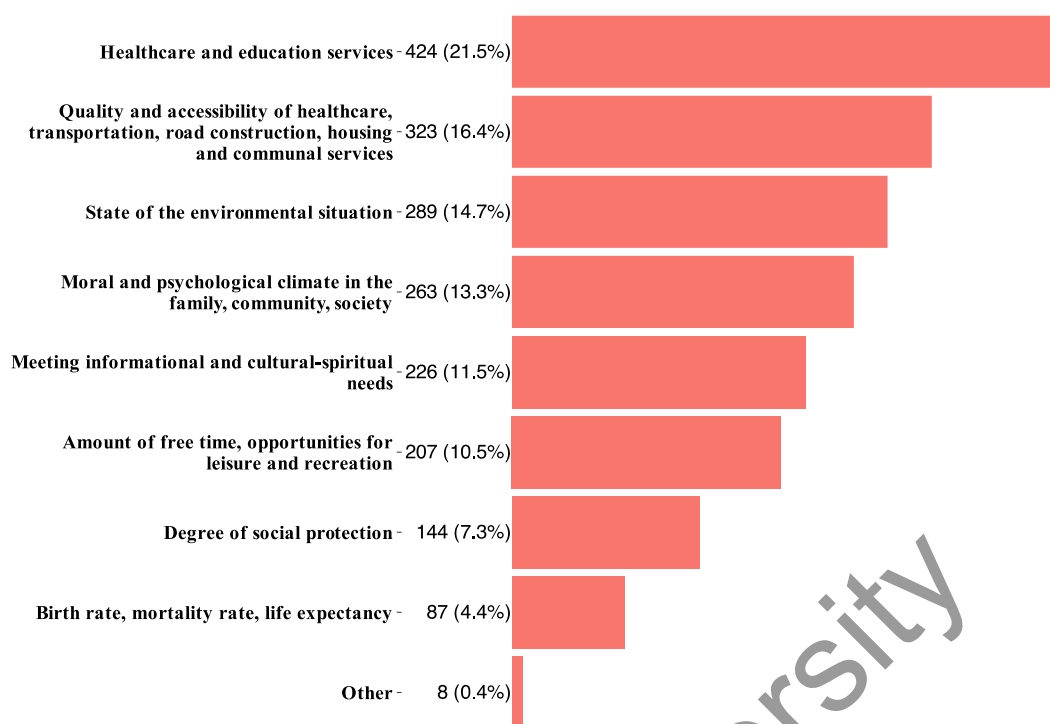


Figure. What factors of the quality of life of the population should the state pay attention to? (Kazakhstan)

Note – compiled by the authors

According to Figure shown here, it can be noted that the key factors in the quality of life of the population are: health care and education services — 21.51%; quality and accessibility of medicine, transport, road construction, housing and communal services — 16.39%; state of the environmental situation — 14.66%; moral and psychological climate in the family, team, society — 13.34%, satisfaction of informational and cultural-spiritual needs — 11.47%. More in-depth research on these indicators will be presented step by step in our next empirical studies. The proposed study examines indicators that reflect the ever-increasing importance of socio-ethical issues and the level of environmental conditions for improving the quality of life. Moreover, the rational and careful use of water is currently one of the most important problems, the solution of which requires the interaction of all inhabitants of the Earth, since water is the most important element of sustainable development.

This paper examines the need and possibility of discussing problems associated with environmental degradation due to resource depletion, on the one hand, and increased consumption, on the other hand. The desire of many countries to move towards a cleaner environment to ensure sustainable economic growth is also taken into account. For these purposes, the study applies the concept of demoeconomics, based on demoeethical values.

It should be noted that, from our point of view, the main goal of sustainable development is to achieve a balanced development of technological and ethical rationalities in society, which will be aimed at increasing the economic and environmental competitiveness of a region or country and improving the quality of life of the population.

The proposed concept of the principles and values of demoeconomics will allow each member of society to adapt to a variety of possible negative consequences that arise in the conditions of the “emerging” climate reality, which is emerging at the current time and affects issues of sustainable development of states. The use of stabilization tools will allow influencing this process in order to level out possible unfavorable scenarios for the development of the situation.

The approach of the concept of demoeconomics values to the issue of forming a virtuous person, a person — the ruler of the city through such concepts as “security”, “rationality”, “spirituality”, “responsibility”, “morality”, will allow finding a balance between various human needs (economic, social and environmental), as well as to shape his moral behavior in any life situation.

It is worth noting the need to prepare citizens for possible negative events and consequences through such qualities of demoethics as honest work, education, knowledge. As a result of this, the synthesis of education, upbringing, a developed mind, the acquisition of knowledge, scientific principles and honest work will play a special role in the process of sustainable development, including in the issue of careful management of water resources.

Prospects for Dmoeconomics based on Demoethical Values

As some researchers note (Frederiks et al., 2015), in order to understand and determine the demand on the part of each individual, environmental behavior, attitudes towards water and energy consumption should be highlighted. This approach takes into account the freedom of choice of a person who is most dependent on himself.

The norm activation model proposed by others (Abrahamse & Steg, 2009) considers the important element of people's conformity to social norms, aspects of freedom of choice and personal responsibility for decision making.

One of the relevant aspects of this study is the fact that research is increasingly recognizing the gap between attitudes and behavior in environmental decision making (Russell & Fielding, 2010). However, the rational choice model we are developing has an impact on policy and economic aspects in ecology. This point of view is associated with the information deficit model. Its main idea is that to make rational choices, people need information that would allow them to make the right decision. The proposed approach is important because it allows us to identify the forward movement of a person aimed at changing behavior, examine the routine and traditions of resource use (Browne et al., 2013), and also take into account the “rebound effect” (Herring, 2006). For example, if a person is motivated to take environmental action by values rather than money, the rebound effect may be smaller (Kaklamanou et al., 2015).

To address the issue of economic, environmental, social and technological uncertainties, a “dmoeconomics” component is proposed, based on the premises of demoethics. By demoethics we understand a section of ethics aimed at revealing general ideas about the essence of the world and man’s place in it based on the ideas and principles of sustainable development of society.

The theoretical foundations of demoethics — such qualities as education, reason, knowledge, science, honest work — were developed on the principles proposed by Abu Nasr al-Farabi, A. Kunanbaeva, Y. Balasaguni. It is them who ensure today in the methodology of demoethics the effective implementation of the best socially sustainable available technologies (BAT) (Zhanbayev et al., 2023a).

The concept of dmoeconomics will be implemented taking into account changes in supply and demand, which are constantly complicated by economic, environmental, social and technological uncertainties in the energy sector, as well as in the use of water resources. The concept of dmoeconomics, which is based on such principles and values of demoethics as “spirituality and morality”, “responsibility”, “justice”, “rationality” and “security”, helps to form in a person (a virtuous person, a city ruler) the foundations of moral behavior in any life situation.

Ultimately, every member of society must demonstrate sustainable and moral behavior, which will lead to an improvement in the quality of life of the population and the competitiveness of the region.

The role of demoethical values in the issue of water resource use is associated with an understanding of the importance of caring for nature and compliance with the ethical principles of environmental conservation.

The value “spirituality and morality” in this case includes:

1. Awareness by every member of society of the value of water resources; the ability to provide everyone with access to clean drinking water;
2. Cooperation at all levels for the conservation and more efficient use of water resources;
3. Careful attitude towards water, reducing its consumption, including by reducing the level of pollution.

The value of “responsibility” includes:

1. Compliance with legislation, that is, rules and laws governing the use and protection of water resources;
2. Economic aspects, since careful and rational use of water and water resources by humans contributes to economic development;
3. Sustainability, that is, the preservation of water resource ecosystems, maintaining ecological balance in them in order to enable future generations to use this resource necessary for survival;

4. Conscious consumption of water resources. People need to be aware of the amount of water they use and make efforts to reduce it — by installing efficient use systems, recycling wastewater, and other measures;

5. Cooperation and partnership in the field of water resources of all stakeholders. People should take part in public discussions on these issues, cooperate with local water supply authorities, environmental organizations and other structures to jointly develop and implement programs for the conservation of water resources in their territory.

The value of “equity” in relation to water resources.

Scientists note (Khaneiki et al., 2023) the importance of understanding the issue of equitable distribution of water in individual regions.

Iran's water mission is an example of how dams and canals benefit sectors with high water demand. However, upon studying the available data and scientific works, it was revealed that this decision has a negative impact on tourism, as it harms the natural components of the country. A study by Majid Labbaf Khaneiki concludes that the decline in tourism is exacerbating social inequality and instability.

Cameron Fioret (Fioret, 2023) notes the need to advocate for water justice as a social-ecological issue. Note that there is a deeper meaning to be hidden here, namely, an indication of moral and political damage, which is a sign of the failure of democracy. Thus, water injustice is an indicator of a flawed structure.

Understanding and awareness of the principles described above will allow society to find approaches to sustainable management of water resources, and, as a result of these actions, preserve clean water and nature in general.

In achieving the Sustainable Development Goals (SDG), water resources play a very important role, as they are of great importance for addressing issues of human resource development, ensuring human health and well-being, and eradicating poverty and hunger.

Water resources are inextricably linked with other sectors of the economy, such as energy, food security, nutrition, and are also necessary for achieving other social and environmental goals.

The value of “rationality” plays the major role in the management and conservation of water resources.

Water is one of the important substances on the planet, which supports life, the very existence of all living things. For humans, water is also an important product, since it is used not only for simple maintenance of life, but humans use it for the development of industry, agriculture, that is, the economy that we currently have. Planet earth is endowed with a huge amount of water resources, but people currently cannot use all the water for their consumption, only fresh water. Each region has different amounts of water resources, but they are also largely negatively impacted by industry in the form of toxic pollution. Therefore, as noted in a study on water scarcity (Hasanova, 2014), it is necessary to develop methods and train people in the careful and rational use of water.

The Johannesburg Declaration on Sustainable Development of 2002 (Johannesburg Declaration..., 2002) specifically noted that water and marine pollution continues to deprive millions of people of a decent life (paragraph 13). In this regard, in the Implementation Plan for the World Summit..., 2002, adopted there in Johannesburg in 2002, the central issue was devoted to the careful and efficient use and redistribution of drinking water, the ability of the population to have access to sanitation services, improving the water resources management system.

Without targeted actions by society, the state and all countries as a whole to protect and rationally use water resources, progress towards sustainable development is impossible. Water resources in the first quarter of the 21st century must, more than ever before, be considered, first of all, from the perspective of sustainable development.

Former UN Secretary General Kofi Annan, at the opening of the International Decade for Action “Water for Life” in 2005, rightly noted that the world’s water resources are “the hope for survival and achieving sustainable development in the 21st century” (International decade for Action “Water for life”, 2005).

The value of “security” plays an important role in the management and conservation of water resources. The concept of security includes a huge number of categories that affect human life. Water security is of utmost importance and affects the quality of life of every person, as it depends on access to clean and fresh water.

Many industries and agriculture also depend on water.

Addressing water security issues helps restore social justice and strengthen measures to protect nature. However, in the modern world there is a large number of unresolved issues regarding the possession of water

as an irreplaceable resource. To identify and solve problems arising in the field of water security, cooperation between regions is necessary. This is the only way to improve the economic and environmental situation in the region, restore social justice and set a course for sustainable development of society.

Thus, “demeoeconomics” is a section of economics that, based on ideas about the sustainable development of society, considers issues of improving the quality of life of the population through freedom of social choice, reasonable consumption and conscious restrictions, taking into account the achievements of the digital and green economy.

The main idea of demeoeconomics is that economic and social processes should take into account the interests and needs of the population, and not just the economic and political elites. The key factors in demeoeconomics are environmental sustainability, social justice and innovative development potential.

Demeoeconomics attaches great importance to the digital economy, since it is the basis of modern development and plays an increasingly important role in public life every day.

The digital economy opens up new opportunities for economic and social development, improves the efficiency of production and consumption, and also helps resolve issues of rational use of water resources.

Green economy is one of the important areas of demeoeconomics. It is a green economy in which energy and resources are used in the most efficient and environmentally friendly way. The goal of the green economy is not only to improve the quality of life of the population and ensure sustainable development of society, but also to preserve natural resources.

Demeoeconomics provides an opportunity to create more flexible and adaptive economic and social systems that can adequately respond to the changes and challenges of the modern world.

One of the main principles of demeoeconomics is the participation of the population in decision-making processes related to the economy and social sphere. This principle can be implemented in various forms — from constant exchange of views and consultations to direct participation of the population in decision-making through various mechanisms of civil participation.

Overall, demeoeconomics can provide new impetus to economic development and the creation of a fairer and more sustainable society as a whole. It provides an opportunity to create new models of economic development that will take into account the interests of both all segments of the population and nature.

Let us note that based on what was described above, sustainable development is understood as a model of the existence and development of society, which includes demoethical, demeoeconomic, demographic, and democratic components of the development strategy of the state and country. The main goal is to achieve a balanced development of technological and ethical rationalities in society, since they are the main factors in improving the quality of life of the country's population and increasing the competitiveness of the region.

Conclusions

The concept of demeoeconomics, based on demoethical values such as “spirituality and morality”, “responsibility”, “justice”, “rationality” and “security”, opens the way to the emergence of a new way of thinking that is not limited only to the water sectors of the economy. In recent years, approaches such as Demoethics “demographic processes – climate change – energy migration – water scarcity” and “Green economy” – environmental compliance – corporate social responsibility (CSR) have also been described, which were developed as part of our research on modeling of socio-economic systems within the framework of sustainable development.

Thus, we believe that every member of society should possess the values of “Demoethics” and be aware of how important water is to the life of humanity. As a result of the application of the new values of “Demoethics,” a new way of thinking arises for present and future generations, which allows us to understand the role of natural resources for humans and nature.

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Демээкономика: су ресурстары мен демэтикалық құндылықтардың өзара байланысы

Аңдатпа:

Мақсаты: Қоғамның тұрақты даму құралы ретінде демэтика құндылықтарымен су ресурстарының байланысын зерттеу үшін демээкономика тұжырымдамасы шеңберінде тұжырымдамалық талдауды қолдану.

Әдісі: Мақалада логикалық синтез әдісі, мақсат қою, мақсатты декомпозиция және т.б. сияқты көптеген әдістерді қамтитын зерттеудің жүйелі тәсілі қолданылды.

Нәтижесі: «Руханилық пен адамгершілік», «ұтымдылық», «жауапкершілік», «әділдік» және «қауіпсіздік» ұғымдары контекстінде демээкономика құндылықтарына негізделген демээкономика тұжырымдамасын іске асыру су ресурстарын және халықтың базалық қажеттіліктерін ұтымды пайдалануды тиімді қамтамасыз етуге ықпал етеді. Тұжырымдаманың нәтижелері этикалық ұтымдылыққа қол жеткізуге бағытталған. Тұрақты даму мақсаттарымен үйлестіре отырып, олар экономикалық өсуге және қоғамның қажеттіліктерін қамтамасыз етуге ықпал етіп қана қоймайды, сонымен қатар әлеуметтік-экономикалық теңсіздікті азайтуға, экономикалық жауапкершіліктің өсуіне және мәдени-рухани құндылықтарға құрметпен қарауға алғышарттар жасайды.

Қорытынды: Этикалық рационалдылықтың тұрақтылығы адамзаттың экономикалық, әлеуметтік және экологиялық қажеттіліктері арасындағы тепе-теңдікті қамтамасыз ететін, қоғам мүшелерінің өмір сүру сапасын және өңірдің бәсекеге қабілеттілігін арттыруға мүмкіндік жасайтын, кез келген өмірлік жағдайда моральдық мінез-құлықтың көрінуіне ықпал ететін «руханилық пен адамгершілік», «жауапкершілік», «әділдік», «ұтымдылық» және «қауіпсіздік» контекстіндегі демээкономика құндылықтарына негізделген демээкономика тұжырымдамасы негізінде табиғи ресурстарды пайдалану кезінде қоғам мүшелерінің құндылықтарын трансформациялауды талап етеді.

Кілт сөздер: тұрақты даму мақсаттары, қоғамның тұрақты дамуы, су ресурстары, демээкономика, демээкономикалық құндылықтар, «руханилық пен адамгершілік», «жауапкершілік», «әділдік», «рационалдылық», «қауіпсіздік», этикалық рационалдылық, өмір сапасы.

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Демоэкономика: взаимосвязь водных ресурсов и демоэтических ценностей

Аннотация:

Цель: Применение концептуального анализа в рамках концепции демоэкономики для изучения взаимосвязи водных ресурсов с ценностями демоэтики как инструмента устойчивого развития общества.

Методы: В статье использован системный подход к исследованию, включающий в себя самые разнообразные методики, такие как метод логического синтеза, целеполагания, декомпозиции целей и т.д.

Результаты: Реализация Концепции демоэкономики, основанной на ценностях демоэтики в контексте понятий «духовность и нравственность», «рациональность», «ответственность», «справедливость» и «безопасность», способствует эффективному обеспечению рационального использования водных ресурсов и базовых потребностей населения. Результаты Концепции направлены на достижение этической рациональности. Гармонизируя с целями устойчивого развития, они не только способствуют экономическому росту и обеспечению потребностей социума, но и создают предпосылки для уменьшения социально-экономического неравенства, роста экономической ответственности и уважительного отношения к культурно-духовным ценностям.

Выводы: Устойчивость этической рациональности требует трансформации ценностей членов общества при использовании природных ресурсов на основе концепции демоэкономики, базируемой на ценностях демоэтики в контексте понятий «духовность и нравственность», «ответственность», «справедливость», «рациональность» и «безопасность», которые могут обеспечить баланс между экономическими, социальными и экологическими потребностями человечества и проявлениями нравственного поведения в любой жизненной ситуации, способствуя устойчивости качества жизни членов общества и конкурентоспособности региона.

Ключевые слова: цели устойчивого развития, устойчивое развитие общества, водные ресурсы, демоэкономика, демоэтические ценности, понятия «духовность и нравственность», «ответственность», «справедливость», «рациональность», «безопасность», этическая рациональность, качество жизни.

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