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Continuity of Ecological Education and Teaching of Chemistry

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Abstract: *Nature is the whole existence (universe) that surrounds us, it is the source of meeting the material and spiritual needs of people. A person is a living organism, an individual, performing complex social and labor activities. It is the basis of material and spiritual-cultural development of society.*

Man is forced to use natural resources to meet his daily needs. Natural resources can be divided into five main groups: mineral, climatic, water, land and biological resources. Disruption of nature and ecological environment in which humanity lives and works - contamination of soil, plants and air with various toxic substances and compounds, plant and as a result of the decrease and disappearance of useful species of animals, the development of new lands and the emergence of cities and villages, the sharp increase in the number of the population, the increase in the demand for water and food, the way of life has changed radically is causing. Therefore, environmental protection should be a sacred duty not only of state bodies, but also of every person. Together with the incomparable growth of scientific and technical achievements in the life of our society, it has a certain influence on the deterioration of the ecological condition of the environment. In the prevention of ecological tensions and catastrophes, in the resolution of ecological conflicts between society and nature, the practical application of the achievements of chemistry in recent years as a diagnosis is of great importance. Ecology is a unique field of science among the sciences that are inextricably linked with nature. all the surrounding forests, glaciers, mountains and steppes, air and water, in short, every branch of nature is connected with each other in an organic and balanced way, like human limbs. A change that occurs in any aspect of nature, in turn, does not affect its balance in some way. In our era of complicated ecological situation, the main source of water used for irrigation of cultivated fields is river water with a very complex mineral composition. Therefore, environmental protection should be a sacred duty not only of state bodies, but also of every person. Together with the incomparable growth of scientific and technical achievements in the life of our society, it has a certain influence on the deterioration of the ecological condition of the environment. In the prevention of ecological tensions and catastrophes, in the resolution of ecological conflicts between society and nature, the practical application of the achievements of chemistry in recent years as a diagnosis is of great importance. Ecology is a unique field of science among the sciences that are inextricably linked with nature. all the surrounding forests, glaciers, mountains and steppes, air and water, in short, every branch of nature is connected with each other in an organic and balanced way, like human limbs. A change that occurs in any aspect of nature, in turn, does not affect its balance in

some way. In our era of complicated ecological situation, the main source of water used for irrigation of cultivated fields is river water with a very complex mineral composition. The Department of Inorganic Chemistry and Materials Science of the Faculty of Chemistry of Samarkand State University has accumulated a lot of experience in this field. Inorganic chemistry classes are taught as the main subject for undergraduate majors in chemistry, biology, ecology, and soil science. Educational programs are compiled based on the program of evaluation of the environmental system of environmental objects in the areas of specialization. In the inorganic chemistry lectures and practice classes, control works were selected to consist of inorganic evaluation of the amount of various toxic gases in the air of individual environmental objects - drinking and sewage water, soil in the city, suburbs, villages, and air. 20 hours of inorganic chemistry lectures, 30 hours of laboratory, 20 hours of practice and seminar classes are planned for students of the Faculty of Ecology. In the course of the lessons, the theoretical foundations of inorganic chemistry, together with metrology issues, chemical, physical, physico-chemical and biological methods of analysis are covered comprehensively. Taking into account the scientific and creative activity of the students, water samples taken from drinking water, streams and stagnant water bodies brought from every district and city of the Samarkand region are watered every year for the students of the second stage of the chemistry major in the control work of the analysis of an unknown substance performed by qualitative and quantitative chemical analysis methods. the chemical composition of soil samples of different levels brought from irrigated, non-irrigated and greenhouses is determined and analysis reports are recommended. The main indicators are dry residue, mixed substances, degree of mineralization, environment, biological and chemical absorption of oxygen, percentage of organic matter, ammonium, potassium, sodium, calcium, magnesium, iron, chromium, nitrate, nitrite, phosphorus, sulfate, Quantification of most ions such as chloride, fluoride, and iodide is acceptable.

Inorganic control of the chemical composition of the soil of cultivated fields is one of the main means of obtaining a high yield. After quantitative and qualitative analysis of the composition of soil and river water, it is necessary to take into account the surface part of each hectare of land, the main fertile layer at a depth of 30-50 cm, when choosing and choosing the necessary nutrients, that is, fertilizers. The influence of the environment and humanity on the change of the soil composition is huge. Observations made in recent years show that even the constant monitoring of the chemical composition of water sources used for irrigation gives economic results by limiting the use of some mineral and organic fertilizers. The responsibility for determining these indicators is assigned to more graduate students, graduate students, graduate bachelors and gifted students with the support of a scientific supervisor. If in the first half of the academic year they learn to use neutralization, oxidation-reduction, complexonometric, sedimentation methods of gravimetric and volumetric analysis in the analysis of environmental objects, in the second half of the academic year they will perform the electrochemical (potentiometric) analysis of this object , ionometric, conductometric, coulometric, voltammetric), optical (photocalorimetric, flame photometry, spectrophotometric) and chromatography (gas, paper) methods are evaluated. As a result, along with completing the study plan, the student demonstrates his ability to scientific activity and has the opportunity to choose a specific field of chemistry. All the activities, achievements, directions of the science of chemistry are aimed at the protection of the environment, which is considered the main problem of the science of "Chemical Ecology", which is manifested as a modern science, and educational, scientific, educational and practical works in this field are being improved. Ecological balance is achieved only when the relationship between society and nature, man and the environment is consciously managed. Not only the education system, parents, but also the mass media have an incomparable role to convey the essence of these relationships to the mind of every citizen, to consciously and correctly implement their relationship to nature. Programs and broadcasts on various environmental problems broadcasted on TV, radio and the Internet do not fail to attract attention. In my opinion, interesting articles devoted to environmental problems in newspapers and magazines are a reason for family discussion, of course. Taking this into account, I would like to share some of my thoughts on the ecology of drinking water. Water covers 70 percent of the earth's surface, and its total volume is 1345 million km2. Fresh waters are only 2.5 percent of it. Currently, 12-15% of it is used and returned to the rivers in a polluted state, and its consumption doubles every 10-12 years. This may

cause a shortage of clean drinking water. Currently, one-third of the world's population suffers from a shortage of drinking water. Nature protection, rational use of natural resources, careful preservation of our mother nature for future generations, provision of normal conditions for human health is one of the important tasks of the state. maintaining the purity of underground water is the main issue. Today, not only urban residents, but also rural residents have problems with providing drinking water. Water is one of the great and priceless gifts given by nature and is the source of life. Where there is no water there is no life. In solving this problem, the role of the water flowing through the rural areas or formed at the expense of spring water is incomparable. Keeping them clean is not only the task of certain organizations and farms, but also the task of every young boy and girl. It is known that the problem of fresh water supply is determined not by its limited amount, but by the fact that it is not evenly distributed on the surface of the earth and most of it is polluted. In order to evaluate the level of water purity, it is carried out as a result of comparing the determined analytical indicators with the indicators determined on the basis of regulatory documents that control the standard set by the state and allowed. Therefore, dear compatriots, let's take care of the sources of drinking water in our neighborhood, village, city like the apple of our eye, let's not allow it to be damaged by various wastes, and let's find new springs. let's create an opportunity for them to open and be faithful to the great heritage left by our great ancestors. One of the main problems of our current century is to create a positive environment for people and living organisms in general, and for this it is important to solve the ecological problems that the people of all countries are facing today. When viewed from the chemist's point of view, the origin of environmental problems is the various levels of liquid, solid and gaseous wastes of industrial enterprises (plants and factories) released into the environment and the biosphere as a whole, various changes made to soil, water and air as a result of human activity (high It is caused by various chemical agents applied to the soil for growing crops and herbicides and pesticides sprayed on plants to protect them. Positive or negative effects and conditions that affect the life-activity and geographical distribution of living organisms are environmental factors, and one of the main ones is anthropogenic factors, which is related to the scope of human activity on the environment. As a result of this, especially at present, various ecological changes appear in the structure of all living environments, that is, water, air, soil, and the biosphere. To put it more simply, the environment is polluted due to anthropogenic factors and many problems arise as a result. Under the influence of these factors, the problem of lack of drinking water, that is, fresh water, appears on our planet. The largest source of freshwater reserves is mainly polar ice caps. With the development of the society, the demand of the population for drinking water is increasing. By our century, the level of use of fresh water has increased 7-7.5 times. 3-3.5 thousand km3 of water is consumed annually for various needs and activities. It is known from various sources that the total annual flow of rivers is 50,000 km3. It is clear that the problem of fresh water shortage will arise in the use of fresh water reserves at this level. Even when land areas are fully used for the cultivation of products and plants of various levels and names for human needs, the existing water reserves are not enough. The level of production of various industrial and agricultural products, which are necessary for human needs, is increasing even in the case of poisoning of rivers with industrial and household waste. Today, it is no secret that production enterprises discharge 160 km3 of industrial wastewater into rivers per year. This indicator is 10% of the total amount of fresh water in rivers, and in some developed countries it is 30%. Therefore, the amount of various dissolved substances, harmful chemical compounds and bacteria in the clean waters of the rivers is increasing every year. Currently, the pollution of natural water sources is mainly due to various dirty effluents coming from factories and irrigated lands used in agriculture. Wastewater enriched with various chemical and biologically harmful additives is usually produced in two ways:

1. Natural factors, i.e. polluted run-off from the areas of large highways and industrial plants, as well as floods and floods that occur during spring. including the resulting polluted waters.

2. A large amount of waste water generated by the activities of industrial enterprises, households, and communal households is also among them. Among the above-mentioned waste waters, produced at the expense of secondary sources, there are a lot of various harmful compounds that destroy the water environment and change its quality. It is known that more than 100 million m3 of polluted

waste water is generated in a single night at the expense of industrial enterprises alone. 13% of the water of the rivers used on earth is produced and used for various human needs, and more than 700 billion m3 of chemically and biologically contaminated waste water is re-discharged into water bodies every year. Sewage-rich rivers carry 17-18 billion tons of solid waste into the ocean every year. The chemical industry consumes the largest amount of fresh water for production processes, so they place production enterprises in areas close to fresh water sources. According to the hydrometeorological center under the Cabinet of Ministers of the Republic of Uzbekistan, it was observed that copper increased from 1.6 to 4.6 times and phenol from 1.0 to 6.0 times higher than the standard level in Zarafshan river water. It can be stated with full confidence that preservation of the nature-biosphere and its change are closely related to human activity in many ways. Fundamental improvement of the ecological situation in our republic is one of the most important socio-economic problems. The situation in this area is very worrying. The main water sources of Uzbekistan, the air of many cities are unacceptably polluted with toxic chemicals and industrial waste. Large areas are poisoned with pesticides or salted. In particular, it is necessary to carry out serious work on the comprehensive protection of nature. Summing up from the information mentioned above, we can say that solving the pending problem of drinking water is still within the reach of humanity, and every self-conscious countryman, neighbor, neighbor and friend of our yard, village and let's pay attention to the cleanliness of the fresh water sources flowing through our city and make it free of sewage.

References:

1. Toxic adverse effects of some toxic chemicals. U.M. Norkulov., I. Ergashev., D. Kurbanova., Sh. A. Rakhimova., A. Bazarbayev..,B.Mirzaqobilov. Journal of Advanced Research and Stability Volume:02 Issue: 04/2022 SCIENCE BOX 02.05.2022.
2. Integration of chemistry with biological sciences. Norqulov U.M., Norqulova L.U.,Aminova T. “Journal of new century innovations” international interdisciplinary research journal Volume 17 No.3 ISSUE-3 November 2022.
3. Harmony of science and education in chemistry education. E.Ruziyev., A.Mamatov., F.Yuldoshov. International scientific and practical journal "Economics and Society" No. 5(84) 07.05.2021. part 1.
4. Environmental pollution during oil production. U.M. Norkulov., Ruziev I., Mamatov A., Kurbanova D International scientific and technical conference on "Problems and prospects of innovative techniques and technologies in the field of environmental protection". Tashkent, TDTU. September 17-19, 2020.