

THE IMPORTANCE OF GLOBAL WATER RESOURCES IN THE SURVIVAL OF MANKIND

IMPORTANȚA RESURSELOR GLOBALE DE APĂ ÎN SUPRAVIEȚUIREA OMENIRII

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Abstract: *Mankind is heading vertiginously for an imminent water crisis, a crisis that can trigger a food crisis, rampant homicides, exacerbation of existing conflicts and the emergence of new ones. Under these conditions, a brief history of the conflicts related to freshwater reserves across the planet is required, as well as information on the current situation and future trends. The problem exists, and the number of people affected by it is worrying from day to day. The quality and quantity of freshwater reserves on the map affects and will continue to affect the stability of all human communities. Water has often been a strategic factor and a topic of dispute since the dawn of history. The fresh water, vital for agriculture and the survival of any living being, was a stake for conflicts on an economic, ethnic and religious basis, but the conflicts also targeted the marine waters, in the context of establishing territorial waters held by states with access to seas and oceans. Unfortunately, it is not always a resource at our fingertips, especially under the pressure of global warming and rampant population growth.*

Key words: *water, survive, society, pollution, sustainable development*

1. Introduction

Water is needed to maintain life and any human activity. The quality of life, our comfort and our health are dependent on the quality of the water. In the industrial or commercial sectors, good quality water is the main ingredient of most products.

Water is one of the predominant elements of the Earth and plays a major role in the survival of organisms. The seas and oceans occupy 71% of the surface of the globe, approximately 361 million km². "Blue Planet" is unevenly distributed over the two hemispheres, occupying 89% of the southern hemisphere area and 53% of the northern hemisphere area. The Earth's water layer is called the hydrosphere. If the earth's surface were smooth, it would be covered with a layer of water. Water is an environment in which aquatic organisms live and which promotes the incorporation of mineral salts into plants.

At the same time, water is also the raw material used by all living beings in the synthesis of organic substances that ensure their nutrition and growth. Only some lower and higher organisms can live in an apparently dry environment, being able to resume their functions in the presence of water and a suitable temperature. In most cells it occupies about 60% of the cell mass.

It is the main solvent and dispersion medium of the various substances. Water helps the transport of substances into the cell and numerous chemical reactions. Water is present in the human body in 60% because most tissues contain water (94% of blood plasma, 80% of muscle tissue, 60% of red blood cells, over half of other tissues), and daily consumption of a human is 2.5 l (food and liquids). In nature, plants carry out their life cycle under the action of the complex of ecological factors characteristic of the environment.

2. The factors of the global worsening of the quality of water resources

Water quality has become an increasingly important problem lately and has been the subject of sustainable development plans but also of adequate management of world waters. Over time, we noticed a number of factors that led to this situation, respectively:

- achieving giant industrial and zootechnical objectives
- promotion of highly polluting production technologies, abandoned in economically developed countries
- the rapid increase of the share of diffuse pollution, produced especially by the chemicalization of agriculture with increasingly numerous fertilizers and pesticides and in increasing quantities, as well as the fact that this kind of pollution cannot be easily detected and prevented;
- non-correlation of the increase of the production capacities and of the urban development with the modernization of the sewerage works and the realization of the treatment plants
- improper exploitation of existing wastewater treatment plants;
- lack of an organized system for collection, storage and management of waste and sludge from wastewater treatment plant

The increase of more than 15% of the water requirements reflects, in part, the economic-social development, but especially the maintenance of situations of irrational use and waste of water. These are generated both by the perpetuation of large manufacturing technologies that consume water in industry, compared to those used in other countries, respectively the use of exaggerated water rules for irrigating crops, water losses in the distribution networks and waste water, as well as the insufficient supply of systems for measuring the quantities of water taken and discharged, as well as the lack of a system of economic levers. The increase of the water consumption was accompanied by the increase of the quantities of waste water discharged, without being correlated with the execution of the treatment plants to the necessary capacities.

The current trends lead to an exaggerated demand for water resources, disrupting the balance of these resources, which would have adverse effects on the country's economic and social development. The efficient development and implementation of a national policy for the rational use of water resources imposes the following priorities:

- reducing the rate of growth of water consumption in all branches of the national economy;
- streamlining and saving in use in order to minimize the water requirement, the demand for fresh water from the source and the non-recoverable water consumption
- recirculation and reuse of water
- water protection against pollution
- systematization of water distribution networks
- legislation and administration
- public participation

2. Global perspective of water

On July 28, 2010, the General Assembly of the United Nations explicitly recognized by Resolution 64/292 that access to safe drinking water and sanitation represents human rights and also acknowledged that drinking water and sanitation are essential to the fulfillment of all human rights. The same resolution calls on all states and international organizations to provide financial resources, aid in capacity building and technology transfer to help developing countries, in particular developing countries, to provide drinking water to all:

- Sufficient - water supplies for each person must be sufficient and continuous, for personal and household use, such as water consumption, personal hygiene, food preparation or washing clothes. According to the World Health Organization (WHO), between 50 and 100 liters of water per person per day are needed to ensure that most basic needs are met and that only a few health problems can occur.

- Safe - the water needed for personal and household use must be safe, therefore free of microorganisms, chemicals and radiological risks, which pose a threat to a person's health. Safety measures for drinking water are usually defined by national and / or local standards for drinking water quality.

- Acceptable - the water should be of a color, odor and taste acceptable. All water facilities and services must be culturally appropriate and sensitive to gender, life cycle and confidentiality requirements.

- Physically accessible - anyone has the right to a water and sewerage service that is physically accessible in the space or in the immediate vicinity of the household, educational institution, workplace or health institution. According to the WHO, the water source must be up to 1,000 meters away from the house, and the required collection time should not exceed 30 minutes.

At affordable prices - water and water facilities and services must be accessible to all.

The United Nations Development Program (UNDP) suggests not exceeding 3% of household income on water costs. This right does not imply that people benefit freely or in unlimited quantities of water, but that it is used in a sustainable manner, to which everyone contributes to the extent possible. It also requires the state to take the necessary measures according to the resources available to it in order to achieve these desires in a progressive manner.

Moreover, the famous interview in which appears the executive director of one of the major corporations globally, and in which he lobbies for the privatization of water through his opinion, according to which water as a fundamental human right would be an "extreme solution" to different problems reported, indicates the level of pressure from corporations on the states regarding the regulation of drinking water resources.

4. Water- Importance and Uses

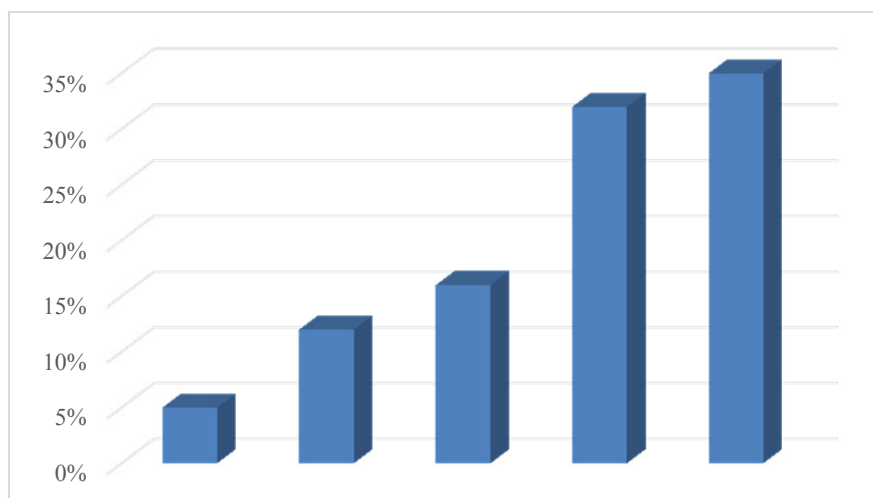


Figure 1- The main areas of water use

Source: European Environment Agency

Water is a large generator of atmospheric oxygen and the largest heat absorber. It is a significant component of the living world and an important resource needed in most human activities. Water determines and realizes the most important circuit - the water circuit in nature - maintaining the balance of the whole environment. The natural water circuit is made, on average, for 9 days. At the same time, water participates essentially in other circuits (oxygen, carbon). The energy of the rivers has long been used to raise water for irrigation or water mills, eventually reaching hydroelectric plants that convert hydraulic energy into electrical energy.

They have the advantages of producing a form of renewable, non-polluting energy, which is 3-5 times cheaper than the one produced in thermal power stations, later spending less. The profitability of the hydroelectric plants increases through the complex use of the accumulation lakes (navigation, fish farming, recreation), thus participating in a percentage of 20-25% in the world electricity production. The global hydropower potential is analyzed in three steps: theoretically (total), technical (possible to be arranged) and economical (cost-effective).

The theoretical one is very large (54.200 billion kWh), the technical one is reduced to 45%, and the economic one remains about 13%.

On continents, Asia holds about 40% of the hydropower potential, followed by Africa 20%, North and South America. The great hydropower potential has the rivers: Zair, Enisei, Brahmaputra, Yangtze, Colombia, Parana, Nile and Zambezi. The hydropower potential is particularly valuable for some poor fossil fuel states: Brazil, Zair, Japan, Sweden, therefore complex waterfowl arrangements are made (Rhine, Ron, Volga) as well as tributaries (Olt), experimented and expanded. with the speed of the construction of micro-power plants. Among the major hydroelectric plants of the world are: the plants on Parana, those on the Columbia River (USA), St. Lawrence (Canada), Volga and Enisei (from Russia). Water is a cooling element and an energy carrier. It is also used in the chemical industry to obtain sulfuric acid, bauxite, cellulose and paper.

Water is indispensable for agriculture. Soil fertility is formed and yields only with water, and if a large production is desired irrigation is required. Currently 40% of world agricultural production comes from irrigated land. Two-thirds of irrigated agriculture is in Asia. About 70% of the cereals harvested in China come from irrigated land, while in India they return 50%, and in the USA 15%.

Conclusion

Every day we face problems that most often concern the social aspect of life; the rapid course of events goes hand in hand with changes taking place at the level of natural resources. Water and life, are two elements connected to each other more than we could imagine. It has already become a stereotype that "water is the cradle of life". And indeed, if we think a little we realize that it is, that the first forms of life have appeared in the seas that once covered, much of the land of the Blue Planet.

There the first organisms, invisible to the human eye, were born, some simple cells lunged from nucleic acids under the impulse of the ultraviolet radiation of the Sun. What distinguished them from the other substances in the large water table was that they could divide and transmit their characters to the cells that subsequently formed.

Water plays an essential role in the maintenance of life. Without water there could be no life. In the body, water enters the composition of organs, tissues and biological fluids. It dissolves and transports assimilated and disassimilated substances; maintains constant salt concentration in the body and, evaporating on the surface of the body, takes part in regulating the temperature.

In nature, water is found under all aggregation states: solid (ice, snow, hail), liquid (rainwater, groundwater, oceans, seas, rivers, rivers, etc.), gaseous (water vapor from the atmosphere) .

Today, we find that water is not only a condition of life, but also a necessity. We need water to produce hydropower. For this purpose we use the nautical waters of the rivers or the waters of the seas which regularly deviate from the land in the form of tides. We need water to cool the reactors of the atomic power plants, so we can get electricity.

Water, the most widespread substance on the Earth's surface, is also the most necessary for the unfolding of life. In its absence, the entire planet we inhabit would look like absolute deserts.

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