

groundwater reserves and resources

<https://www.youtube.com/watch?v=e4u59lbRnpY>



PLAN:

1. What is a reserve, types.
2. Types of groundwater pollution.
3. Protection zones.
4. Reserve categories.
5. Conducting observations in the protection of underground water .

Enter.

Groundwater is one of the main factors affecting the development of the country's production forces. In order to properly plan the use of ground water in various sectors of the national economy, it is necessary to study its total amount and the laws of distribution of its resources on the territory of the country. Groundwater that can be used in the national economy should be considered as a mineral deposit. But the only difference between underground water and other mineral deposits (coal, oil, gas, etc.) is that in the process of using underground water, they are additional

nutrition

feature

have

This phenomenon is related to the feeding of surface water during the exploitation of groundwater , the addition of water from aquifers during non-exploitation, and the reduction of evaporation as a result of the decrease in the level of underground water .

The formation of underground water resources can be explained as follows. In the course of water circulation in nature, water falls on the land surface in the form of atmospheric precipitation (rain, snow).

Part of the precipitation forms surface currents, and part evaporates on the land surface and rises into the atmosphere. And finally, the third part seeps through the aeration zone and reaches the groundwater level, replenishing its amount every year. Then, under the influence of discharge into tributaries, the groundwater flows into the rivers and forms a stable groundwater flow. Stable groundwater flow characterizes groundwater throughout the year . nutrition

of the amount

This amount of underground water formed during the year due to nutrition in the upper part of the earth's crust is called its **natural resources** .

From other mineral deposits of underground water to identify several concepts that are different

requires:

a) the amount of water added to the aquifer under natural conditions or as a result of water management, reclamation, exploitation activities;

b) the amount of water in the aquifer;

c) technical and technical in exploitation of underground water the amount of water that can be obtained with the help of economically efficient water collection facilities;

If the "reserve of mineral deposits" is used in the assessment of the prospects for the use of solid mineral deposits if the concept is not sufficient, this concept for underground water does not fully represent the possibility of their productive use.

Therefore, at the suggestion of F.P. Savarensky, the concept of "groundwater resources" is used, which represents the nutrition of the water horizon (layer).

The classification of underground water reserves and resources, which is widely used in the practice of hydrogeological survey-research works, is used.

Groundwater reserves according to this classification:

- a) natural;
- b) artificial;
- d) attracted;
- e) operational reserves are divided into classes.

Natural reserve refers to the volume of gravity water located in pores and cracks in layers .

The volume of gravity water to non-pressurized aquifers is divided into 2 parts:

- 1) from the region where the natural level changes in the aquifer the volume of gravity water at the bottom;
- 2) the volume of gravity water located in the region where the groundwater level changes (manageable reserves).

Natural reserves of underground water are measured in units of volume.

Natural resources are the infiltration of atmospheric precipitation into the aquifer under natural conditions , filtration from rivers, underground water that flows from the surrounding area in the form of groundwater flow from the upper or lower aquifers . to the amount

As **artificial reserves** , irrigation, water
Filtration from reservoirs and land
groundwater artificially
to the as a result formed
volume of recharge (generated) groundwater
it is said.

As **artificial resources** , water
channels to layers, reservoirs
and to the from the fields
consumption of water flow to which irrigation is added
it is said.

Absorbed resources refer to the flow of water that is added to the aquifer as a result of the feeding of underground water during the use of water collection facilities .

Exploitable reserves are the amount of water that can be obtained with the help of technically and economically effective water collection facilities, in the given (designed) mode of operation and during the calculated period of water use (withdrawal) without changing the water quality .

This concept shows the capacity (capacity) of water collection facilities and is expressed in the consumption unit (thousand; m³ /day).

Types of groundwater pollution.

Groundwater pollution:

It is divided

into

1.chemical 2.biological 3.radioactive types

Chemical pollution

Chemical pollution occurs under the influence of sewage effluents . Especially, seepage waters located close to the surface are quickly polluted, that is, dirty wastewater from industrial enterprises pollutes them. In irrigated fields, atmospheric precipitation and irrigation water, along with various toxic chemicals, seep into seepage waters through the aeration zone , polluting them over large areas.

Biological pollution is a disease spreader
different types of bacteria in household sewage
passage of water occurs

will be

Radioactive ground water
pollution in their composition

radioactive elements - uranium, radium,
natural strontium, cesium, tritium
availability and groundwater

industry with radioactive elements and
to groundwater of other wastes
entrance is evaluated with

Protection zones.

Two sanitary protection zones have been established around water collection wells built for drinking water supply:

- I-critical mode region;
- II-boundary regime region.

Water receiving facilities, pump **in the I-region** station, water treatment plant and water collecting reservoirs are located. of this region

The boundary is the land without pressure from the water collection facility 50 meters from the ground where groundwater is exploited, and from the land where pressurized water is being exploited It should be located at a distance of 30 meters. of this region sanitary condition "II-31-74 of Construction Standards"

to meet the requirements

must

There should be no polluting sources within the boundaries **of zone II** . Because the placement of industrial facilities, excavation, construction work in this region will be limited, and the use of toxic chemicals in agriculture will be prohibited. As its limit, chemical use is accepted for the entire operation (25-50 years) at a distance that does not reach the water collection facilities.

will be done.

Reserve categories.

Based on the accepted classification, the operational reserves of underground water are divided into four categories - A, S1 , S2 , depending on the level of exploration of the mineral deposit and the accuracy of the water quality study, as well as the conditions of exploitation .

W,

Category A.

This category includes underground water reserves, aquifers formation conditions, structure and pressure, nutrient conditions of the aquifer, mountain gender characteristics, of hydrogeological operational reserves filling possibilities of the studied underground waters with other aquifers and surface water connection, hydrogeological exploration works fully identified and studied as a result. Underground water quality during operation does not change.

Category V.

In this category, underground water reserves, the main features of the aquifer, ie the structure of the aquifer bed conditions, nutrition, different aquifers and surface water connection with, hydrogeological searches as a result determined.

S1 category.

In this category, underground water resources, the structure, location and distribution of aquifers are studied in general with the help of hydrogeological research. The quality of underground water and the possibility of using it for a specific purpose is partially resolved.

S2 category.

In this category, the reserves of underground water are determined on the basis of general geological and hydrogeological data and as a result of the work carried out in similar areas through prospecting. And the quality of underground water with the analysis of water samples taken from some points

to do

the way

determined.

Monitoring of groundwater protection.

Mastered chemical contamination of areas with elements is also underground changes the chemical composition of water. In the lower regions of Kashkadarya region reclamation and agricultural activities as a result of the chemical elements of the soil assessment of the level of pollution with researches were carried out for this purpose and recommendations given

The operational reserves of underground water located in the main water horizons in our republic are 900 (about 30 km/year). This is from 90% of water resources

mostly located in irrigated districts. Up to 5 billion cubic meters of water per year can be used to irrigate land as an additional reservoir. This water makes it possible to supply 0.6 million hectares of irrigated land with water. In the desert region of our republic, 4.5 thousand hectares of land are irrigated with 5 m/s of underground water taken from 182 water collecting wells . In the future , 30,000 hectares of land can be irrigated in these regions at the expense of irrigation, and due to this, desert livestock can be fully satisfied with food reserves.

In irrigated areas, underground water is used to increase (improve) the water supply of land .

The amount of groundwater taken from these areas for irrigation varies in different years and it is related to the climate. In the years of water scarcity (1961-, 1962-, 1965-, 1967-, 1971-, 2000), large amounts of water are withdrawn from underground water. and used in

irrigation. Thus,

the use of underground water for irrigation purposes in some regions is of great importance , and especially in the conditions of water shortage years, it ensures a stable high yield.

References:

1. G'.U. Yusupov., V.M. Kholboev "Geology and basics of hydrogeology". Tashkent-2003
2. M.Z. Nazarov "Engineering geology and environmental protection". T. Uzbekistan, 1994.
3. Ergashev Y. "Engineering Geology and Hydrogeology".

ЭЪТИБОРИНГИЗ УЧУН РАХМАТ!