International Journal of Advance Research in Science and Engineering
Volume No.07, Issue No.03, March 2018
www.ijarse.com
IJARSE
ISSN: 2319-8354

Potential of Fresh Water Resources and It's Factors

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ABSTRACT

Over two thirds of fresh water is frozen in glaciers and polar ice caps. Several schemes have been proposed to make use of ice stocks as a water source, however to date this has only been done for innovation purposes. Glacier runoff is considered to be surface water. The total mass of the Earth's hydrosphere is about 1.4 × 10^{18} tonnes, which is about 0.023% of the Earth's total mass. About 20 × 10^{12} a tonne of this is in the Earth's atmosphere (the volume of one tone of water is approximately 1 cubic meter). Approximately 75% of the Earth's surface, an area of some 361 million square kilometers (139.5 million square miles), is covered by ocean. Several mitigation projects have also been conducted with various results. In many cases the mitigation options provided have failed in terms of sustainability. There is a need of eager drive to find the solution that can solve the problem permanently.

Keywords: Evaporation, Groundwater, Human activities, Hydrosphere, Oceans

I.INTRODUCTION

Human activities can have a large and sometimes devastating impact on water resource. Humans often increase storage capacity by constructing reservoirs and decrease it by draining wetlands. Humans often increase runoff quantities and velocities by paving areas and channelizing stream flow (Pushpendra *et al.,* 2014). Water resources are store houses (sources) of water that are useful or potentially useful to humans. Uses of water include agricultural, industrial, household, recreational and environmental activities (Pushpendra *et al.,* 2017). Virtually all of these human uses require fresh water (Singh 2010). Around 97% of water on this planet is salt water and only 3% is fresh water. The average salinity of the Earth's oceans is about 35 grams of salt per kilogram of sea water. Over two thirds of fresh water is frozen in glaciers and polar ice caps. The remaining unfrozen fresh water is mainly found as groundwater (Pushpendra *et al.,* 2017). A small fraction of this present above ground or in the air.

II.HYDROLOGICAL CONCEPT

Wadding or energy (in the form of heat and light) from the sun, provides the energy necessary to cause evaporation from all wet surfaces including oceans, rivers, lakes, soil and the leaves of plants. Water vapor is further released as transpiration from vegetation and from humans and other animals (Gautam *et al.,* 2010). Aquifer drawdown or over drafting and the pumping of fossil water increases the total amount of water in the hydrosphere that is subject to transpiration and evaporation thus causing accretion in water vapour and cloud cover. It acts as primary absorbers of infrared radiation in the earth's atmosphere. Adding water to the system

has a forcing effect on the whole earth system, an accurate estimate of which hydro geological fact is yet to be quantified.

2.1 Sources of Fresh Water

Surface water is water in a river, lake or fresh water wetland. Surface water is naturally replenished by precipitation and naturally lost through discharge to the oceans, evaporation, evapo-transpiration and sub-surface seepage. Although the only natural input to any surface water system is precipitation within its watershed (Sharma *et al.,* 2012). The total quantity of water in that system at any given time is also dependent on many other factors (Sharma *et al.,* 2010). These factors include storage capacity in lakes, wetlands and artificial reservoirs (Pushpendra *et al.,* 2018). The permeability of the soil beneath these storage bodies, the runoff characteristics of the land in the watershed. The timing of the precipitation and local evaporation rates also play major role. All of these factors also affect the proportions of water lost.

III.WATER RESOURCE CATEGORIES

Water resources are divisible into two distinct categories: the surface-water resources and the ground-water resources (Singh *et al.,* 2012). Each of these categories is a part of the earth's water circulatory system. The process is called as hydrologic cycle and is ultimately derived from precipitation, which is rainfall plus snow (Pathak *et al.,* 2013). They are interdependent and frequently the loss of one is the gain of the other. The brief description of the run-off cycle, which is a part of the hydrologic cycle, will help us to understand the origin and the interdependence of these two categories of water resources (Rana *et al.,* 2014). The precipitation that falls upon land and is the ultimate source for both the categories of water resources is dispersed in several ways. A sizeable portion is intercepted by the vegetal cover or temporarily detained in surface depressions. Most of it is later lost through evaporation. When the available interception or the depression storage is completely exhausted and the rainfall intensity at the soil surface exceeds the infiltration capacity of the soils, the overland flow begins. Sources of fresh water are:

1. Surface Water
a. Rivers
b. Torrents
c. Springs
d. Lakes
2. Ground Water
a. Open wells
b. Tube wells
c. Artesian Wells
3. Auxiliary Water
a. Tailrace Discharge of Hydro-Turbines
b. Industrial Effluent
c. Sewage Disposal

3.1 Fresh Water

Awareness of the global importance of preserving water for ecosystem services has only recently emerged. During the 20th century, more than half the world's wetlands have been lost along with their valuable environmental services. Biodiversity-rich freshwater ecosystems are currently declining faster than marine or land ecosystems (Pushpendra *et al.*, 2018). Fresh water is a renewable resource, yet the world's supply of clean, fresh water is gradually decreasing. Water demand already exceeds supply in many parts of the world and as the world population continues to rise (Pushpendra *et al.*, 2017). The framework for allocating water resources to water users (where such a framework exists) is known as water rights.

3.2 Under River Flow

During the course of the river, the total volume of water transported downstream will often be a combination of the visible free water flow together with a substantial contribution flowing through sub-surface rocks and gravels (Pathak *et al.*, 2014). The underlie river and its floodplain called the hyporheic zone. Sub-surface water, or groundwater, is fresh water located in the pore space of soil and rocks. It is also water that is flowing within aquifers below the water table. Occasionally it is useful to make a distinction between sub-surface water that is closely associated with surface water and deep sub-surface water in an aquifer (sometimes called "fossil water"). Once the overland flow reaches a stream channel, it is called surface run-off, which together with other components of flow, forms the total run-off (Mishra *et al.*, 2009). Part of the water that infiltrates into the surface soil may continue to move laterally at shallow depth as interflow owing to the presence of relatively impervious lenses just below the soil surface and may eventually reach the stream channel when it is called the sub-surface runoff. A part of the sub-surface run-off may enter the stream promptly, whereas the remaining part may take a long time before joining the stream flow.

IV.CONCLUSION

A thick hydrosphere is thought to exist around the Jovian moon Europa. The outer layer of this hydrosphere is almost entirely ice, but current models predict that there is an ocean up to 100 km in depth underneath the ice. The ocean remains in a liquid form because of tidal flexing of the moon in its orbit around Jupiter. The volume of Europa's hydrosphere is 3 × 1018 m3, 2.3 times that of Earth. It has been suggested that the Jovian moon Ganymede and the Saturnian moon Enceladus may also possess sub-surface oceans. However the ice covering is expected to be thicker on Jupiter's Ganymede than on Europa. Our Vedas has glorified each component of nature as Gods or Goddess so that people have a feeling of reverence for them. Our religion and culture rituals make us perform such actions that would help in the conservation of nature and natural and natural resources. The late twentieth century faced a ‘population time bomb’ and a serious environmental crisis. If we critically go through a vision for earth and reflect upon the same. One can find that various religions teach us the same things in one form or the other. Although nature was the focus of much, nineteenth and twentieth century philosophy, contemporary environmental ethics only emerged as an academic discipline in the 1970s. The rethinking of the relationship of human beings with the natural environment over the last thirty years reflected an already widespread perception in the 1960s. The concept of ‘ahimsa’ (non-violence) in Buddhism and

Jainism ensure protection and conservation of all forms of life, thereby keeping the ecological balance of the earth intact.

REFERENCES

[1.] Gautam A K, Pushpendra and Rakesh K (2010) Bioremediation of anaerobically treated distillery spent wash using axenic culture of Proteces microbilis, Bacillus spp, Kleibsiella planticola, Enterobactor sokazaki; M Sc theses Deptt of biotechnology, Adhunic institute of education and research Delhi Meerut road Duhai, Ghaziabad.

[2.] Mani R R, Pushpendra and Tyagi A (2010) Optimization of bioremediation of PMDE (post methylated distillery effluents) by analyzing the environmental factors and inoculums ratio, M Sc theses Deptt of biotechnology, Adhunic institute of education and research Delhi Meerut road Duhai, Ghaziabad (U.P.)

[3.] Mishra, S. N., Pushpendra and Singh A. (2009). Effect of different Cadmium concentrations on the Yield of Different Plant Species, Journal of Management & Technology, Agra, ISSN-0975-6167, Vol. 1 No. 1, 2009 Jan. Pp 35-47.

[4.] Pathak A, Dhama P, Dong J Kim (2013) Reduction of Sludge Solids and Metal Bioleaching in a Single Stage Reactor. In: Geosystem Engineering, 2-3rd May, South Korea.

[5.] Pathak A, Singh P, Dhama P, Dastidar M. G., Dong J Kim (2014) Comparative Study on Leaching of Nutrients during Bioleaching of Heavy Metals from Sewage Sludge using Indigenous Iron and Sulfur-Oxidizing Microorganisms, Canadian Metallurgical Quarterly, 53 (1), 65-73.

[6.] Pushpendra (2018) Plants Biomass generation in Cadmium contaminated Sandy Loam Soil, International Journal of Advance Research in Science and Engineering, IJARSE, Vol No 07, Issue No 02, Feb 2018, ISSN: 2319-8354, pp 558-562. (http://www.ijarse.com/images/fullpdf/1519115425_J1044ijarse.pdf)

[7.] Pushpendra (2018) Utilization of Phytoextraction Technology for Cadmium Removal, International Journal of Advance Research in Science and Engineering, IJARSE, Vol No 07, Issue No 02, Feb 2018, ISSN: 2319-8354, pp 588-592. (http://www.ijarse.com/images/fullpdf/1519117741_J1045ijarse.pdf)

[8.] Pushpendra 2011. Water Quality Parameters to Determine Quality of Water, Journal of Computer Application (JCA), half yearly –March 2011, Ajay Kumar Garg Engineering College, 27th Km Stone, NH-24, Delhi-Hapur Bypass Road, Adhyatmik Nagar, Ghaziabad-201009.

[9.] Pushpendra and Sharma AK (2014) EDTA-Enhanced Translocation of Heavy Metal from Root to Shoot in Indian mustard and Toryia Species, International Journal of Advanced Technology in Engineering and Science, Vol No 2, Issue No 08, Aug 2014 ISSN: 2348-7550, pp 385-389.

[10.] (http://www.ijates.com/images/short_pdf/1408968688_P385-389.pdf)

[11.] Pushpendra and Sharma AK (2014) Variation of Stem and Leaf Biomass in Some Plant Species during Irrigation by Tap and Sewage Water and Application of Cadmium, Journal of Sustainable Environmental Research, ISSN-2278-196X, Vol No 4, Issue No 02, Aug 2014 ISSN: 2348-7550, pp 81-85.

[12.] Pushpendra and Singh R P (2014). Cadmium Concentration Affects the Root Biomass Adversely during the Phytoextraction Experiment, International Journal of Advanced Technology in Engineering and Science, Vol No 2, Issue No 09, Aug 2014 ISSN: 2348-7550, pp 56-61.

[13.] (http://www.ijates.com/images/short_pdf/1410595607_p56-61.pdf)

[14.] Rana V (2014) Study on river Hindon with respect to Physico- Chemical Properties of River and its Effect on Ground Water of Adjoining Areas; Ph D thesis Deptt of Chemistry, D J College Baraut, CCS University, Meerut.

[15.] Sharma A K and Pushpendra (2012). Effect of Cadmium Toxicity on the Yield Different Plant Species in Sewage Water Irrigated Soil, Plant Archives: An International Journal of Plant Research Vol. 12, No 1. ISSN-0972-5210: 287-289.

[16.] Sharma, A.K, Pushpendra 2010. Effect of Cadmium Toxicity on the Yield of Different Plant Species in Sandy loam and Sewage Water Irrigated Soil, International Transactions in Applied Sciences, Oct- Dec: 2010, Vol 2, No 4 : 631-638 ISSN- 0974-7273

[17.] Singh P V., Pushpendra and Yadav A K (2010). Effect of Cadmium Concentration on the Root Biomass Yield of Different Plant Species, Chem Enviro- Interdisciplinary annual publication 2010, BBD Group of educational institutions Lucknow campus, Lucknow-227105, p 9-15.

[18.] Singh R P, Rathi S K and Pushpendra (2012). Structural and Elastic Properties of Rare-earth Nitrides at High Pressure. ISST Journal of Applied Physics Vol. 3, No. 2, p. 49-53 ISSN: 0976-903X

Table 1: Requirement of Water Resources

S. N.	Purpose	Approximate requirement (Liters /person/day)
1	Drinking	4
2	Cooking	4
3	House cleaning	8
4	Utensil washing	8
5	Cloth washing	15
6	Bathing	30
7	Sanitation	20
8	Miscellaneous (Livestock etc.)	11

Table 2: Typical Quality of Natural Water

S. N.	Quality Parameter	Average Normal Value
1	pH-value	6.8-7.0
2	Acidity	04 mg/liter
3	Hardness	19 mg/liter
4	Calcium	16 mg/liter
5	Bicarbonate	12 mg/liter
6	Sulphate	10 mg/liter
7	Chloride	09 mg/liter
8	Sodium	06 mg/liter
9	Magnesium	03 mg/liter
10	Ammonia	0.8 mg/liter
11	Nitrate	0.1 mg/liter