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Methods of teaching ethics of water use in water economy

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Abstract

Current work of analyst and otuv hadjaligida Suwan folgirendanish-etikaseli ura-leikatoni. Narodotourist leadership and Global suv cooperation, irrigation and drainage Commission and Orl dengizi and Volbondy on the territory of Uchun special Trust foundation, suv khujaligida of auxiliary significance. Dilalar and shvchilar uchnsya_ both times were present at the ethylgan proposal.

Keywords: Agriculture, International Water Resources holiday, Snellen shrift, water management, CUV ethics, energy supply, International Geological program, Koli-index, Vestas Wind Systems A/S

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I. Introduction

In the languages of the peoples of Central Asia, there is a proverb "KUV zar-suvchi zargar". In English, there is also a proverb" water, water everywhere and do not drink", which means that water should be used as sparingly as possible[2]. In the culture of all peoples of the world, there are various proverbs about water and its reasonable use. March 22 has been celebrated worldwide by the UN General Assembly as an international water day since 1993. The national holiday" a drop of water is equal to gold " has been held in Turkmenistan since 1995 on the first Sunday of April. The two UN Water Conventions of 1992 and 1997, which are the framework instruments for international water cooperation, can serve as such instruments.

II. The main part

Irrigated agriculture is growing in many countries around the world as a result of farmers not paying the full cost of it for their use. Agricultural irrigation accounts for about 70% of the world's water use and more than 40% in many OECD countries. Heavy use of underground pumps for irrigation can lead to negative environmental impacts on aquifers and cause significant economic impacts in the industry and beyond. In addition, agriculture is the main source of water pollution[3].

The problems of transboundary water use in the Central Asian region have become an important part of the environmental, social and economic problems in the relations of the States of the region. Modern water use in Central Asia does not correspond to the principle of sustainable water use. Inefficient use of water resources, pollution of water bodies and their degradation reduce the level of safety of the population from the impact of the water factor, lead to an increase in the cost of construction and protection of water bodies. The ongoing reforms in the field of agriculture and the current environmental situation require a new approach to state regulation of the formation of the water management system, reproduction and protection of water bodies while achieving sustainable water use parameters.Water management is an important component of the national water policy, and the formation of an adequate management system from the point of view of sustainable water management becomes an important task. At the same time, water management is understood as a set of measures and directions of the impact of a specially created state system on the socio-ecological and economic system of the basin. The growth of anthropogenic pressure on agroecosystems and the deterioration of water quality and the condition of reservoirs have a significant impact on the efficiency of the functioning of the multi-sectoral water management complex, worsen the living conditions and health of the population. The growing scale of irrational water use, taking into account the current and future development against the background of limited water resources, creates a number of environmental problems.Agriculture is the most water-intensive branch of the national economy. Difficulties in implementing structural changes in agriculture increase the negative impact of industry on the environment and public health. The level of use of land and water resources, as

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well as the protection of agroecological systems, are the main conditions for supporting agricultural production and human life. The lack of developed theoretical and methodological bases for solving the problems of reforming the state water use management in the study of the problem, the lack of a system for assessing the effectiveness of the use of the water resource potential of the region indicate the imperfection of economic relations in the field of water use.

The problem of compliance with national interests and their protection in the use of transboundary water resources of the Aral Sea basin is of particular relevance for the Central Asian countries.The following figures should also be taken into account in water management issues. The situation with water shortage in our region is getting more complicated every year. Over the past 10 years, for example, the volume of water in Uzbekistan has decreased by 12 percent, and this year compared to 2019-by 15 percent. The energy and water costs required for cotton and grain production are also high. 2.5 million hectares are irrigated by more than 5 thousand pumps,which is 8 billion. kilowatt-hours of energy and 2.4 trillion soums of budget funds are spent. On average, 800 thousand soums are spent on the supply of water by pumps per hectare from the budget. About 5-6 ml of water per year with surface irrigation.a cubic meter or 20 percent of water is wasted[1].

In the course of the lesson, students should also master: participation in the design of water supply and sanitation systems; determination of the approximate consumption of natural and waste water; development of technological schemes for water treatment; establishment of compliance of design solutions with environmental requirements; management of water supply and sanitary networks and structures; compliance with technological modes of operation of environmental protection structures, waste water, compliance with environmental standards and regulations; development of the technological process of natural and waste water treatment;; to control the quality of natural and waste water, it is necessary to learn how to conduct chemical and microbiological analyses.

Centralized water supply supplies water through a water supply system to several points of demand, which are a complex of engineering structures used to carry out water intake from a water source necessary to ensure its quality in accordance with the requirements of the water user, to supply the water flow to the place of consumption and distribution among users. The quality of drinking water in our country is regulated by the Uzst.

In a decentralized local water supply, the analysis of water by the population is carried out directly from the water source, without a distribution network of pipelines. As a source of water supply, underground water is most often used, and water from mine wells or springs is used. Sanitary regulations allow the use for drinking purposes of water with a coli-index of no more than 10, turbidity on the standard scale of no more than 5 mg/l, purity of no more than 30 cm (according to the Snellen font), color no more than 30°

The water supply- system is a complex of structures for the quality supply of water to a certain (given) group of consumers (this object) in the required amount. In addition, the water supply system must have a certain degree of reliability, that is, to ensure the supply of water to consumers without an unacceptable decrease in the specified performance indicators in terms of the quantity or quality of the supplied water. The water supply system must ensure the supply of

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water from natural sources, its purification and supply to the places of consumption, if this follows from the requirements of consumers. Depending on local environmental conditions and the nature of water consumption, as well as economic considerations, water supply and its components can vary greatly. Water supply systems can be classified according to a number of basic characteristics.

By purpose: water supply systems of settlements(cities, towns), water supply production, agricultural water supply systems, fire alarm systems and water supply, combined water supply systems (economic-production, economic-fire protection, etc.).).

Method of water supply: gravity (gravity) with a mechanical flow of water (pumps), quenching (in some places gravity, in other pumps).

According to the method of using natural resources: those that receive water from surface sources (river, lake, etc.), those that receive water from underground sources (Spring, artesian, etc.), of a mixed type.

According to the method of water use: once-through the water supply system (with a single use of water), water reuse systems.

Drinking water -supply is a set of measures to provide the population with drinking water. Drinking water supply includes the selection and evaluation of possible sources of water supply, the choice of the location and construction of water intake facilities, the sanitary assessment of water and measures to protect them from pollution.

When choosing a source of water supply, first of all, the established need for drinking water and the presence of surface or fresh underground water in the territory are taken into account. From the point of view of water quality and protection from pollution, preference is given to groundwater. When selecting a source of surface water supply, an assessment of hydrology, conditions, minimum and average water consumption, their compliance with the target water consumption, sanitary characteristics of the basin, industrial development, the availability and possibility of internal, industrial and agricultural sources of pollution in the area of future water intake is carried out. In the event of a discrepancy between the coordination structure of the sanitary and epidemiological service and the requirements of the water source for the properties of drinking water, the necessary quality is ensured (filtration, coagulation, disinfection, etc.).

Municipal water supply is characterized by a relatively low irrevocable consumption. Therefore, the wider introduction of sewerage increases the amount of wastewater that can be reused (after appropriate treatment) for irrigation or in industry. This allows it to save water used by consumers.

Industrial water supply. The availability and accessibility of water resources play an important role in the development and location of industry. The volume of water consumption depends on the structure of industrial enterprises, the level of technology and the measures taken to save water. The most water-intensive industries are heat and power engineering, ferrous and non-ferrous metallurgy, mechanical engineering, petrochemical and forestry industries. The most water-consuming industry is industry-the share of heat and power is about 68% of the total consumption of fresh water and 51% of the water subject to secondary treatment.

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Industrial enterprises are the main source of surface water pollution, annually dumping a large amount of wastewater (in 2016 - 35.5 km). About 70% of industrial enterprises discharge waste water into urban sewers, which, in particular, contain heavy metal salts and toxic substances. The dirt generated during the treatment of such wastewater cannot be used in agriculture, which creates problems with its disposal. Wastewater from the chemical, petrochemical, oil refining, pulp and paper, and coal industries is diverse in its chemical composition. Despite the sufficient capacity of the treatment facilities, only 83-85% of the wastewater from them meets the regulatory requirements.

The sustainability of food production depends on the rational and efficient use and conservation of water resources, which are largely dependent on the development and organization of irrigation, including the rational use of water resources for rain-fed agriculture, animal husbandry, inland fisheries and agroforest. Achieving food security is a priority in many countries, and agriculture must not only provide food for a growing population. The challenge is to develop and implement water-saving technologies and management practices, and to create opportunities for communities to create an organizational structure and incentives for rural residents to adopt new approaches to lalmi and irrigation agriculture.

Soil erosion, improper and excessive expansion of natural resources, and fierce competition for water are increasing poverty, hunger, and food shortages in developing countries. Soil erosion caused by grazing too many animals on pastures is often also the cause of lake displacement.

The lack of adequate water supply is an obstacle to the production of livestock products in many countries, and the insufficient disposal of animal waste in some cases can lead to contamination of water supplied to people and animals. The requirements of livestock for drinking water vary depending on the type of animals and the conditions in which they are kept. The current demand of the global livestock industry for drinking water is about $ 60 billion. Based on the current population growth rate, this demand will be 0.4 ml per day in the near future. it is expected that it will increase by a liter.

III. Discussions.

Fish, which is an important source of food and protein, are caught in the fresh waters of seas, lakes and rivers. This requires maintaining the quality and quantity of water, as well as the functional morphology of the aquatic environment. On the other hand, fishing and aquatic products can cause damage to the aquatic ecosystem. The current level of fishing in fresh and salt water is about 150 million per year at present. tons, which is 186 million by 2030. however, any increase in the environmental burden on the environment can be dangerous[4].

The main tools of water ethics include:

The main means is awareness and understanding of the uniqueness of water, its role in the preservation, survival and future of mankind, in the conservation of nature and the ability to meet the needs of the noosphere; education, including training in the rules and norms of optimal water use and management of water resources; law as a means of regulating public relations; a very subtle and sensitive tool from the point of view of moral relations in society; mass media.

The main parameters of water security formed by the OECD Development Bank include:

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household water security, economic water security, urban water security, and ecosystem water security [5].

IV. Results

Protection from the water element in the conditions of general water security, based on the above five components, we can offer the following interpretation: food security-the basis of peace, economic security-the basis of progress, environmental security (sustainability)-the basis of an abundance of water for food and economic security.

KUV and education: Representative of the UNESCO Cluster Office in Almaty, N. The report of Kim states that the International Hydrological Program (UNESCO-IHP) serves as a platform for scientific research in the field of water resources management. Education and capacity building, water resources education is considered by the program as a key element of ensuring water safety. The main priorities of the program are: strengthening higher education in the field of water management; improving professional education and training of technical specialists in the field of water management; water education for children and young people; raising awareness of water issues through non-formal education (media+local communities); education for transboundary water cooperation.

According to the proposed methodology, the following areas should be prioritized in agriculture and water management: see *table 1*

Indicators that students fill out. Dear students, you are required to make this chart based on your observations!

water and culture	water and energy	water and ethics	water and education

In our country, relevant ministries and higher education institutions should develop cooperation with the following organizations: Global Water Cooperation(GWP), the International Commission on Irrigation and Drainage (ICID), and others[6].

Water scarcity has been widespread in all countries of the world in recent years, but the increase in water scarcity is most rapid in Central Asia. In particular, over the past 35 years, water consumption per capita in the Aral basin has decreased from 4,500 to 2,150 m3 per year per person, that is, more than twice (for comparison, in Europe-only by 24%). If we add to this the prospects of reducing the water level in the main rivers – the Amu Darya and Syr Darya by 12-15% due to the melting of glaciers, as well as taking into account the opening of new irrigated lands by Afghanistan, the urgency of the problem of sustainable life support for the region becomes clear.

Taking into account the global nature of the Aral disaster, a special trust fund for the Aral Sea and the Aral Sea Region was created at the initiative of Uzbekistan under the auspices of the UN [7].

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According to the proposed methodology, the following information can be used by students or students during the lesson.

Table 2.

How much water is used for its production	
Cup of tea	35 liters of water (growing a tea plant)
Cup of coffee	140 liters of water (coffee tree water consumption and subsequent processes)
One egg	135 liters
Glass of milk	1000 liters
	Strange numbers, but true

(A source:Best Water Technology Website)

On this basis, it is excluded that the electricity in the agriculture of our country is equipped with its own energy-saving technologies. By industry in our country, electricity consumption is shown in the table below. *3-table.*

Electricity consumption in Uzbekistan by industry.

Cattle	**Electricity consumption**
Industry	40%
Population	23%
Agricultural industry	20%
Services	13%

The efficiency of energy consumption in our country per unit of GDP remains 2.6 times higher than the average according to the energy consumption criteria of the ECA . Industry is the largest consumer of electricity and one of the largest sources of energy efficiency due to the use of outdated and energy-efficient technologies. Agriculture is one of the most energy-intensive sectors of the economy due to its dependence on inefficient water pump infrastructure [12].

The sustainable development of the energy sector is crucial to support Uzbekistan's development goals.

Ensuring adequate and reliable electricity supply is a prerequisite for sustainable economic growth and development. The growth of the industry and its competitiveness depend on reliable power supply. The energy sector also has significant untapped potential for improving energy efficiency on the supply and demand side.

In the future, the energy sector will face the following major challenges:

1. Reliable service, especially in winter;
2. Energy efficiency by supply and demand;
3. Financing large investments with the least impact on the state budget;
4. Diversification of energy production, which limits the total dependence on gas;
5. Dependence on climate change.

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First Deputy President of the Republic of Uzbekistan Islam Karimov, speaking at the 6th meeting of the Asian Solar Energy Forum in Tashkent (November 23, 2013), noted that the country's electricity needs in 2030 will increase approximately twice as compared to 2013 and will exceed 105 billion kilowatt-hours, taking into account the high rates of development of the manufacturing industry and the development of agriculture. From this point of view, given the need to improve the quality of life of the population, there is a need to analyze and find ways to reliably use energy resources and services in more than 80% of the country, including in rural areas.

This will ensure the achievement of the following interrelated goals by 2030, in accordance with the UN Sustainable Energy for All initiative.:

Ensuring that every modern violator has access to clean energy resources;

Repeat the rate of energy efficiency improvement;

Repeat the share of renewable energy in the global energy cycle.

The integrated use of modern energy services and the use of renewable energy sources are determined not only by the main goals of sustainable energy, but also by the need to ensure energy, food and environmental security at the current stage of development of countries.

The problem of rapid population growth and the threat of loss of water security as a result of climate change and inefficient use of water resources is particularly acute for Uzbekistan.

In accordance with the strategy of sustainable development of Uzbekistan, developed at the end of the XX century, the following priority tasks will be provided for a phased solution:

modernization and further development of the petrochemical complex of our country will ensure the independence and energy of the industry;

modernization and development of the oil and gas transportation system to enter the energy market and improve gas supply in rural areas, including in the country;

modernization of the agricultural sector, improvement of the state of land and improvement of the efficiency of water resources use;

diversify and modernize the electric power industry, especially in rural areas, with more efficient use of energy resources, electric and thermal energy, sustainable electricity production and heat supply [13].

The Ministry of Energy of Uzbekistan has signed a contract with Akwa Power of Saudi Arabia in the amount of US $ 2 billion to strengthen electricity production and develop US technical expertise. The contracts include: a 25-year electricity purchase contract (PPA)-a memorandum of understanding that includes the construction of a 1,500-megawatt mixed-cycle gas turbine power plant with a total investment value of US $ 1.2 billion, the construction of a wind farm producing 500-1000 MW of clean electricity at a cost of US $ 550 million, and the establishment of a center for training Uzbek students and improving their technical knowledge [14].

The project was developed in accordance with the Decree of the President of the Republic of Uzbekistan“On approval of the Concept of water management development of the Republic of Uzbekistan for 2020-2030”in the medium and long term for the organization of effective water

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resources management and rational water use in the republic, water management reform and ensuring water and food security of the country through the widespread introduction of market principles and mechanisms, information and communication technologies, as well as effective use, the Project provides for the approval of the following important policy documents::
- the concept of water management development of the Republic of Uzbekistan for 2020-2030, developed with the participation of international organizations and experts;
The main targets and indicators that will be achieved as a result of the implementation of the Water Management Development Concept for 2020-2030.
"Road map" for the implementation of the tasks defined in the concept of water management development of the Republic of Uzbekistan for 2020-2030. From the concept:
wide introduction of modern water-saving technologies;
widespread use of automation and information and communication technologies in the social sphere;
to increase the efficiency of existing irrigation networks from the current 0.63 to 0.73 by carrying out repair and restoration and concreting works, to improve the water supply of more than 1 million people;
- reduction of saline lands by 1 percent annually due to the construction and reconstruction of land reclamation facilities, repair and restoration works, as well as the re - commissioning of 298.5 thousand hectares of decommissioned land;
By 2030, it is planned to increase electricity consumption by $ 8.0 billion kW by replacing old pumping units and engines with energy-efficient ones and equipping pumping stations with energy-saving installations.$ 6.0 billion kW. reduction to hours;
in this area, there are such tasks as the development of the principles of a market economy, as well as the transfer of 50 water management facilities to the private sector on the basis of public-private partnership
It also provides for the widespread introduction of energy-saving production technologies and the implementation of programs aimed at maintaining reservoirs, waterworks, pumping stations of channels and reservoirs and other water management structures, their modernization and ensuring technical safety, as well as reducing water losses in the irrigation system[15].

Conclusion.

These data and test materials require a broader and more intensive introduction of innovations, problems and new methods in the water sector into the educational process. Our country's accession to the International Atomic Energy Agency will lead to positive results in agriculture. The use of methods of international, regional and national significance will undoubtedly form an agricultural ethics based on the world experience in the application of professional ethics in this field. In particular, enterprises such as the Danish Vestas Wind Systems A/S, which produce economical wind technologies, should be involved in the agriculture of Uzbekistan. It develops a creative approach to the use of renewable energy sources.

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