Caspian Journal of Environmental Sciences
Online ISSN: 1735-3866
Print ISSN: 1735-3033

A primary factor in sustainable development and environmental sustainability is environmental education

Kiyosov Sherzod Uralovich[1]*, Tulakov Ulugbek Toshmamatovich[2], Kholmamatov Farkhodjon Kubayevich[3], I.B. Sapaev[4], Saytbekova Svetlana Saylaubaevna[5], Z.F. Beknazarova[6], Azizbek Khurramov[7]

1. Department of Taxes and Taxation, Tashkent Institute of Finance, Tashkent, Uzbekistan, 60A Amir Temur Street, Tashkent, Uzbekistan
2. Department of Finance, Termez State University, Termez Uzbekistan, 43 Barkamol Avlod Street, Termez, 190111, Uzbekistan
3. Department of Banking, Tashkent Institute of Finance, Doctor of Philosophy in Economic Sciences, Tashkent, Uzbekistan
4. New Uzbekistan University, Tashkent, Uzbekistan & School of Engineering, Central Asian University, Tashkent 111221, Uzbekistan & Tashkent Institute of Irrigation and Agricultural Mechanization Engineers, National Research University, Tashkent, Uzbekistan
5. Department "Pedagogy" of the Nukus State Pedagogical Institute named after Ajiniyoz, Karakalpakstan, st. P.Seyitov s/n, Nukus, Uzbekistan
6. Tashkent Institute of Irrigation and Agricultural Mechanization Engineers" National Research University, Tashkent, Uzbekistan
7. Tashkent State University of Economics, Tashkent, Uzbekistan, Islom Karimov 49, Tashkent 100066

** Corresponding author's Email: k_sherzod@list.ru*

ABSTRACT

Nowadays we are witnessing the consequences of humanity's negative attitudes toward nature. Over the years, natural balance has been undermined by the impact on nature. To date, however, it is the fate of mankind, its fate the next day, that dictates to solve just such issues. Efforts to implement cost-effective, environmentally friendly technologies, consistently conduct conservation activities, or improve industry-wide legislation in addressing environmental issues are not enough to address them. Raising the ecological culture of the population, rational treatment of the environment, and the formation of a sense of preservation of the benefits of nature for future generations are key factors in the prevention of anthropogenic influences. The importance of environmental education is also extremely high. This, in turn, plays an important role in the country's financial and economic growth. The sustainable development goals (SDGs) are a blueprint for a better and more sustainable future for all. In order to eradicate poverty, safeguard the world from natural disasters, and guarantee that everyone lives in peace and prosperity, SDGs have been established.

Keywords: Sustainable development, Bioeconomy, Environmental issues, Natural Resource, Ecological economy.
Article type: Review Article.

INTRODUCTION

Globally, sustainable development has been recognized as being fundamentally dependent on education. By using effective environmental education strategies, education can have a positive impact on how the world's increasingly depleted natural resources are managed. Students who participate in environmental education get the information, abilities, and experiences necessary to lead their communities successfully and to make informed choices about

Caspian Journal of Environmental Sciences, Vol. 21 No. 4 pp. 965-975 Received: April 06, 2023 Revised: July 25, 2023 Accepted: Aug. 13, 2023
DOI: 10.22124/CJES.2023.7155
© The Author(s)
Publisher: University of Guilan,

how to manage their natural resources. It is acknowledged that education has a significant part in raising living standards all over the world and that it has contributed significantly to societies and development globally. A high-quality education should equip people with the knowledge and skills they need to make responsible decisions and actively engage in global politics and economics. Societies all across the world have acknowledged education as a crucial element of sustainable development. Nature is a unique and inimitable resource that satisfies all human needs. The existing balance between humanity and nature is so delicate, interdependent and so fragile that sometimes it is very difficult to trace the origin of this or that crisis, disaster or destruction. According to some estimates, by 2050, the population of our planet will reach 8.0 billion. It is not difficult to understand that in the conditions of existing non-ecological technologies, this will lead to a sharp deterioration of the quality of the environment, severe pollution of water and air basins, depletion of natural resources, and many complex economic, energy, food, and socio-political problems, even today. We are witnessing the consequences. The concept of sustainable development aimed at solving modern problems and preventing them in the future was developed in order to find ways out of the situation that has arisen at the border of the 21st century. The term "Sustainable Development" comes from the English language, and it can be translated as steady, sustained, developing, and continuous development. More than a hundred expressions of this concept can be found in the literature. Its most commonly used expression is from the 1987 lecture entitled "Our Common Future". According to him, "Sustainable development" means development that is carried out without harming the needs of the present generation without harming the needs of future generations. The concept of Sustainable Development of the United Nations, which is now widely recognized throughout the world, was approved in 1992 in Rio de Janeiro, which was considered one of the largest meetings of world leaders.

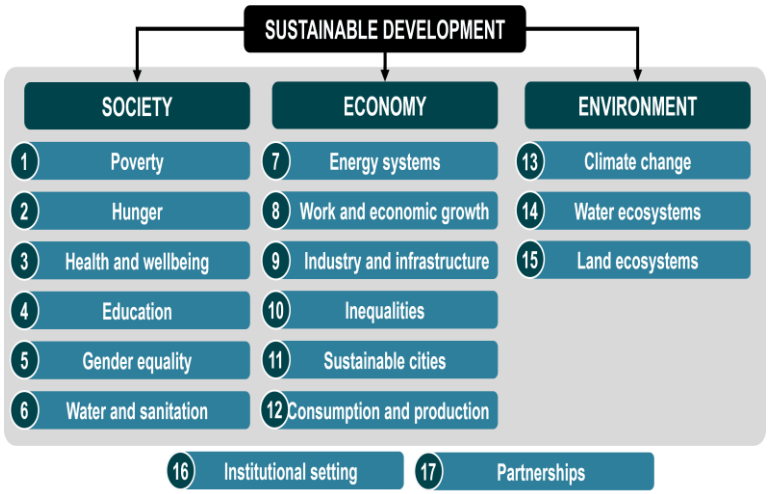

Fig. 1. Sustainable development goals.

Political and religious leaders and high-ranking representatives of 179 countries participating in this forum committed themselves to stabilize world development in the future, and this does not mean stopping economic growth, but the huge needs of future generations. If during the entire historical civilization of mankind, the whole nature and its resources seemed to be infinite and inexhaustible, then the period of industrial development, that is, the last two centuries, proved that such a vision is completely wrong. The United Nations announced that by 2030, global warming could cost the world economy 2 trillion US dollars a year. It is known that climate change and its impact on the environment is one of the main problems of the 21st century and one of the serious problems facing humanity. It is important to preserve the soil layer and biological diversity under the active influence of anthropogenic conditions. Earth's climate changes both naturally and under the influence of anthropogenic factors. Each component of the climate system changes on different time scales. Knowledge of natural climate changes allows for a deep understanding of climate change processes caused by human activity. Systematic observations of global temperature are limited to 1860. They include information obtained as a result of measuring the air temperature on the land surface and based on the measurement of the sea surface temperature. The restoration of ancient climatic conditions can serve as a benchmark for projections made on the basis of climate models. Comparing Ice Age climate modeling predictions with paleoclimatological data allows for some verification of modeled processes relevant to future climate change. Currently, there are a number of theories that explain the

causes of the observed climatic changes based on the above-mentioned climatic factors. During the geological history of the Earth, the composition of the atmosphere and its mass have changed along with the nature of the Earth, and at the same time, the shapes of the continents, the configuration and heights of the mountain systems, and the areas of the land and oceans have also changed. Changes in solar illuminance, eccentricity of the Earth's orbit, and the tilt of the Earth's rotation axis relative to the ecliptic plane were observed. At the same time, the speed of rotation of the Earth has also slowed down. As a result, this situation led to changes in heat exchange, moisture exchange and atmospheric circulation, as well as geographic factors of climate. All this caused the Earth's climate to change many times. According to many researchers, the global temperature has changed by less than 1°C since the dawn of human civilization. Compared to the extreme and sometimes rapid climatic fluctuations during the last hundred thousand years, our climate can be called calm.

At the present time, when the problems of the environment and nature protection have intensified and become extremely controversial, balancing the relations between nature and society is one of the main tasks. The problem of interaction between nature, man and society is one of the eternal problems. Nature is the living environment of society, the source of meeting its material and spiritual needs.

Fig. 2. Sustainable Development via Environmental development.

Society is the highest stage of the development of nature and has a special development content. Nature and society are two parts of the same matter, a unique social ecosystem. Human occupies a central place in the system of interaction between nature and society who is an integral part of both nature and society at the same time, and has a biosocial essence. The exchange of matter and energy is the basis of nature's existence. Society, which is a higher form of movement of matter, lives and develops as a separate "Humanized" part of nature. At different stages of society's development, its attitude towards nature has also changed. In the system of primitive society, humanity did not have a significant impact on nature. The emergence of agriculture and animal husbandry in the system of slavery caused a sharp increase in the impact on nature. In the system of feudalism, as a result of the improvement of the means of labor and the increase in the number of the population, the sphere of human influence has expanded. By the establishment of the capitalist socio-economic system, the development of science and technology, the creation of industry, transport, and the rapid exploitation of natural resources brought the impact on nature to a high level.

MATERIALS AND METHODS

The problem of environmental pollution with harmful waste has arisen. A unique anthropogenic exchange of matter and energy has emerged between nature and society. Anthropogenic metabolism has led to excessive extraction of raw materials from nature and their disposal into the environment in the form of harmful waste, disrupting the ancient balance between nature and society. In the development of relations between nature and society, biogenic, anthropogenic and technogenic (nanogenic) stages are distinguished. In the 20th century, one of

the phenomena that endangers humanity is the ecological situation. Protection of the environment, ecological standards, and economical use of natural resources for future generations is an urgent problem today. In order to prevent the decline of forests, water bodies, soil, atmospheric air, plant and animal species, it is necessary to study nature. Interest in the science of the economy of the environment and natural resources is connected with the beginning of the first stage of humanity. The main views of the environment are mainly many interesting ideas about ecology, the sources are Heraclitus (530-470 BC), Hippocrates (460-370 BC), Aristotle during the time of the ancient Egyptians, Indians, Tibetans (384-322 BC). There were reports about environmental factors from the sources of the period. It is necessary to take measures against factors affecting the environment. Ecology is a science that helps to solve this urgent problem, conducting scientific research in order to create a comfortable, unpolluted natural environment for people. Ecology is a science that studies the relationship between organisms and the environment. It is also understood as a special scientific approach (ecological approach) to the study of the state of the living environment of humans and organisms, mutual problems between organisms (including humans) and the environment. Ecology is the study of the influence of the surrounding environment on the gradual development of any material thing on earth - geographical elements (rocks, water, soil, plants, animals, people, structures, etc.) this is an area of activity focused on process management. The concept of ecology was first introduced to science in 1866 by the German biologist Ernest Haeckel in his work "The General Morphology of Organisms". Ecology studies the living environment of living things, their relationships with each other, and the interactions between living conditions. From time immemorial, ecology has developed as a component of biological science in close connection with other natural sciences such as chemistry, physics, geology, geography, soil science. The main object of study of ecology is the ecological system. In particular, the creatures that make up the totality of nature are the totality (complex) of their habitat - space. The theory of gradual improvement (evolution) founded by Ch. Darwin plays a big role in the creation of the science of ecology. Ecology (from the Greek oikos - habitat, abode and logos - teaching) is a science that studies the living conditions of living beings and the interaction between organisms and the external environment.

The economy of the environment and natural resources is a complex and structure of interactions and relations between the environment and organisms, the main object of its research is natural and anthropogenic ecosystems, that is, a single entity consisting of living organisms and the environment in which they live, natural and natural-anthropogenic complexes (landscapes).

The main object of study of ecology is ecological systems (ecosystems), that is, natural complexes consisting of living organisms and their habitats. In addition, its field includes the study of some types of organisms (organism level), their population, a set of breeds or varieties belonging to one species (population - species level), and the study of the biosphere as a whole (biosphere level). All the forests, glaciers, mountains and steppes, air and water surrounding us, in short, every part of nature is connected with each other in an organic and balanced way, like human organs. A change that occurs somewhere in nature, in turn, will not fail to have some effect on its balance. As a result of modern scientific and technical progress, as well as the increasing influence of anthropological (direct human intervention) on nature, the interrelationship of natural factors is to a certain extent out of balance, which threatens the life on earth as in the brochure. Therefore, the problems of protecting the natural environment are often connected with ecological research. Ecology, as the main, traditional part of biological science, is a general ecology that studies the general laws of interaction between any living organism (man) and the environment. Concepts such as populations, species, biocenoses, biogeocenoses and biosphere are the source of ecological science.

Therefore, general ecology is often studied in the following main sections: autecology, synecology, population ecology and biosphere.

- Autecology ("autos" is a Greek word meaning "self"), studies the interaction of some species with the environment in which they live, to which environment the species are more and organically adapted.
- Population ecology ("population" is a French word meaning "population") examines the structure and dynamics of populations, the causes of changes in the number of different organisms under certain conditions (biomass dynamics).
- Synecology ("syn" is a Greek word that means "together") studies the structure and properties of biocenosis, the interaction of certain plant and animal species, and their relationship with the external environment.

- The development of the study of ecosystems gave birth to the doctrine of the biosphere (from the Greek "bios" - "life", "sphere" - "sphere"). More information about the biosphere is provided for in the following topics.

The biosphere is considered the "shell of life" on our planet and is a set of complex ecosystems consisting of close connections and relationships of living organisms.

The preservation of living beings in the environment and their biological characteristics: the study of laws such as the adaptation of organisms and associations to the environment, self-management and stability of ecosystems and the biosphere are characteristic of all the above-mentioned directions. The understanding of general ecology as described above is often referred to as bioecology. From the point of view of the time factor, historical and gradual ecology are distinguished. In addition, ecology is also classified according to specific objects and environments of study, that is, animal ecology, plant ecology, and microorganism ecology are distinguished. Thus, modern ecology has become an interdisciplinary science studying the most complex problems of interaction between man and the environment. The urgency and severity of these problems caused by the aggravation of the environmental situation on the scale of the planet earth has led to a certain "greening" of natural, technical and humanitarian sciences. For instance, at the intersection of ecology with other fields of knowledge, new scientific directions such as engineering ecology, agricultural ecology, geo-ecology, and space ecology continue to develop. World ecology, whose main object is the biosphere (general ecological system), deals with the environmental problems of the planet Earth, nowadays, human society. Social ecology, which studies interactions in the "nature" system, and human ecology, which is a part of it and studies the interaction of a person with the surrounding environment as a biosocial being, is developing rapidly.

The general theoretical tasks of ecology include:

- Development of general theory of stability of ecological systems;
- Studying the ecological structure of adaptation to the environment;
- Control of population numbers;
- Studying biological diversity and its conservation structure;
- Research on the biological productivity processes;
- Checking the processes taking place in the biosphere in order to maintain its stability;
- Modelling the state of ecological systems and the processes taking place in the biosphere.

The practical tasks of ecology include:

- Predicting and assessing negative consequences that may occur in the natural environment under the influence of human economic activity;
- To create the scientific basis for the rational use of biological resources, to anticipate the changes that will occur in nature based on the impact of human economic activity, to manage the processes in the biosphere and to preserve the environment where people live;
- Improving the quality of the surrounding natural environment;
- Preservation, restoration and proper use of natural resources;
- Restoration of damaged natural systems, including restoration (re-cultivation) of abandoned agricultural fields, increasing the productivity of pastures, low-fertile soils, water bodies and other ecosystems;
- Preservation of reference areas of the biosphere (conservation);
- Prevention of situations where people may die and lose their health as a result of dangerous natural events, accidents;
- Formation of ecological awareness, ecological culture, environmental education and training systems and activation of media work in this field;
- In order to ensure ecologically safe sustainable development, first of all, we should optimize the solution of engineering, agrotechnical, economic, organizational-legal, socio-cultural and educational issues in some ecologically unfavorable areas.

Treatment of nature cannot be allowed. We have bitter experience with this. Nature does not forgive such an attitude... Unfortunately, many still treat this problem carelessly and irresponsibly." Ecological information of the VII-VIII centuries is aimed at studying some groups of living organisms. In the works of J. Buffon (1707-1778), the issue of the influence of the external environment on the structure of animals was raised. J.B. Lamarck (1774-

1829) introduced the first theory of evolution. He believed that the influence of the external environment is the most important factor in the evolutionary changes of plants and animals. Ecological data of the 19th century (A. Humbold) gave rise to a new ecological direction in the geography of plants. In 1859, Ch. Darwin, in his book "On the Origin of Species by Natural Selection", believed that the struggle for existence in nature, that is, the manifestations of any conflicts between the species and the environment, leads to natural selection and is the driving force of evolution.

Fig. 3. Innovation and infrastructure Sustainable Development.

A.N. Beketov (1825-1902) explained the features of the internal and external structure of plants, their connection with their geographical distribution, and the importance of physiological methods for ecology. In 1877, the German hydrobiologist K. Mebius based his ideas about biocenoses. Phytocenological works of G. F. Morozov, V. V. Olekhin, V. G. Ramensky, A. Shinnikov and foreign scientists F. Kelementes, K. Raunkier, T. Duryoi, I. Braun-Blanke and others greatly contributed to the development of general biocenology. In the development of general ecology, R.N. Kashkarov's lectures at the University of Central Asia called "Environment and Community" later became the first textbook written under the name "Fundamentals of Animal Ecology". M.S. Gilyarov, S.S. Schwarz made a great contribution to the development of morphological and evolutionary ecology of animals. Classification of life forms of flowering plants was developed by I.S. Serebryakov. In the early 1940s, a new direction appeared in the process of studying natural systems. In 1935, the English scientist A. Tensley put forward the theory of ecosystems, and in 1942, V.N. Sukatyev put forward the theory of biogeocenoses. At the beginning of 1950, G. Odum, R. Untekker, R. Margalef and others worked on creating the theoretical foundations of biological productivity. D.N. Kashkarov and E.P. Karovin are the founders of ecological work in Uzbekistan. In the 1930s, they published scientific works such as "Environment and community", "Types of deserts of Central Asia and Kazakhstan and prospects for their use in agriculture", "Life in deserts". Ecology and its tasks and methods are reflected in these works. In the second stage, the period when ecology began to form as an independent science - the end of the 1960s, Russian scientists K.F. Rule (1814-1858), N.A. Seversov (1827-1885), V.V. Scientists such as Dokuchaev (1846-1903) published scientific works based on several concepts and principles of ecology. American ecologist Y. Odum and soil scientist V. V. Dokuchaev (1846-1903) made a significant contribution to the development of ecology by developing the direction of natural regions, and it is not for nothing that he is considered one of the founders of ecology. In the 70s of the 19th century, the German scientist K. Myobius introduced the concept of "biocenosis" into science, and also the laws of harmony and cohabitation of organisms in certain external environmental conditions.

Naturalist A. Tensley (1935) put forward the concept of ecosystem. In 1940, the Russian scientist V. N. Sukachev founded the term biogeocenosis, which is close to the concept of ecosystem. In the 20s-40s of the 20th century, world-renowned scientists in the field of ecology V.I. Vernadsky, V.N. Sukachev, E.S. Bauer, G.G. Gauze and other selfless scientists conducted fundamental researches: fully formed ecology as an independent science. German biologist Ernst Haeckel (1834-1919) was the first to realize that this subject is an independent and most important field of biology and called it ecology. According to his definition, ecology studies the complex interactions between organisms and the external environment. Ecology as an independent science was fully

formed at the beginning of the 20th century. During this period, the American scientist C. Adams published the first general information on ecology. Russian scientist V. I. Vernadsky (1862-1945) created the theory of the biosphere. American scientist R. McKenzie dealed with the issue of human ecology and developed the foundations of social ecology. In the second half of the 20th century, due to the sharp increase in human impact on nature and environmental pollution, ecology was of particular importance. The third stage begun from the 50s of the 20th century to date. At the beginning of this stage, ecology became a complex science, including knowledge about the protection of the natural environment and usilizing nature, as well as incorporating relevant geographical, geological, chemical, physical, economic, and socio-cultural concepts. D.N. Kashkarov and E.P. Karovin are the founders of ecological work in Uzbekistan. At this stage of ecological development, A. Abulkosimov, Z. Akramov, L. Alibekov, P. Baratov, T. Jumaev, K. Zokirov, T. Zohidov, A. Muzaffarov, A. Muhamadiev, M. Mukhamedjanov, S. Nishonov, A. Uzbek scientists such as Rafikov, M. Rasulov, A. Saidov, Y. Sultonov, M. Umarov, J. Kholmo'minov, Y. Shodimetov, A. Ergashev, P. Gulomov, etc. studied its various aspects thoroughly. In ancient times, hunting birds for hunters, fish-rich waters for fishermen, and suitable and convenient areas for planting crops were important for farmers. By the development of animal husbandry and agriculture, the importance of information about nature and the environment also increased, and people learned to evaluate and choose certain places. At first, people cleared land from groves and forests and practiced agriculture. An example of this is the history of farming culture that arose on the banks of the Lower Amudarya, Surkhandarya, and Zarafshan rivers.

RESULTS

During the long periods of the development of human society, people felt themselves together with nature and considered it to be a place of divine power. Such approach of people to nature, firstly, that nature is a source of housing, clothing and food, and secondly, that natural phenomena and the reasons for their occurrence were not fully understood, arose due to belief in divine power. Since the 50s of the last century in Uzbekistan, due to the rapid growth of industry, transport and agricultural production, as well as population growth, land and water resources have been widely and extensively used, and at the same time, the environment was negatively affected and its original natural state began to change. Especially as a result of agricultural (farming) production, the pollution of atmospheric air, soil and water bodies, the decline of some species of flora and fauna began to be observed. People began to use nature and its resources on a large scale, however, the extent to which changes in the environment bring benefits to nature and society has not been taken into account. Due to agricultural activities, mainly cotton cultivation, the natural environment has deteriorated, and the balance of ecological systems (landscapes) has started to undergo negative changes. Due to national independence in the Republic of Uzbekistan, the real situation in the field of nature and human, social ecology has become clear. It became clear to the world community that there are regions with extremely difficult and unfavorable environmental conditions in the republic, in particular, the Aral Sea. Currently, under the leadership of the Interstate Commission for Sustainable Development (with the technical and economic support of UNEP), a regional plan for environmental protection is being developed for the countries of Central Asia, including the management of the quality of water sources depending on international borders, the protection of air layers from pollution, the ways of using waste, the maintenance of mountain ecosystem and the prevention of land crisis, in addition to the introduction of the regional system of renewable energy in the mountain regional centers of the Republic of Uzbekistan, Kyrgyzstan and Tajikistan, etc.

In our country, as a result of the efforts of scientists and specialists in the field of geology and the support of the government, a unique base of mineral raw materials has been created in the country, which has become the basis of the development of the economy of the Republic of Uzbekistan. Today, Uzbekistan has more than 1,800 mines and approximately 1,000 promising mineral resources, 118 types of mineral raw materials, of those, 65 types are being developed. More than 1,500 fields were developed, including 188 oil, gas and condensate fields; 48 original metals, 43 non-ferrous, rare and radioactive metals; 5 ferrous metals; 3 coals; 37 mining, 22 mining and chemical, as well as 30 colored stone raw materials. There are 525 construction materials of various purposes and 357 sources of fresh and mineral groundwater. More than 40 percent of the mined mines are processed. There are more than 400 sources found, mining, quarrying as well as the oil and gas industry and other industries, about 450 water extraction enterprises, hospitals, medicinal and healing-consumption water bottling plants and factories are operating in the republic. Navoi and Almalyk Mining and also Metallurgical Combines are the leading enterprises

in the republic for the extraction of primary, non-ferrous metals, uranium and rare element ores. Reserves of mineral raw materials prepared for production will allow to provide employment to the existing complexes in the long future, even if the working capacity is increased. Most of the developed resources can be processed in an open way using a relatively simple technology of ore enrichment. In addition, useful components with high demand in the world market can be extracted to a large extent. Original, non-ferrous and other metal ores contain large reserves of rare elements that significantly increase the value of mines as additional components. The amount of circulating water in nature is less than the volume of water in the ocean, and the ocean is a reservoir for water. In general, there is 1,386,000,000 km^3 of water in the world, of which 1,338,000,000 km^3 is stored in the oceans, corresponding to 96.5%. In nature, the oceans play an important role in the evaporation phase of the water cycle, providing 90% of the total evaporation. Evaporation is the process by which water changes from a liquid state to a gas or vapor state. Evaporation is the primary pathway for water to return from its liquid state to the water cycle. Research has shown that 90% of moisture in the atmosphere is provided by evaporation from oceans, lakes, seas, and rivers, and the remaining 10% is provided by evaporation from plants.

Plant transpiration is an invisible process - as water evaporates from the surface of the leaf, the "breathing" of the leaves cannot be seen. During growth, a leaf evaporates several times its weight in water, for example, a large oak tree evaporates 151,000 liters of water per year. Long-term accumulation of water in ice, glaciers and snow is part of the water cycle in nature. A total of 90% of the Earth's glaciers are in Antarctica, while 10% in Greenland, where the thickness of the glaciers is on average 1,500 meters, however, in some places reaches 4,300 meters.

Note that over 96% of the world's water reserves of approximately 1,386 million km^3 are saline, while over 68% of fresh water is concentrated in glaciers, and another 30% is freshwater. Terrestrial freshwater sources such as rivers and lakes account for only 93,100 km^3 (22,300 cubic miles), which is only $1/700^{th}$ of 1% of the total water. However, rivers and lakes are the main source of water that people use every day. An average of 505,000 km^3 of water evaporates from the world's oceans every year, of which, 458,000 km^3 falls on the oceans as precipitation, while 47,000 km^3 reaches the land with the help of air mass movement. This 47,000 km^3 is the land's water resource. The cycle of water in nature is also known to many as the hydrological circle, which describes the movement and presence of water in, on, and in the sky. Water on earth is always in motion and always changing form, from liquid to gas to ice and back to its original state. The water cycle in nature has existed for billions of years and all life on earth depends on it, without it, life on earth would not exist. Food safety is an officially accepted term in global practice, used to describe the state of the food market within the framework of international integration associations and the entire world food market. This term entered the circulation of international terms after the deep grain crisis of 1972-1973. At the beginning of 2008, the UN, the World Bank, the International Monetary Fund, as well as the Food and Agriculture Organization of the United Nations (FAO) announced the danger of a food crisis to the world community. By this time, the crisis had covered 39 countries and could spread to other countries. The problem of food supply or lack of food for the population of the earth is mainly related to the environment. The population of the earth is 7.4 billion. The population is increasing about 1 million per week, and 0.5 billion in a number of countries.

Ten million people die of hunger every year. Food consumption is different in various countries, e.g., the world average per capita meat consumption is 30 kg, including 6 kg in Nigeria, 21 kg in China, 52 kg in Uzbekistan, 75 kg in England, and 110 kg in the USA. A total of 90.11% of the food grown for the population is obtained from the cultivated fields occupying the land. In addition, there is also a world ocean that holds enormous food resources. Scientists are looking for reliable and new ways to obtain food products. Ways of producing artificial proteins, fats, carbohydrates, vitamins are recommended. The creation of a method of extracting sugar from starch is a clear example of this. The important issues of human health protection include the protection of the environment, the quality of the benefits he consumes and their delivery to the population in accordance with the requirements of hygiene and sanitary standards. Both of these directions are inextricably linked, and it will not be correct to study the quality of food industry products separately from environmental issues. It is well known that the production of agricultural products in large quantities is not enough to get the republic out of food dependence. The development of the industry processing such products is an important factor in solving the problem of establishing leading technological processes. Large and small enterprises processing agricultural products are being built and planned to be built in Uzbekistan. However, it is another problem to study the impact of the enterprises being created on the environment, to ensure the harmlessness of these effects, and to achieve the ecological problem of technological projects. Therefore, one of the tasks of the future technologist - food specialist

is the need to have the skills to solve the above problems. In the development of food production and processing industry, the role of agricultural enterprises, in particular, multi-sectoral farmers and peasant farms, is increasing. It is the stable development of agriculture that directly creates the ground for the priority development of the food industry and processing enterprises. In this regard, modernization of agriculture in the "Strategy of Actions" on the five priority directions of the development in the Republic of Uzbekistan during 2017-2021", approved by the decree of the President of the Republic of Uzbekistan No. PF-4947 of February 7, 2017 and rapid development, the following were defined: "Ensuring food safety, filling the domestic market with products, providing the population with basic types of agricultural products. (Decree of the President of the Republic of Uzbekistan No. PF-4947 "On Strategy of Actions" for the further development of the Republic of Uzbekistan". February 7, 2017).

DISCUSSION

To win the battle against climate change, environmental education is essential. Without it, the world's leaders of the future won't be well-prepared to address the difficulties posed by the environment. By supporting young people who participate in student activism and encouraging outdoor learning programmes for students, parents and teachers can assist students to realize their responsibility as environmental stewards.

1. Reducing the level of poverty of the population in all places.
2. Strengthening food security, improving nutrition and supporting the sustainable development of agriculture.
3. To ensure a healthy lifestyle and promote the well-being of people of all ages
4. Ensuring comprehensive and equitable quality education and promoting lifelong learning opportunities for all.
5. Ensuring gender equality and expanding the rights and opportunities of all women.
6. Ensuring the availability of water resources and sanitation for all and their rational use.
7. Ensuring universal access to cheap, reliable, stable and modern energy sources for all.
8. To promote sustainable and comprehensive economic growth based on increasing effective employment and providing men and women with decent work.
9. Creation of sustainable infrastructure, promotion of comprehensive and sustainable industrialization and innovation.
10. Reducing inequality in all its forms within the country.
11. Ensuring the openness, safety and ecological stability of cities and settlements.
12. To ensure the transition to rational models of consumption and production.
13. Taking urgent measures to combat climate change and its consequences.
15. Protecting and restoring terrestrial ecosystems, promoting their rational use, rational use of forests, combating desertification, ceasing and reversing land degradation, and stopping the process of biodiversity loss.
16. Promoting the establishment of peaceful and open societies towards the goals of sustainable development, ensuring access to justice for all, and establishing effective, accountable and participatory institutions at all levels.
17. Strengthening means of implementation and activation of work within the framework of the Global Partnership for the purposes of sustainable development.

Table 1. Education for Sustainable Development.

Environmental protection	Financial stability	Social resilience
• **Managing natural resources**	• Different futures	• Sustainable neighbourhoods
• **farming and eating**	• Innovating and leading	• ethnic diversity
• **Environmental systems**	• educational organisations	• understanding between cultures
• **Water, energy, and waste**	• Social Responsibility of Corporations	• Environmental sustainability in architecture
• **Biodiversity**	• Commerce and consumerism	• Mobility, transportation, and travel
• **Changing weather**	• economic globalisation	• Wellness and good health
	• Responsibility and morals	• Conflict, safety, and peace
	• international progress	• government, citizenship, and democracy
	• Sustainable and moral travel	• human needs and rights
	• Population	

The fight against climate change can be aided through education. Recent studies reveal that people with higher levels of education are more likely to perceive climate change as a threat, and that the majority of people do so now. Additionally, environmental education helps foster students' ability to communicate, think critically, and solve problems. These days, students should be able to assess the long-term effects of social, economic, and ecological policies, thus this is especially crucial. Effectively combating climate change involves a worldwide effort, and activism frequently depends largely on having a deep awareness of the problem and the capacity to persuade others that action is required. Assuring environmental protection and conservation, advancing social fairness, and fostering economic sustainability are all goals of education for sustainable development (ESD), which fosters the development of the knowledge, skills, understanding, values, and behaviors necessary to create a sustainable world.

CONCLUSION

Teaching and learning about important sustainable development topics, such as climate change, disaster risk reduction, biodiversity, poverty alleviation, and sustainable consumerism, is known as education for sustainable development. Additionally, it calls for active learning and teaching strategies that inspire and equip students to alter their behavior and take initiative for sustainable development. As a result, education for sustainable development encourages skills like critical thinking, picturing possible futures, and group decision-making. In order to ensure that natural resources will be available in the future, environmental sustainability involves using them responsibly. The Earth is a finite environment with limited land, water, and wildlife, thus it is crucial. The only way to guarantee that future generations will have what they need to exist is through sustainable resource utilization. One of the fundamental tenets of sustainable development is living within the bounds of the environment. Climate change is one result of doing nothing about it. Sustainable development, however, has a far larger focus than merely the environment. It also involves ensuring a powerful, wholesome, and just society.

REFERENCES

Abdullah, D, Gartsiyanova, K, Mansur qizi, KEM, Javlievich, EA, Bulturbayevich, MB, Zokirova, G & Nordin, MN 2023, An artificial neural networks approach and hybrid method with wavelet transform to investigate the quality of Tallo River, Indonesia. *Caspian Journal of Environmental Sciences*, 21: 647-656.

Agenda21. 2008, Retrieved on February 15, 2008 from http://www.un.org/esa/sustdev/documents/agenda21/english/agenda21toc.htmt=1

Ashwell, A & Bobo Mrubata, P 1998, Environmental Action For Change – Principles & Practice. Retrieved March 30, 2008 from www.bgci.org/index.php?option=com_article&id=0301&prin

Barnett, M, Lord, C, Strauss, E, Rosca, C, Langford, H, Chavez, D & Deni, L 2006, Using the urban environment to engage youths in urban ecology field studies. *The Journal of Environmental Education*, 37: 3-11.

Barraza, L, Duque Aristizabal, AM & Rebolledo, G 2003, EE: From Policy to Practice. *Environmental Education Research*, 9: 347-357.

Bory Adams, A 2006, UNESCO's role, vision and challenges for the UN Decade of Education for Sustainable Development (2005-2014). Connect. (31), 1-2.

Burkhanov, A & Bakhodirovna, BD 2021, Evaluation of economic potential of textile industry enterprises. *Vlakna a Textil*, 28: 9–21

Cheak, M, Volk, T & Hungerford, H 2002, Molokai: An Investment in Children, the Community, and the Environment. A CISDE Monograph -The Center for Instruction, Staff Development, and Evaluation: Carbondale, IL.

Cooper, CB, Dickinson, J, Phillips, T & Bonney, R 2007, Citizen science as a tool for conservation in residential ecosystems. *Ecology and Society*, 12.

Culen, GR 2001, The status of environmental education with respect to the role of responsible environmental behavior. In H.R. Hungerford, W.J. Bluhm, T.L. Volk & J.M.

Dewey, J 1936, Democracy and Education. An Introduction to the Philosophy of Education. New York; Macmillan Company

EETAP November 2000, Using Non-formal Environmental Education to Help Schools Meet Education Reform. Retrieved October 2007 from www.eelinknet.eetap/info78:PDF.

Environmental Education Services 2004, NBI Annual Review 2003-2004. Retrieved April 2008 from www.sanbi.org/anreview0304/mbi2003-4c.pdf

Ernst, J & Monroe, M 2004, The effects of environment-based education on students' critical thinking skills and disposition toward critical thinking. *Environmental Education Research*, 10: 507-521.

https://dl.acm.org/doi/abs/10.1145/3508072.3508202

Ramsey (Eds.) Essential Readings in Environmental Education (37-47). Champaign, IL: Stipes Publishing, LLC.

Usmanovich Burkhanov, A & Mansur qizi Eshmamatova, M 2021, The ways for improvement of investment strategy in the period of digital economy. In *The 5th International Conference on Future Networks & Distributed Systems*, pp. 655-662.

Xidirberdiyevich, AE, Ilkhomovich, SE, Azizbek, K & Dostonbek, R 2020, Investment activities of insurance companies: The role of insurance companies in the financial market. *Journal of Advanced Research in Dynamical and Control Systems*, 12: 719-725.

Bibliographic information of this paper for citing:

Uralovich, KS, Toshmamatovich, TU, Kubayevich, KF, Sapaev, IB, Saylaubaevna, SS, Beknazarova, ZF, Khurramov, A 2023, A primary factor in sustainable development and environmental sustainability is environmental education. Caspian Journal of Environmental Sciences, 21: 965-975.

Copyright © 2023