

IMPORTANCE OF WATER RESOURCES AND IMPLICATION OF METHODS TO SAVE IT

Rajendra singh yadav

Lecturer in Geography

MLV Government college, Bhilwara (Rajasthan)

Abstract

Water is one of the most fundamental need for human survival. Only around 0.3 percent of the world's water resources are really exploitable. There is already a severe lack of water in many areas, leaving more than one billion people without access to sufficient supplies of drinking water. This circumstance is one of the most crucial signs that demonstrates why we need to exercise a great deal of sensitivity and consciousness with regard to our water supplies. The demand for water is growing in proportion to the expanding human population. In spite of this, water resources are being depleted, contaminated, and exploited carelessly due to a variety of factors, most notably the actions of humans. The usage of water has more than quadrupled between the years 2018 and 2019, and as a result, several nations, including Turkey, are facing the possibility of water shortages. As a result, it is vital to adopt actions and put them into effect as quickly as possible, and we need to be careful with how we use our water resources. The purpose of this research is to conduct a literature analysis on the topic in order to get a deeper comprehension of the significance of water and to make a theoretical assessment of issues pertaining to the prevention of water pollution and waste.

Keywords: *water, resources, implication*

Introduction

Water and the availability of water resources are of the utmost significance in terms of guaranteeing an adequate supply of food and a fruitful environment for all forms of life. The demand for freshwater on a worldwide scale has been steadily growing due to the expansion of human populations and economies. A substantial decrease in biodiversity may occur in aquatic as well as terrestrial ecosystems when there is insufficient water. This can endanger the availability of food for humans. The negative consequences of an increasing global population, the implications of climate change, and changes in lifestyle are all imposing increased strains upon our essential water supplies, which is contributing to widespread water stress in many nations. As a consequence of this, an increasing number of people are coming to the conclusion that it is imperative to practice water conservation since it has a significant impact on both the general population's health and the quality of life that people enjoy. However, there is a significant disparity in the distribution of water around the globe. Water is an essential component that must be present for the human body to be able to carry out its life-sustaining functions, including eating, breathing, circulating blood, eliminating waste, and reproducing. In addition, water is both a living space and one of the fundamental components that go into the making of a life environment. Water is one of the basic substances. The warmth of the sun causes water to evaporate; this process creates masses in the atmosphere in the form of clouds made up of water droplets that eventually condense into precipitation that can perpetuate life on earth, such as rain, hail, or snowfall. Transpiration is the process through which plants take in water from the surrounding soil and then expel some of that water back into the air. Transpiration, together with evaporation

and precipitation, are the three components that make up the water cycle. The presence of liquid water is one of the primary characteristics that sets apart our planet from those of other galaxies and planetary systems. Throughout the course of human history, water has been the single most significant element in the development of civilizations and the single most important factor in defining the locations of residential regions. Water may be sourced from the atmosphere, the sea, the land, rivers, lakes, and seas across the world. Because of something called the hydrological cycle, water on land often takes the form of subsurface fluids. Water in the air, on the other hand, is constantly moving between the soil and the atmosphere.

There is enough water to fill three quarters of the earth, and the majority of the human body is also composed of water. The importance of water cannot be overstated for any living thing, and some of its primary roles in the human body can be summed up as follows: water is a biological solvent that is responsible for the transport as well as the dissolution of vitamins and minerals in the body; water is essential for maintaining the body's temperature; water helps the kidneys and other organs do their jobs, protects, and acts as a cushion; water is essential for maintaining the skin's moisture level, eliminating toxins, and cleansing the body. In addition to all of these, water plays a key role in the performance of many essential functions, such as circulation, excretion, and reproduction. Eighty to ninety percent of our blood and seventy-five percent of our muscles are composed of water. Water is an essential component of life, and we begin to experience painful symptoms even if we are just dehydrated for a brief period of time. When we lose really significant benefits such as the water that we have, we start to appreciate how precious water is as a material. Because of population expansion and accompanying increases in water consumption, not only will there be a significant decrease in the amount of water that is available per person, but there will also be a strain placed on the biodiversity of the entire world environment. Rainfall, temperature, rates of evaporation, evaporation rates, soil quality, types of vegetation, and water discharge are some of the other important elements that limit the availability of water. In addition, there are currently significant challenges involved in distributing the world's freshwater resources in a manner that is equitable across and between countries. It has been estimated that the amount of water used has grown by a factor of seven over the course of the past century.

The world's potable water supplies are deteriorating and becoming progressively degraded as a result of irregular urbanization, excessive population expansion, water pollution, water waste, a rise in greenhouse gas emissions, and excessive industry. Pollution of already limited quantities of usable and potable water resources, unsuitability of water used in energy production for human consumption due to recycling, uncontrolled use of pesticides, improper agricultural practices, waste of water, climate changes due to global warming, drought, insufficient knowledge of water, and unconscious reasons such as consumption all mean that all living things are being deprived of water, which is the source of life. This is a problem because water is necessary for all living things to survive. The availability of water resources is among the natural resources that are of the utmost significance to governments. In order for a nation to be regarded as having an abundant supply of water, the yearly water quantity per capita must be between 8,000 and 10,000 cubic meters. Because the average quantity of precipitation that falls on each person in Turkey is roughly 1,430 cubic meters, the country cannot be considered one of the water-rich nations. Despite all of the benefits that water resources provide, including the creation of habitats for diverse species of the flora and fauna as well as substantial contributions to hydrological and chemical cycles, water resources are among the ecosystems that are in the greatest risk of disappearing. The purpose of this research is to investigate, from a theoretical point of view, the significance of water in relation to the environmental viability, water pollution, and water conservation issues that are currently being debated in the relevant academic literature.

The importance water and conscious use of water

The deterioration of the natural composition of water resources is referred to as water pollution. This is due to the fact that the substances that are present in the natural composition of water resources (streams, groundwater, lakes, seas, etc.) have concentration values that are higher than the optimum concentration values as a direct result of human activity. Water resources are essential to the survival of all living beings as well as the growth of the economy and the environment. This essential natural resource is both the most sensitive to environmental pollution and the natural resource that is most damaged by environmental pollution. People need to be able to drink water that is of a high enough quality that it is clear, has a enough amount of oxygen, and has the appropriate minerals.⁶ The extent to which the natural cycle of water resources is in jeopardy may be better comprehended when it is considered that one liter of contaminated water can render eight liters of pure water⁷ useless as a result of its contamination. It is easier to comprehend the significance of the matter when one takes into account the fact that there are around 1.4 billion people in the world who do not have access to clean drinking water. The majority of the pollution that occurs in rivers, lakes, groundwater, and oceans is the result of human activity, and as a result, the natural equilibrium of ecosystems becomes disrupted. Acids and alkalis, detergents, home wastes and fertilizers, wastes from the food industry, different gases, heat, various metals, minerals, oils and dispersants, organic hazardous wastes, pathogens, and pesticides are the most common types of pollutants found in water. The dangerous wastes that are spread by contaminated water also reach the animals that drink from these polluted water sources, which has a detrimental impact on the long-term viability of food supplies. Water pollution does not only remain in water; it permeates the soil, and from the soil, it moves up the food chain to plants, vegetables, and fruits that are irrigated. "The use of water of poor quality; diseases caused by water on living things; low productivity in agricultural activities; the reduction of biodiversity in aquatic habitats; deaths; and increases in the costs of treating drinking water and utility water"¹⁰ Water pollution, in addition to creating a drop in consumption and drinking water, endangers the lives of all living organisms that inhabit the water. The contamination of water also harms the biological richness of the ocean, sea, lake, and aquatic ecosystems. Industrialization, the use of pesticides in agriculture, and the unintentional use of chemicals in both agriculture and industry all contribute to the chemical contamination of the world's water supplies. The most significant causes of chemical pollution include seepage from agricultural practices, improper disinfection procedures, inefficient industrial procedures, leachate from underground storage tanks, mining operations, improper disposal of chemical waste, and corrosive water. As a result of the hydrological cycle, chemically polluted water is distributed to a variety of locations, which poses a threat to both the ecological balance and the health of humans and other organisms. They should not contain nitrite, nitrate, organic matter, chemicals, heavy metals, or disease-causing microorganisms. The healthy water that is drunk and used should be tasteless, colorless, and odorless; its chemical content should contain some basic elements needed by the body such as calcium, magnesium, and sodium. The following is a list of some of the factors that will have a pollutant effect on surface waters: disease-causing organisms, organic pollutants, industrial wastes, synthetic detergents, radioactivity, pesticides, chemical pollutants, inorganic salts, artificial and natural agricultural fertilizers, and waste heat. Some of these factors are listed in alphabetical order. The contamination of some water supplies may be deduced from their outward appearance alone. However, laboratory studies are the only way to understand taste, smell, pollution produced by microbes, heavy metals, nitrates, and radon, as well as the effects of many different substances. Because of this, the examination of water that may be consumed should be done on a frequent basis. The most important elements that influence how someone uses water are their attitudes and beliefs around their water intake and usage. The vast majority of people have incorrect beliefs regarding water use, which results in water being wasted in homes as a direct consequence. The following is a list of some of the

measures that can be taken to prevent water waste: leaky faucets should be fixed because they result in significant water loss; water-saving appliances should be used; instead of washing fruits and vegetables under running water, they should be washed in a bowl; dishes should be cleaned in a dishwasher; hot water pipes should be insulated with material; the temperature setting on the hot water system thermostat should not be too high; the washing machine should be used. The following is a list of the elements that need to be taken into consideration in order to make more efficient use of irrigation water in agricultural production. In all regions where the climate, soil, and topographical conditions are acceptable, sprinkler irrigation or drip irrigation should be used as the method of water delivery to the plants. The prudent management of water resources should be practiced by more people. Irrigation should be performed at the times of the year when the plant has the greatest demand for water; at other times, either a little amount of irrigation should be performed, or the process of irrigation may be halted entirely, with the water saved here being used to irrigate a broader area. Agriculture should make use of practices that will maintain the moisture content of the soil. The consistent use of commercial fertilizers in crop cultivation destroys the structure of the soil and decreases the ability of the soil to store water. The ability of the soil to store water is improved both by using green manure and by making use of animal manure. Because tilling the soil causes a loss of moisture, agriculture that does not include tilling, such as utilizing a direct sowing drill, should be favored. The development of plant kinds that are able to withstand saline and drought is something that has to be prioritized. The water basins should not be occupied with settlements and industrial facilities; water resources should not be polluted; clean water resources and pastures and forests that serve as natural dams should be increased, rather than reduced, in order to meet the water needs of the growing population in a sufficient manner. Unfortunatously, a water shortage affects a great number of civilizations in today's world, and given the projected rate of global population growth, the total number of people in the world who experience a water shortage will steadily rise. In this scenario, recovering and reusing wastewater is the one and only consistent option to continue providing an adequate water supply while also protecting the resources that are already in place.

Significance of Management of Water Resources

The amount of fresh water that is available is decreasing, while at the same time the demand for it has been growing. People's awareness that water bodies need to be maintained clean and free from pollution has been raised as a direct result of the rise in the amount of water that is required for human consumption. To put it another way, the people need to increase their level of comprehension with regard to the procedures that are required for the efficient management of the water bodies. It is necessary to create laws and regulations in India that will increase people's awareness of the need of protecting the country's water resources, as a means of preserving these natural resources. People living in rural communities are more likely to be poor and less educated than people living in urban settings. In addition to this, they are struggling mightily to deal with the issue of illiteracy. When people are subjected to the impact of these variables, they make excessive use of water and even contribute to the contamination of water sources. As a result, it is of the highest importance for them to expand their awareness in terms of the procedures that are essential to the promotion of water resource management.

The reduction of pollution is being accomplished in large part via the research and development of techniques and technology that save water. According to Chapter 6 of Water Resources (2016), in order to maintain a sufficient supply of water over the long term, it is necessary to promote the development of watersheds, the collection of rainfall, the recycling and reuse of water, and the conjunctive use of water. Individuals are responsible for ensuring that they make effective use of water in accordance with the prerequisites and

expectations that have been established. Water is put to use for a variety of tasks, such as cleaning, washing, bathing, meal preparation, and a number of other activities. Each person is responsible for ensuring that they utilize water in the appropriate quantity, which is only as much as is necessary. It is important to preserve it. Individuals who live in regions where there is a water scarcity are required to begin water conservation practices as early as possible in order to ensure that they are able to fulfill all of their demands and requirements in an acceptable manner. Therefore, it is possible to claim that conserving water is one of the essential actions that must be taken in order to bring about improvements in the circumstances of the environment.

People's health may be negatively impacted by polluted water in the same way that it can be by the air that they breathe. According to the findings of several research studies, the people who live in rural and tribal areas are generally the ones who are dependent on water bodies for their continued existence. The water is put to use in the conduct of a variety of tasks within the home, including the irrigation of crops and other similar endeavors. The inhabitants of these areas also consume fish that they catch in the many bodies of water. The fact that the rivers, lakes, and other bodies of water found within the country are polluted to a significant degree is one of the unlucky elements of the situation. In other words, widespread water contamination is a problem that has to be addressed immediately. As a result, there is a pressing requirement to devise strategies for enhancing the quality of existing water resources and conserving those resources in an effective way.

Measures for Management of Water Resources

Water resource management encompasses monitoring, modeling, investigation, devising measurements and strategies, implementing policies, operation and maintenance, and assessment. It also supports communal well-being initiatives. Local, national, and international water resource management can be long-term or short-term. Water resource management include technical, institutional, administrative, legal, and operational activities needed to design, develop, operate, and manage water resources. Ancient civilizations managed water resources. Modern water resource management strategies have replaced traditional ones (Saveniji & Hoekstra, n.d.).

Principles govern water resource management. Identifying water contamination sources is crucial. These include population growth, industrialization, urbanization, modern technology, modern agriculture, excessive water use, inorganic compounds, wastes, pesticides, and fertilizers, and thermal and marine pollution. Water pollution harms humans and aquatic species. Water pollution spreads infectious and waterborne illnesses. Despite carrying disease-causing agents, carriers do not display symptoms. People get sick when they drink polluted water (Hygiene and Environmental Health Module, n.d.).

Rural residents must also focus on cattle rearing. Livestock helps with tasks and money. Feeding and watering cattle efficiently is essential. They go to water. Contaminated water harms them. According to rural community study, people believe they can manage water resources and keep water bodies clean by avoiding dumping rubbish. People should simply get enough water. Some ladies must visit wells and water sources everyday to get water. The family's men water their cattle at watering holes.

Urban residents must also raise knowledge of water resource management. Water shortages mean people can only get water once a week. In such instances, they use buckets and tumblers to get water for their family. To effectively manage water, it must be used to meet demands. Save water. For instance, while washing clothing or utensils, water should only be used as needed. Communities must collaborate to manage water resources. Conflicts over water acquisition might develop. In urban slums, conflicts lead to criminal and violent behavior. Thus, while acquiring water, people must cooperate to manage water resources.

Water pollution is unpleasant nationwide. Corruption, poor environmental planning, inadequate policies, programs, and technical skills are the main reasons. High water pollution endangers humans and wildlife. Water from water bodies is used for home chores and income. Fishermen capture and shell fish to make a living. Water resource management helps people stay healthy. People who drink polluted water will get sick. Thus, clean waterways are essential for optimum health and disease prevention. Environmental and water pollution prevention initiatives have been created throughout the nation. Country population has grown. Population increases water need. Water shortage, hydrological unpredictability, and severe weather events like floods and drought pose substantial dangers to global economy and stability. Recognition that water shortages and drought exacerbate fragility and war. When people face these big issues, their health and well-being suffer (Water Resources Management, 2020). Regular research, awareness, and knowledge are needed to solve water resource management issues.

Identification of Crucial Strategies in Water Resources Management

The World Bank is dedicated to assisting nations in their efforts to realize the goals and objectives of increased economic growth and decreased levels of poverty through the provision of support and assistance. The Sustainable Development Goals (SDGs) include both the expansion of the economy and the alleviation of poverty. In the case of SDGs 6.5, the management of water resources is taken into consideration; nevertheless, there are other SDGs and objectives that call for the management of water resources in order to be achieved. According to "Water Resources Management: 2020," one of the primary goals of the World Bank is to "assist developing countries in achieving water security by strengthening the strategies of water resource management." This is one of the World Bank's primary areas of focus. In order to acquire an effective comprehension of water resource management, it is necessary to identify the essential strategies, which include the reinforcement of water security, water resources management, water security is achieved when the productive potential of water is leveraged and the detrimental potential is managed, and the water security and integrated water resources management Global Solutions Group (GSG) is also taken into consideration. This will allow for the acquisition of an efficient comprehension of water resource management. The following is how these are stated: (Water Resources Management, 2020).

Reinforcement of Water Security

Enhancing water security is absolutely necessary in light of the rapidly expanding population and the accompanying urbanization, which is taking place against the backdrop of worsening climatic and non-climatic circumstances. In situations like this, it is impossible to make accurate forecasts and plans for a single route to achieve water security. Building up one's capability, adaptability, and resilience with regard to the planning and management of future water resources is necessary in order to improve water security. One of the essential aspects that must be taken into consideration is the fact that people must consistently place an emphasis on the topic in question. When people from all different communities get together to share knowledge on how to best manage their water resources, they will be able to reduce the issue of water scarcity and improve water security. According to the findings of many research studies, residents of some communities, most notably rural and urban slums, in some instances feel anxious about how they will be able to maintain their living circumstances in an acceptable manner in the event that they encounter a shortage of water resources. This is the situation in a number of the communities. In light of this, it is vital to devise strategies for the improvement of water security in order to sustain one's living circumstances in an acceptable manner and to enrich one's living conditions. Therefore, it is possible to claim that when individuals put into operation the measures and strategies for the

reinforcement of water security, they will be able to incur the sense of pleasure and improve their overall quality of life. This is because they will be able to strengthen their ability to prevent water contamination.

Water Resources Management

The process of planning, developing, and managing water resources in terms of the amount of water and the quality of water across all uses of water is referred to as water resources management (or simply water management). The amount of water available should be adequate to meet the demands placed on it by persons, and the quality of the water, which refers to its cleanliness and absence of contamination, should be of the highest possible standard. The management of water resources is guided in the right direction by the institutions, facilities, and incentives that make up its infrastructure, as well as by the information systems that support it. Management of water resources aims to make the most of water's advantages by ensuring that there is enough water of a high enough quality for both drinking and sanitation services. This includes making sure that there is enough water. Additionally, water is required for the production of food, the generation of electricity, the movement of goods and people via inland waterways, and water-based recreational activities, as well as the maintenance of healthy ecosystems that are dependent on water and the protection of lakes and rivers for their aesthetic and spiritual value. In addition, the idea of water resource management takes into consideration the actions that are required for the management of water-related hazards, such as droughts, floods, and contaminants. These risks are included in the concept of water resource management. The complexity of the interactions that exist between water and homes, as well as economies and eco-systems, necessitates the implementation of an integrated management strategy that takes into consideration the synergies and trade-offs associated with a vast number of water uses and values.

Conclusion

The existence of water is very essential to the maintenance of life. The key to life is water. Therefore, every choice and move that needs to be made regarding water is extremely important. It is of the utmost significance. The human being, in our view, occupies a central position in all of nature. On the other hand, we cannot broach the subject of a scenario such as the dichotomy between man and nature. It is possible for a person to create an atmosphere that is hospitable to life if that person possesses ethical and moral principles, places value on other living beings, and behaves in a way that respects their right to life. In point of fact, the human race is the most significant contributor to pollution in the entire planet. The areas and resources that are utilized by everyone are the ones that are most severely impacted by pollution since they are the ones that everyone utilizes. If water is evaluated as a complete medium despite the fact that it is in a condition of risk and there are only a finite amount of water resources in the world, the assessment might have unwanted consequences. Water is a substance that is critical to the survival of all living things, including human beings. Every day, there is a further rise in the demand for water, which is caused by the expansion of new consumption areas brought about by shifting living conditions. On the other hand, climate change, global warming, abuse, and pollution are likely to contribute to a diminishment of the available water supplies. Rich individuals in developed or undeveloped nations do not know or compute the quantity of water they drink in their homes or how much they pay for it; on the other hand, impoverished people pay extremely expensive rates for water that has already been halted. People with low incomes have to pay the price for the erroneous policies devised by economists who assume that water shortages or waste can be addressed by repricing water. These economists have the misconception that repricing water will solve these problems.

References

- [1] Pimentel D, Berger B, Filiberto D, et al. Water Resources, Agriculture, and the Environment. Ithaca (NY): New York State College of Agriculture and Life Sciences, Cornell University. Environmental Biology Report. 2004;1–46.
- [2] Çepel N, Ergün C. The Importance of Water and its Ecological Problems. 2003.
- [3] Akın M, Akın G. Suyun Önemi, Türkiye’de Su Potansiyeli, Su Havzaları ve Su Kirliliği. Ankara Üniversitesi Dil ve Tarih–Coğrafya Fakültesi Dergisi. 2007;47(2):105–118.
- [4] Şahin BA. Global Problem, Water Scarcity and Virtual Water Trade. Master Thesis, Çorum Hitit University, Institute of Social Sciences. 2016;128–130.
- [5] Uzun A, Keleş R, Bal İ. Sapanca Gölü İçme Suyu Havzasında Otoyol ve Demiryolundan Kaynaklanan Kirliliğin Yağmur Suyu Sulak Alan Metoduyla Giderilmesi. Apjes. 2014;9–15.
- [6] Akın, G. Ecology - Ecology and Environmental Problems. Ankara: Tiydem Yayıncılık. 2009.
- [7] Aksungur N, Firidin Ş. Use of Water Resources and Sustainability. Araştırma Bülteni. 2008;8(2):9–11.
- [8] Çolakoğlu E. Water and Water Ethics as a Common Value. ZKÜ Sosyal Bilimler Dergisi. 2009;9:109–116.
- [9] Göksu M, Ziya L. Water pollution. Ankara: Academician Bookstore. 2015.
- [10] Kerestecioğlu M. ANNEX: 9 Environment and Sustainable Development. International United Consultants Consulting Services Inc., Environment and Sustainable Development Panel Final Report, TÜBİTAK. 2001.
- [11] Güler Ç, Çobanoğlu, Z. Water Pollution. Environmental Health Basic Resource Series, No: 12. Ankara. 1994.
- [12] Butler, N. (2020). Why Is Water Important? 16 Reasons to Drink Up. Retrieved June 15, 2020 from healthline.com