

MODERN FEATURES

OF NATURE USE AND ENVIRONMENTAL RESPONSIBILITY: AZERBAIJAN REALITIES

CARACTERÍSTICAS MODERNAS DEL USO DE LA NATURALEZA Y LA RESPONSABILIDAD AMBIENTAL: LA REALIDAD DE AZERBAIYÁN

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ABSTRACT

Despite the enormous wealth of global natural resources, their unbridled use has brought about serious environmental deterioration. For this reason, environmental responsibility and the efficient use of natural resources is increasingly critical in the context of global ecological challenges. This study aims to explore the modern features of nature use and environmental responsibility within Azerbaijan, particularly in light of the 29th session of the Conference of the Parties (COP-29) on climate change. It is emphasized the need for comprehensive legal-normative measures to combat water pollution and promote environmental education. It is highlighted some strategies to fight environmental pollution, such as water reuse, the application of advanced cleaning technologies, and the establishment of organizational measures for water distribution. Furthermore, the concept of “water diplomacy” is highlighted as a vital element of international relations, particularly in regions facing water scarcity. The inference of our findings is that only an integrated approach to environmental responsibility through scientific, economic, and ecological norms can give birth to sustainable development. Therefore, we advocate for a paradigm shift in how natural resources are perceived and utilized, promoting a sustainable and responsible approach to environmental stewardship in Azerbaijan and beyond.

Keywords: Climate change, Environmental responsibility, Natural resources, Environmental education, Environmental legislation, COP-29.

RESUMEN

A pesar de la enorme riqueza de los recursos naturales mundiales, su uso desenfrenado ha provocado un grave deterioro ambiental. Por esta razón, la responsabilidad ambiental y el uso eficiente de los recursos naturales son cada vez más críticos en el contexto de los desafíos ecológicos globales. Este estudio tiene como objetivo explorar las características modernas del uso de la naturaleza y la responsabilidad ambiental en Azerbaiyán, en particular a la luz de la 29ª sesión de la Conferencia de las Partes (COP-29) sobre el cambio climático. Se enfatiza la necesidad de medidas jurídicas y normativas integrales para combatir la contaminación del agua y promover la educación ambiental. Se destacan algunas estrategias para luchar contra la contaminación ambiental, como la reutilización del agua, la aplicación de tecnologías avanzadas de limpieza y el establecimiento de medidas organizativas para la distribución del agua. Además, se destaca el concepto de “diplomacia del agua” como un elemento vital de las relaciones internacionales, en particular en las regiones que enfrentan escasez de agua. La inferencia de los hallazgos aquí presentados, es que solo un enfoque integrado de la responsabilidad ambiental a través de normas científicas, económicas y ecológicas puede dar lugar al desarrollo sostenible. Por lo tanto, se aboga por un cambio de paradigma en cómo se perciben y utilizan los recursos naturales, promoviendo un enfoque sostenible y responsable de la gestión ambiental en Azerbaiyán y más allá.

Palabras clave: Cambio climático, Responsabilidad ambiental, Recursos naturales, Educación ambiental, Legislación ambiental, COP-29.

INTRODUCTION

Azerbaijan is the country between Eastern Europe and Western Asia, a country of immense history and diversity of landscapes that altogether determined the course of culture and people's relations with natural resources. The first human settlements on the territory of Azerbaijan date back approximately to 1.7 million years ago, as the archaizms denoted from some caves, like those of Azikh and Taghtar (Allworth et al., 2024). Over the centuries, the region has been home to various civilizations, and has been influenced by empires such as the Seljuks, Safavids and Russians (Gasimov, 2017). In 1918 Azerbaijan pronounced its first democratic republic but its independence was not to last long because in 1920 it became incorporated into the Soviet Union, and only in 1991 did it gain it after the dissolution (Süleymanova, 2022). Azerbaijani culture is of great relevance, with elements of Turkish, Persian, Russian, and local features in language, music, dance, and handiwork. Traditional music mugham and dances yalli are representative artistic traditions. Above all, hospitality is in the basis of Azerbaijani mentality; and festivals such as Novruz, connected with the spring equinox, demonstrate some of the ancient traditions surviving in today's life (Mustafaev, 2020; Salazar, 2017; Sipos, 2019).

The country covers an area of 86,600 km², featuring a very varied geography: the Greater and Lesser Caucasus Mountains, extensive plains, and the Caspian Sea coast. The climate varying from dry subtropical in the center and east to humid subtropical in the southeast, influencing biodiversity and human settlement patterns. In this sense, about 13.69% is under the cover of forest, which contributes to the biodiversity of the country. The longest river in Azerbaijan is the Kura River, which crosses the country from west to east through the central part and provides important water supplies for agriculture and other economic activities. But Azerbaijan is mainly well-known because is rich in natural resources as hydrocarbon fuels, which have been a staple of its economy since the 19th century. Development exploiting these resources has boosted the economy, but it brought along some environmental challenges and the need to diversify the economy to ensure long-term sustainability. The country also possesses mineral resources such as iron, nonferrous metals (Allworth et al., 2024; Nevins, 2020).

Despite its rich natural resources, Azerbaijan confronts severe environmental challenges. Water scarcity looms as a critical issue, with the nation projected to be among the 13 countries with the lowest water resources per capita by 2025. Climate change has exacerbated this situation, reducing surface water supplies from 30 billion cubic meters to 17 billion cubic meters as of 2022 (Abdul,

2024). Additionally, air pollution in the main city, Baku, is an important problem to tackle. The country's vulnerability to climate change is evident in erratic rainfall, rising temperatures, and frequent extreme weather, threatening agriculture—a key sector for economic stability and food security. Meanwhile, deforestation and land degradation, driven by industrial activities and weak environmental governance, compound these challenges. Azerbaijan's heavy reliance on fossil fuels, with oil and gas accounting for 90% of exports, not only hampers economic diversification but also contributes significantly to greenhouse gas emissions and environmental degradation (Osmanli, 2024).

To address these challenges, Azerbaijan has implemented a range of initiatives targeting sustainability. On the legislative front, the Law on Environmental Protection of 1999 underpins the country's environmental policies, complemented by the National Strategy on Conservation and Sustainable Use of Biodiversity. The 2003 National Programme on Environmentally Sustainable Socio-economic Development integrates environmental considerations into economic planning (UNECE, 2011). Internationally, Azerbaijan has committed to the Paris Agreement, aiming to reduce greenhouse gas emissions by more than 30% by 2030, while fostering collaborations with the EU to promote renewable energy and align environmental standards. Partnerships with USAID further advance climate-smart agriculture and energy reforms (USAID, 2024). Sector-specific efforts also play a vital role. The industrial sector is adopting cleaner production techniques to enhance resource efficiency and minimize waste. In agriculture, strategies focus on better water management and reducing environmental harm. Urban development initiatives aim to create climate-resilient communities, incorporating green spaces to reduce air pollution and improve quality of life. Notably, Azerbaijan seeks to generate 30% of its electricity from renewable sources by 2030, reflecting its commitment to diversifying energy sources and transitioning to a sustainable economy (International Energy Agency, 2024; Mammadli, 2022).

In 2024, the Republic of Azerbaijan hosted a historic event - COP-29. This achievement was primarily the result of the state's purposeful policy in this field over many years. Generally speaking, the depletion of natural resources on Earth in the 21st century has caused countries worldwide to express concern. According to experts, natural resources comprise a set of natural objects, substances, and phenomena that humans use to ensure their existence and achieve their goals. Human presence, lifestyle, and activities trigger natural processes and changes. The

purposes of human use of nature can be categorized into three groups:

1. Vital goals.
2. Economic goals.
3. Socio-cultural goals.

The use of nature can be classified into two types: general and special. Natural resources such as air, water, seas, and solar energy are, by their nature, considered general use and do not require special permission. Special use of nature is carried out by individuals and legal entities based on permission from competent state authorities (Mammadov & Khalilov, 2003). But, since we cannot use resources indiscriminately, we need to take into account the intrinsic value of nature and the place of humans as part of the global system. Only by considering environmental problems holistically, assuming global bioethics in all decisions, and reformulating the way we see economy and our place in the world is possible to use efficiently resources dressing environmental challenges (López et al., 2024).

Considering the elements discussed above, the main objective of this research is to analyze the advances, limitations and most promising strategies for the efficient and responsible use of natural resources in Azerbaijan, considering the importance of maintaining ecological balance and environmental protection. It is emphasized the need for a systematic approach to nature, integrating ecological and legal factors. Key directions for efficient use of resources are set, such as complex use of natural resources, reuse of these resources, and implementation of environmental protection measures.

DEVELOPMENT

The systematic attitude towards the environment and the efficient use of nature are of great importance. Taking into account ecological relations, efficient use of nature is conditioned by the unity of ecological and legal-moral factors. The main directions of efficient use of nature can be grouped as follows:

4. Complex use of natural resources;
5. Reuse of natural resources;
6. Implementation of nature protection measures.

By the Decree of President Ilham Aliyev of December 25th, 2023, 2024 was declared the "Year of Solidarity for the Green World" in the Republic of Azerbaijan¹.

¹ The history of gardens, parks, and landscape art in Azerbaijan dates back thousands of years to ancient Caucasian Albania, Caspian,

One of the five national priorities of Azerbaijan's social and economic development until 2030 is defined as "Country of clean environment, environment and green growth. In accordance with that priority, work is being done to ensure the efficient use of water resources and sustainable energy sources, the restoration and protection of greenery, the planting of new greenery" (Aliyev, 2023). The main direction of the use of natural resources should serve to protect the ecological balance in nature. In the national legislation of our republic on ecology, specially protected areas are provided for the preservation of the ecological world, which includes nature reserves, green areas, national and natural parks, natural monuments, etc. belongs to.

The second direction of effective natural resource utilization is complex use of nature, which is particularly relevant in mineral extraction. Specifically, this approach involves comprehensive processing of mineral deposits. In this context, BP has implemented modern technological innovations in the ACG field for the first time in Azerbaijan. This revolutionary technology reduces potential risks in the oil production system and serves as a new tool for managing and recovering hydrates in well structures. Mobile defec-toscopes and drone-based tools are used to inspect equipment on ACG platforms. The Azeri Central East (ACE) platform, installed in the ACG field, implements BP's remote-control concept from both technological and digital perspectives. This offshore platform is managed from the Sangachal terminal, significantly enhancing workplace safety.

During oil production, BP places special emphasis on protecting the Caspian Sea's ecosystem, ensuring the preservation of the water basin's uniqueness, and safeguarding

Media, and Atropatene. By examining Azerbaijan's historical gardens and parks like pages of a "book," we can trace the evolution of garden design, their poetic representation of their times, the influence of various craft schools, and authentic evidence of the past.

It is noteworthy that during the khanate period in the 18th century, numerous gardens were established across Azerbaijan. In Baku, 200 years ago (1830), several significant gardens were created: Mikhailovsky (Governor's Garden), Mariinsky Garden, Sisianov Garden, Admiral Garden in the Bayil settlement, and Villa Petrolea of the Nobel brothers. In 1909, the green building sector of Azerbaijan's communal economy was established to address Absheron's greening issues, aimed at solving environmental problems. The work completed during that period remains relevant to current challenges.

These gardens were initially restricted spaces, closed to the lower class. During this period, the total green zone covered only 20 hectares, primarily due to water scarcity. Significant greening of Baku only became possible in 1917 after the Shollar aqueduct was commissioned.

By 1923, the Baku plant nursery was established.

its flora, fauna, natural environment, and human health². The third direction of efficient natural resource utilization is resource reuse. Nearly all types of produced materials - metal, paper, cloth, plastic, etc. - can be recycled. The significance of industrial waste recycling lies in its lower energy consumption compared to primary production, while also helping to reduce the quantity of solid waste in nature.

Besides, energy-saving technologies typically incorporate non-conventional energy sources (such as solar energy and sea current energy) (Mustafayev & Mammadov, 2007, p. 21). Currently, non-conventional energy sources are being implemented in the United States, Russia, and other countries. In Azerbaijan, the transition to this system has been approved and is regulated at the state level.

The restoration of natural resources primarily focuses on improving land productivity and enriching flora and fauna. The state implements various legal measures to prevent negative impacts on natural resources, such as deforestation, illegal hunting, and inefficient land use. In President Ilham Aliyev's Decree of February 20th, 2021, "Azerbaijan 2030: National Priorities of Socio-Economic Development," one of the main priorities is reducing climate change impact by increasing the share of alternative renewable energy sources in primary consumption. Additionally, the Head of State issued a decree on establishing a "green energy" zone in Azerbaijan's liberated territories³. The decree allocated 1,391,040.0 million US dollars to the Ministry of Energy for creating this zone, developing the relevant concept and Master Plan, and engaging specialized international consulting companies (AZERNEWS, 2021).

One of the crucial factors in ensuring legal and moral aspects of nature utilization is the efficient use of water resources, which are essential for human life and the entire living world. Water covers 70.8% of the planet's surface, with oceans accounting for 97% of Earth's water

resources. Snow caps and glaciers contain 70% of the world's drinking water. Groundwater makes up 23% of the drinking water supply, though only 7% is currently utilized.

A major challenge in water resource management is contamination of drinking water by various pollutants, including toxic substances, pesticides, oil and petroleum products, and surfactants. The pollution of water bodies significantly impacts global environmental relationships. So, it is important to adopt measures which include the implementation of new legal-normative acts for protecting water bodies. Besides, two key approaches are necessary:

- a) Strengthening environmental education to prevent water pollution.
- b) Implementing measures to resolve legal and ecological challenges in water resource management.

Therefore, the main directions for efficient use of water resources in Azerbaijan include water reuse, application of cleaning technologies, implementation of organizational measures for water distribution, and compliance with legal and moral requirements in the process of water use. Water pollution is a very serious problem for mankind. Countries near the equator are already suffering from a shortage of drinking water. Specialists working in the field of ecology should take the initiative to solve such problems through: 1) minimizing damage when using natural resources, 2) improving water treatment facilities through technology application, 3) treating waste in industrial enterprises. Besides, since at the moment, water shortage is the biggest problem in the world, causing interstate "cold wars." From this perspective, the factor of "water diplomacy" should be highlighted in the foreign policy of world states.

CONCLUSIONS

The legal and moral approach to environmental and ecological responsibility consists of ensuring the application of scientifically-grounded economic and ecological norms in society's general development process. Environmental responsibility as a whole serves as a leading mechanism in the legal regulation of environmental relations. Then, the main aspects of environmental responsibility are determined by self-stimulating, compensatory, warning, and preventive functions. On the other hand, the basis of environmental responsibility is the legal obligation of physical and legal entities to the state and society. In this regard, the legal aspects of environmental responsibility have an imperative character in the implementation of environmental legislation. For example, if certain punitive measures are not provided in the implementation of any environmental

² The Caspian Environmental Program (CEP) is a regional initiative established in 1997. This program is developed and managed by Caspian littoral countries. The program aims to improve the ecology of the Caspian Sea and promote sustainable development in the region.

BP and its partners have established the web-based Caspian Environmental Information Center (ECIC) to serve as a reliable source of the latest information on the state of the environment in the Caspian Basin, with environmental management and the exchange of best practices as the main goal.

³ Decree of the President of the Republic of Azerbaijan dated 03.05.2021 "On measures related to the creation of a "green energy" zone in the liberated territories of the Republic of Azerbaijan"

law, these laws will not be observed. If laws are not followed, society is bound to collapse.

Looking ahead, the future of environmental responsibility in Azerbaijan is promising but will require continuous effort and commitment. The country's participation in international agreements, investment in renewable energy, and efforts to align with EU environmental standards provide a foundation for progress. Success, however, depends on how Azerbaijan will balance economic development with environmental protection, effectively implement and enforce environmental regulations, and foster genuine public participation in environmental governance. Thus, although Azerbaijan has made significant steps toward addressing environmental challenges and using nature responsibly, it still faces major obstacles. The coming years will be very critical in determining whether Azerbaijan can successfully transition to a more sustainable and environmentally responsible model of development while continuing economic growth and stability.

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