

THE PROVISION OF CLEAN DRINKING WATER IS AN IMPORTANT PART OF PEOPLE'S LIVES

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Abstract. This article discusses the provision of clean drinking water, the composition of open and groundwater, the impact of unfit for human health on human health, the diseases caused by them, drinking water treatment standards and treatment processes referred to.

Keywords: drinking water, rivers, canals, minerals, trace elements.

Relevance. From a hygienic point of view, clean water is a source of life and health. Water is involved in the distribution of food products throughout the tissues, as it comes out in the form of steam from the skin and respiratory tract. Drinking too much water or thirst-quenching drinks is harmful because this condition increases the work of the heart and the functioning of the excretory organs. At the same time, a large amount of fluid is released from the surface of the skin, and at the same time, water-soluble vitamins, table salt and mineral salts leave the body through sweat.

Aim. Despite the centralized water supply, the necessary and beneficial aspects of providing purified drinking water to the population using open and underground water sources are shown. Water in the body is constantly renewed: in an adult, all water molecules are renewed in 15 days, and in children in 3-5 days.

At high ambient temperatures, 4-5 liters of water are released through the skin along with sweat, and at normal temperatures, 300-400 ml of water are released through the skin. Depending on the ambient temperature and the amount of fluid drunk, from 0.5 to 2.5 liters of water are released through the kidneys in one night. As the amount of water lost increases, a person begins to feel unwell. Losing 10% of water in the body seriously affects metabolic processes. At air temperatures of 30 0 C and above, the loss of 15-20% of water from the body can lead to death. All water in the world is divided into salty and fresh. Brackish waters include ocean and sea waters. Fresh waters include river, lake, reservoir, and canal waters. According to the location of the waters: 2 types.

1. Open bodies of water - river, lake, reservoir, canal.
2. Underground water reservoirs – groundwater, water without interlayer pressure, interstratal pressure waters. Because ocean and sea waters are salty, they is undrinkable. Fresh water is important from a hygienic point of view.

Open water sources. The water content of open, i.e. surface, reservoirs changes rapidly, variability, lack of mineral salts, high level of pollution different from groundwater. The amount of water is seasonal and meteorological.

It either increases or decreases under the influence of conditions. Migration of ice sheets, precipitation, floods and other natural phenomena can have a negative impact on water levels. In the process of human activity, open water bodies are polluted by sewage, industrial waste, wastewater from irrigated lands, etc. In recent years, as a result of the discharge of wastewater into

open water bodies, we have observed an increase in the number of unicellular algae and the burning of water layers. The bloom of water stored in reservoirs changes their organoleptic properties. From the factors mentioned above, it is known that such waters cannot be consumed directly. They are allowed to be consumed only after neutralization.

Rivers are the main open water bodies, which after work are used to a certain extent for the needs of the population. However, due to rapid changes in river water, it contains chemicals, microbes and helminth eggs. Also, it may be other substances. Washing clothes, swimming, things on the river bank.

Pollution of river waters due to the discharge of feed and waste into open water bodies because they disrupt the natural state of water and change its organoleptic characteristics, causing it to turn yellow, gray, blue and blue. It becomes a different color.

The width of the area of lakes, their sizes, the size and depth of their water differ from each other. The water of the lakes is mostly fresh, and they come from rivers appears from transfusion. Therefore, their composition is similar to that of river water. It looks like since the movement of water in lakes is insignificant, they are suspended matter.

The color of the water will become clear and the appearance will be much better. We can recommend drinking its water, but for this the depth of the lake

It must be at least 10 meters. In deep lakes, for example, in lakes up to 10 meters deep, the number of microbes is small, the temperature is about 10-12 0 C, and the chemical composition changes little. Therefore, it is possible to provide for the population by connecting the waters of large and deep lakes to centralized water management facilities.

Artificial reservoirs. In the next 30-40 years, drinking from the waters of a large river more water for use as water and electricity warehouses were built. The composition of water in reservoirs is river, rain and waste.

It is similar in composition, since running water collects in reservoirs.

The peculiarity of water in reservoirs is that they are increasingly it mineralizes and the amount of salts increases. Evaporation of water to the ground absorption increases the amount of mineral salts in the water. The high level of the reservoir compared to the amount of water leads to its faster mineralization. Another feature of reservoir waters is that in summer they turn blue. It is caused by the growth of aquatic plants. Most water installations end up in water management structures, get stuck in filtering equipment, disable them, and interfere with the normal operation of water supply facilities. Since the water in reservoirs is constantly being replaced, it does not pose any particular sanitary risk, and river waters are constantly in motion, and self-purification processes occur very quickly.

Groundwater. The water is located in the highest impermeable layer of groundwater called groundwater. This is mainly due to the filtration of such water.

There will be no pressure in the tanks. Groundwater in low relief areas, it can break through to the earth like a spring. Springs and fountains hills, distributed on mountain slopes and lowlands. Such springs are called ascending springs. Rising fountains from a sanitary point of view from this point of view it is very dangerous. Groundwater is also extracted using wells.

The amount of groundwater may vary depending on the amount of rainfall. grunt

The waters are usually located at a depth of 1.5-2 meters to 3-10 meters. They can contain salt. The composition of groundwater largely depends on the sanitary condition of a given place.

Aboveground waters. Sometimes they are located above groundwater will be settled. High groundwater levels are water-resistant or water-poor, located on the floor. The accumulation of such waters is not constant; they mainly depend on precipitation. Because the upper groundwater is close to the surface of the earth, they often contain microorganisms, salts, pesticides, mineral fertilizers gets dirty. Such waters are not recommended for drinking. Only to a harmless state you can bring it and drink it later.

Artesian waters. In the 12th century, groundwater was used in the Artesia region of France. That is why such waters are named after this region. Artesian water is high-pressure water that accumulates in deep underground layers. Artesian waters are located at the base of waterproof first, second or multilayer rocks and lie between the layers. Plumbed floors are much more protected from contamination. Artesian reservoirs are located very deep. They are filtered and then come to the surface or are released. Water under pressure moves due to the elastic properties of water under the influence of gravity and atmospheric pressure. Water compressed between impenetrable bodies is always under pressure; when drilling wells, water under pressure comes out to the surface of the earth, and in some cases can come out of the ground itself. Each layer of water has its own feeding zone, pressure limit and relaxation zone. Especially in relaxation zones, water reaches the surface of the earth from the bottom of rivers or lakes. The water between the layers, under pressure or without pressure, is obtained by drilling wells. The peculiarity of interstratal groundwater is that it does not contain dissolved oxygen, but microbiological processes are of great importance in the formation of the composition of water. The wider and longer the recharge area of interstratal groundwater, the purer and more constant its composition. Constant water content is of great sanitary importance. According to scientists, the speed of water movement can range from 10 cm to 1-3 meters per day. If there is a crack between the rocks, the movement of water can reach several tens of meters.

The role of water in the spread of infectious diseases. Watery gonorrhea, hepatitis, typhoid fever,

Paratyphoid fever can cause diarrheal diseases. In subsequent years, the intestines of many diseases are spreading. The viruses play a big role in this. Jaundice,

Polio and other pathogenic viruses persist in water for a long time.

Here is an example of this in the table below:

Lifetime of pathogenic microorganisms in water

Bacteria	In tap water	In river water	In puddle water
Escherichia coli	2-262	21-183	-
Internal sweat bacteria	2-93	4-183	15-107
Dysenteric pathogen	15-26	19-92	-
Vibrio cholerae	4-28	0,5-92	1-92
Leptospira	-	150	7-75
Tularemia bacteria	92	7-31	12-60
Brucellosis bacillus	2-85	-	4-122

Judging by the information given in the table, there are much more microorganisms in water. It is clear that he can live. From historical data it is known that previously it was by water.

Many people died from infectious diseases. The next 20-30 years we are witnessing the spread of various epidemics. For example, in 1972 in Mexico, during this period, approximately 10,000 people suffered from diarrhea, and 15,000 people died from dysentery. Interestingly, microbes that cause intestinal diseases change their characteristics under the influence of external environmental factors.

The role of water in the spread of non-communicable diseases. Natural water contains biological microelements necessary for the life of humans, animals and various plants. Small amounts of trace elements (copper, zinc, iodine, manganese, molybdenum, cobalt, iron, etc.) are necessary for human health. Calcium, potassium, sodium, phosphorus is very necessary for the functioning of the body. If the body does not receive 120-200 mcg of iodine per day, a person may develop gout. The body receives 70 mg of iodine per day from food, 40 mg from meat products, 5 mg from air and 5 mg from water. So, the reason for the lack of iodine in the body is not only the lack of iodine in water, but also its lack in the external environment of a given region. When studying the composition of water, it is important to determine its hardness. Water hardness is determined by the amount of calcium and magnesium salts in 1 liter of water. Typically, soap does not foam well in hard water, when water boils, layers of salt appear in the pan, and meat does not cook well. Water hardness can be caused not only by calcium and magnesium salts, but also by the correlation between other elements. Water hardness can cause various stone diseases in the body.

According to information received from the regions of Khorezm and Karakalpakstan, water hardness in the Amu Darya basin is the main cause of stones in the bladder, kidneys and gall bladder of people.

Microelements in water. Water contains about 65 microelements. Such elements are found in the human body, plant tissues, found in the organs and tissues of animals, but in very small quantities. The role of microelements in maintaining human health is enormous, about 20 are especially necessary for the body's needs. Iodine, fluorine, molybdenum, copper, iron and including others.

Fluoride is very necessary for the human body. 10-80% of it enters the body through water falls. When the amount of fluoride in one liter of water reaches 2-8 mg, various changes may appear in the tooth enamel of humans and animals. Also, in the bones changes will appear. This is called *fluorosis*. A lack of the element fluoride in water or insufficient intake from food causes caries. Too much or too little fluoride in water has negative effects on the body. In GOST No. 950-2011, the permissible amount of fluorine in 1 liter of water is 4, and in climatic regions - 0.7-1.5 mg.

Strontium. In some regions, the amount of this element is high in artesian waters.

As a result of drinking such waters, the bone tissue of children are injured, their teeth do not come out in time, the soft part of the brain does not ossify quickly. It has hormonal imbalances, providing the population with clean drinking water sources are checked very carefully. First of all, quality of selected water sources according to GOST 950-2011 "Drinking water". it must be correct or close. Only waters located deep in the earth's layer and having high pressure meet this requirement. Therefore, if such water sources are not found, if their discharge is insufficient or does not meet sanitary requirements, then a search for interstratal groundwater without pressure is carried out. Surface water sources are selected only when necessary. In any case, if the quality of

water in the selected water sources does not meet hygienic requirements, then the water is treated in special facilities.

The water processed and supplied to the population complies with the requirements of State Regulation 950-2011 “Drinking Water”. DavST 950-2011 establishes 4 requirements for drinking water.

- It is necessary that drinking water does not pose an epidemic risk.
- It must be chemically harmless.
- The organoleptic properties of drinking water should be pleasant.
- Drinking water must be protected from contamination under all circumstances.

In water supply networks during state sanitary control all water must meet the requirements of Gosstandart.

According to State Standard No. 950-2011, signs indicating the bacterial purity of drinking water should be as follows:

№	Name of indicator	Standard
1.	Coli index	no more than 3.
2.	Koli titer	no more than 300 ml.
3.	The total number of microbes	no more than 100.

Coli index - the amount of E. coli in 1 liter of water.

The Koli titer is the amount of pure water corresponding to 1 E. coli in 1 liter of water.

The total number of microbes represents the number of microbial colonies that grew after inoculating 1 ml of water into the endomedium and placing it in a thermostat at a temperature of 37 0 C for 24 hours.

According to State Standard No. 950-2011, norms of indicators affecting the organoleptic properties of water

№	Indicators	Norm (mg/l)
1	Hydrogen index	6,0-9,0
2	Iron (Fe)	0,3
3	Total water hardness	7,0mgekv/l
4	Manganese (Mn)	0,1
5	Copper (Cu)	1,0
6	Residual polyphosphates (PO ³⁻⁴)	3,5
7	Sulfates (SO ₄)	500,0
8	Chlorides (Cl ⁻¹)	350,0
9	Dry residue	1000,0
10	Zinc (Zn)	5,0

Standard for organoleptic properties of drinking water

Organoleptic indicators are indicators that a person can determine with his senses. A person can determine the smell, taste, color and turbidity of water using his senses without any instruments or equipment.

The taste and aroma of water is determined on a 5-point scale:

0 point – not noticeable;

1 point – not detected by the consumer, but detected by an experienced expert beret;

2 points – strong; can only be felt when the consumer is told about it;

3 points – significant; the consumer can be identified and it will be unpleasant for him;

4 points – noticeable; is immediately noticeable and makes the water undrinkable;

5 points – very strong; You can't drink water at all.

Summary. In conclusion, it should be said that providing water to the population, preventing the occurrence of various diseases among them, taking into account the health status of residents of remote areas that have not been reached by centralized water supply, some diseases that occur in them (urolithiasis, fluorosis, gonorrhea, etc.), It should be emphasized the need to use purified (filtered) water and, if necessary, install equipment for processing and filtering groundwater built in the Khiva region and this means that the population will be healthy. It should not be overlooked that this is an important indicator.

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