METHOD FOR OBTAINING FRESH WATER FROM THE AIR

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About 70% of the Earth's surface is covered with water, but 97.5% of it is salt water. The remaining 2.5% is fresh water, almost two-thirds of which is frozen in ice caps. Meanwhile, most of the fresh water is found in a one-kilometer layer of the atmosphere. Its total volume is at least 1 trillion m^3. The average absolute humidity near the Earth's surface is 11 g/m^3, and in tropical regions it reaches 25 g/m^3 and above. Many countries in the tropical belt suffer from a lack of fresh water, although its content in the atmosphere is quite significant.

According to UN data, more than 2.2 billion people already live in conditions of constant freshwater scarcity, and around 2 billion suffer from it regularly (during the dry season, etc.). According to FAO forecasts, by the middle of the third decade of the 21st century, the number of people living with permanent water shortages will exceed 4 billion. [1-3].

Water is one of the most valuable natural resources on our planet, and therefore it must be conserved. It is important to recognize that water resources are finite, and human life and health depend on their quantity and quality. Rivers, lakes, and water in general also hold significant cultural and spiritual value. Access to clean water remains a critical issue for humanity. Drinking water, like air, is essential for life and health. Even a 1% water deficiency in the human body can increase the risk of cardiovascular and respiratory diseases.

Unfortunately, this vital resource is often wasted. Many developed countries, acknowledging this fact, have implemented sustainable and efficient water management practices. Without widespread promotion of water conservation culture and decisive measures to preserve this resource, the situation could lead to serious economic, social, and political challenges. Currently, 1.1 billion people worldwide suffer from a lack of safe drinking water, highlighting the relative privilege of those with adequate access [4-5].

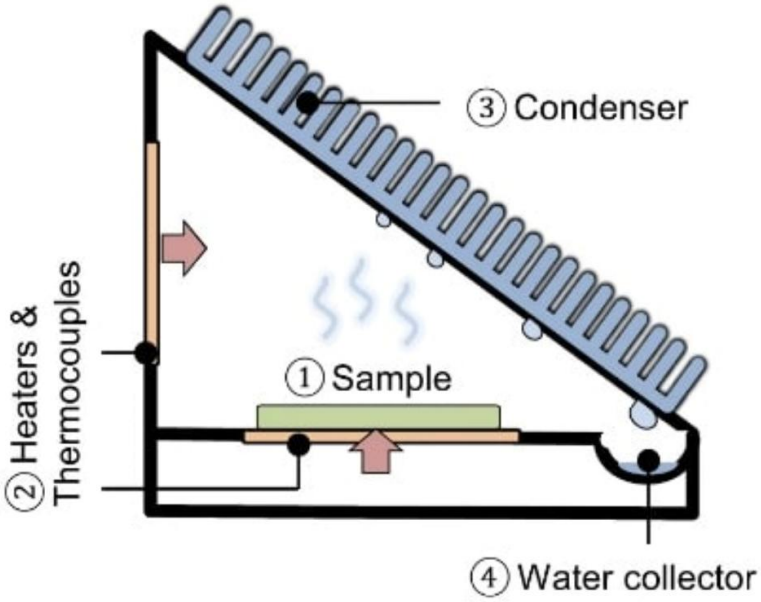

Fig. 1. Diagram of a system for obtaining fresh water from air [6]

The government of Uzbekistan pays great attention to solving the country's water problems.

On the initiative of Uzgidromet, an "atmospheric water generator" (Airaqua), equipped with seven purification filters, has been launched in pilot industrial operation to produce drinking water from atmospheric air for the weather station in Chimbay District, Republic of Karakalpakstan.

This device is adapted to places where drinking water is unavailable and delivery is economically expensive. This innovative technology has been launched in test mode. Using the statistical data obtained, it is planned to install it at other weather stations in the republic.

Given that atmospheric air is a huge reservoir of moisture, an atmospheric water generator can be considered the most efficient device in the world for producing atmospheric water. It should be noted that this device allows you to obtain clean water.

One of the primary challenges addressed by a condenser for extracting water from air is providing access to drinking water in areas with limited or no fresh water sources. The device operates on the principle of condensing water vapor from the atmosphere, enabling the collection and condensation of ambient moisture. It employs specialized materials to attract and capture water vapor, which is subsequently condensed, filtered, and collected. Thus, the condenser allows water production even in regions or situations where conventional water sources are unavailable. This technology is particularly valuable in emergency

scenarios when resources or infrastructure for traditional water supply are limited.

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