Necessities Of Water Conservation And Ways For Implementation

Abstract:

Water, as the valuable part of the life that can be managed for fulfilling the future demands of the existing forms of the life occurring in nature, so conserving water is probably very significant today. As it is important for beneficial deduction in water loss, by adopting various conservation strategies i.e. Drought-tolerant crops, going organic, rainwater harvesting, etc. By using these techniques one can reduces the pumping cost of ground water along with its high quality water having low mineral content and lowers the soil erosion and flooding situations in urban areas. And these technologies make developing counties like India more competent, where 16% of world population is dependent on about 4% of water resources across the globe. Actively increasing human activities negatively affects the natural resources that amplifies the temperature of earth makes hotter planet, and ultimately increases demand for water because elevated heat quickly leads to evaporation that diminishes the amount of water available globally, this fact is directly concerned with the case of global warming. As it also hampers the survival of the native biodiversity of the aquatic habitats. Conservation will help in strengthening communities, to preserve the environment that can only be obtained by reinforcing proper public awareness. As the protection of the natural ecosystem from the damages is very critical that mainly concerns for the survival of some endangered species. Various water bodies like oceans, streams and lakes that act as the lifeblood of so many local ecosystems. After that, conserving water will also save energy as it reduces the carbon footprints and helps the country to be more energy independent. Conserving water in particular places does not make it more available in the areas that requires most but intensifies our understanding level of awareness about the various facts that are concerned with increasing scarcity of fresh water. That’s why; water conservation is a straight forward step for the sustainable development of the living forms in the nature.

Keywords: Sustainable development, Rain water harvesting, Global warming, Endangered species, Public awareness, Conservation.

Introduction

Water, a chemical compound made up of hydrogen and oxygen, acting as a vital source for existence of life. As its chemistry is sufficient enough to explain its omnipresent nature of water. Water is acting as the core ingredient of life forms, by forming 70% of human body or 90% in most of the other organisms and maintaining the quality needs the external interferences. These external sources consist of 70% of total earth surface, while 98% of these are salty and 2% of freshwater is present overall, and only half of this is readily usable. Nowadays, the major causes of depletion are pollution, overexploitation of water resources, satisfying the greed’s of humans, etc. And after effects are faced by all living organisms living with each other. And this water loss leading to habitat destruction causing a rapid elevation in adaptation rate or species extinction rate in the ecosystem of freshwater aquatic habitat. And now, the need for water conservation to overcome the destruction is enhancing the critical alert. Now it is necessary to conserve limited

quantity of water for the use of various life forms. The disturbance due to environmental factors, causing global warming via elevated heat directly affect both quality and quantity of water. But before its conservation, its effective and efficient uses by humans should be known. These uses based on individual or group size leading to various categories like domestic, industrial, agricultural, etc. currently developing countries are facing problematic situations regarding water conservation due to large population size. These changes in water cycle causes imbalance of its components within the cycle. This situation is leading us to the increase demand of advance conservation technologies like drip irrigation, grey water treatment plant, composting, dry farming, etc. Apart from these advance technologies some effective traditional techniques are quite commonly used by families like rain water harvesting, etc. and now its modified forms are also used for large amount of water storage. These methodologies proves that ancient ways were much more advance and very much simplified than the present conditions. And in today's world the after effects shows the major concern to prove the necessity. But now it's not about saving water it's about conserving it to fufill the minimum needs of the humans and their beneficial dependent organism. Our key role is to pay attention on the needs of the water conservation due to its after effects on climate change and presenting and describing some conservation strategies knowledge in modern day.

Aims Of Water Conservation

The main aim is for the deduction in the qualitative and quantitative loss of water related to the water conservation which is categorized as sanitary measures, human development, urbanization, green economy, etc.

- Sustainability of water:- It is one of the most important step for the development of healthy ecosystems, socio-economy and for the survival of the human also. As water is a valuable resource that is necessary for the human well being. As it plays key role for adaptations in the climatic changes and also maintains the relevant link between the climate system, the environment and the biotic part of earth. Sustainable development of the water helps in reducing the burden of the diseases and also helps in the enhancement of the health and productivity of the different populations. And ultimately it helps in easy fulfillment of the future demands of the upcoming generations without any compromise. It also helps in meeting of agricultural demands and ecosystems services also.
- Sanitary measures: - poor sanitary conditions results in the death of child after every 20 seconds. Therefore, disposing off of excreta is one of the major steps towards the child survival. Mortality rate of child can be reduced by getting improved sanitation and it is beneficial for public health and also to other communities. Open defecation also leads to struggle with low sanitation areas. Several facilities are also included for the maintenance of hygienic conditions like ventilated and improved pit latrines with slabs and proper composting toilet system.
- Impact on green economy: - green economy is to improve the survival of human civilization without compromising the sustainability of resources for future generation. It the focus is on water resources maintain economy in different sectors like agriculture, industrial, etc. and maintain a balance with ecosystem and providing services in reference to cities like sanitation facilities and clean water. Providing job opportunities in this sector leads to overall growth of country and is quite beneficial for developing countries. Its maintenance leads to fast rate process and effective sustainability even in

the case of economic crisis management.

- Saving of depleted energy dependency: - today every bit of things is energy dependent, even for the survival of species. Water resource management imparts a negative impact on high energy consumption because of its usage in purification, transporting, pumping, etc. Conservation of water becomes a necessity due to its almost overlapping nature with energy.. It makes developing countries become more independent for the sustainability and management.
- onserving biological habitats: - water, a place to live, vital force to act for life, providing habitat for various native species and for temporary Which are interdependent on each other for balancing heir ecosystem and saving their home? It is also act as temporary home for various species individuals, which don't live in water but water play very important role in their livelihood like, as a source of drinking water for migratory birds, for feeding and breeding of various terrestrial based organisms. So loss in water quality or quantity may leads to huge amount of destruction.
- Qualitative measures of water: - As per the data given only 1% of fresh water is available for us to use. And in present situation about 0.25% of water is polluted. And 0.25% of total fresh water is draining directly into oceans via rivers and streams, making it unfit for usage .The quality of water is degrading day by day due to negligence of humans. And now its side effects are affecting all organisms. Currently we can try to maintain the water quality by planting sewage treatment plant globally. And the decreasing rate of quality is at slow process now.
- Current status regarding scarcity of water: - the stress created by depletion of water resources is quite a thing to observe. Currently, every living organism is standing at the peak of destruction. Unavailability to get sufficient clean water is also a challenge in some countries having low economy. This is leading to drought cases and this situation is making us to be more dependent on technologies. That's why adopting various strategies for the utilization of the salt water due to the randomly declining amount of the fresh water. And this is going to be the toughest situation for future generation created by ourselves only.

Goals Of NWM:-

NWM majorly focuses on the database management of water in public sectors, promoting SSP's , paying attention to overexploited as well as vulnerable areas, promoted water resource management and enhancement of water efficiency approx. by 20%.

Impact On Environment

Intensified impact of water loss on environment can be seen in this world of amplified global warming one of the major cause for fresh water depletion. But according to present situation these factors are interlinked in a cyclic way, as triggers one another. Mainly global warming directly effects water loss by evaporation but the vice versa is indirect through elevated heat, increased precipitation, causing strong climatic imbalance, ultimately leading to industrlization leading to the start point. While climatic impact is a major problem these days, which is described as the changing pattern of abiotic factors like temperature, wind, humidity, etc. But due to sudden pop up of population explosion leads to increased demand leading to insufficiency to fulfill the current status for less fresh water resources making us more prone for water conservation. Rise in the heat level leads to the emission of green house gases by

humans natural resources like energy by overusing. The important and one and only natural source or water and energy are atmospheric precipitation and sun respectively. All the 3 are interrelated energy, climate change and water resources as

1. low level of precipitation and stream flow maintains the limits for energy producing industries chilling,
2. Under ground water at a huge risk from carbon dioxide emission from coal burning places.
3. Increased demand of biofuels causes increased nutrition outflow from agricultural industry.

After all this, the major side effects of climatic change are:

- Elevated water temperature :- Majorly leads to increased evaporation and transpiration by plants leading to eutrophication , decrease in the number of native species that depends on the temperature that will negatively impacts.
- Changes in precipitation rate at different place and time in different forms as – Water availability and quality due to reduction in ground water levels the surface supply is also get affected and leading to increased demand due to inability to drink hot water along with that flooding situations also causes soil erosion and sedimentation.
- Natural disaster occurring incentives increases:- Increased frequency of occurrence leading to flooding, infrastructure damage, soil erosion, entry pass for pollution leading to contamination of fresh water supplies, also cause sea level rise on the shores, etc and all of this is ultimately leading to biodiversity loss.
- Instant rise in sea water level: - it leads to soil erosion, displacement of land causing and affect on coastal regions. Lower elevated regions containing coral reefs, mangrove forest, etc are at higher risk Leading to loss of flora and fauna either to increase in salinity on terrestrial part or due to habitat destruction.
- Occurring of chemical and physical changes on terrestrial water resources:-
- Ocean acidification is affecting the aquatic food web chain.
- Growth of calcified phyto and zoo planktons, coral reefs, lichens is restricted.
- Coral bleaching causes decreases in number of corals.
- Death of various plants and animals due to instant increase in salinity of water resources.

How It Can Be Done?

A question of concerning with the water coservation amount for sufficient need of all organism. And the answer is through conservation strategies whether is advance technology or traditional methods, whichever satisfy the needs of common people.

A) Traditional -

The cost effective traditional methods include sand bores, johads, bamboo drip irrigation, Ferro cement tanks, cycle run water pumps, rooftop rainwater harvesting, etc.

1) Rainwater Harvesting: -

It basically means “storing of water” for later use. It can be of two types mainly one is Surface water storing, and another one is Rooftop water storing.

Advances in rainwater harvesting –

Modifications as addition of filtration techniques using sand filters, charcoal filters, PVC filters, sponge filters, etc. to improve the quality and efficient use of water.

Advantages – this strategy is very easy to build, handle and maintained, which enhances competency of supplied water due to low pumping cost of ground water, which increases water quality with soft and low mineral content whenever replenished, even in saline areas, decreasing the rate of soil erosion and flooding.

Disadvantages – high installation costs reduces the efficency of this method due to unpredicitable rainwall leads to limited storage and regular maintainence for leakages.

B) New Methadologies: -

2) Drought Tolerent Crops: -

water scarcity is the important factor which affects the loss of moisture in the soil. Even the gravitational water is evaporated and soil becomes barren. This leads to absorbance of carbon dioxide in stomata present in leafs of the plants in these areas and leading more water loss through evapotranspiration making the crops drought tolerant.

Advantages – Good quality and low quantity with less maintainece via disease resistant and low pest infectious modifications reduces water bill. It leads to quick replenishment and less polluted discharge of water increasing root binding affinity on slopes and increased habitat availability.

Disadvantage -Insufficient knowledge about the planting crops which leads the farms at a higher risk of subsides in present days.

3) Going Organic: -

In today’s world we relate organic as pure form as we study living organisms are formed of organic biomolecules mostly. Going organic is mainly used in reference of agriculture, growing crops, vegetables, fruits, etc. which are devoid of any fertilizer or have less amount of chemical compounds in use during the growth of processing of the product. Going naturally in terms of environment and health benefits is one of the major goals of this strategy. In these cases humans play the main role by excluding technologies with effects negatively as use of manure in fields during growth and hand based processing make it valuable. And these crops uses less amount of water while fertilizer based cropping are quite expensive for water, as it also degrades its quality.

Advantages- Leading to sustainable farming , reducing risk of soil erosion, lowers down dependency on fossil fuels, minimize the use of pesticides and ultimately availability of quality products.

Disadvantages – Along with various advantages it also has various negative impacts also, having high market value , along with it, its distribution and marketing is also difficult due to presence in less amount and increased production cost.

Spreading Knowledge By Proper Education And Awareness

PUBLIC AWARNESS:- It is important to aware publically each and every individual by providing proper knowledge of about regulation of various ground water resources and their management , different methodologies adopted for the management of the surface water, waste water drainage system, wetland conservation and its uses etc. so that conservation can be done globally.

Initiation Taken ByNWM:-

1. State Specific Action Plan (SSAP):- It includes development and management of the various water resources and regarding the different problems related to water in all aspects that will be state specific.
2. For the improvement of water use efficiency in irrigation sectors various base line studies these studies are carried out for analyzing the current status of the irrigation projects and that may help in quantitative estimation of the information regarding these surveys.

Conclusion

By knowing well about all these affecting factors, it’s our key duty to conserve our natural resources for reaching the future demands more prosperously. Hope we can achieve our ultimate goal to save our humansity and the mother earth.

References:

1. https://www.un.org/waterforlifedecade/quality.shtml.
2. https://www.nwm.gov.in
3. https://www.greensutra.in/question/what-are-the-disadvantages-of-rainwater-harvesting/
4. https://www.intercopen.com/online-first/smart-rainwater-management-new-technologies-and-innovation
5. https://www.worldwidescience.org
6. https://www.constellation.com
7. https://www.thewaterpage.com
8. https://www.sciencing.com
9. https://www.omnicsonline.org
10. https://www.cuesa.org
11. https://www.watershedacademyweb
12. Dr. Jeremy Gibberd; Article; Feb 2009; Green Building Handbook For South Africa;
13. Mamta Kumari and Jagdeep Singh; Article; Jan 2016 Water Conservation: Strategies And Solutions;
14. Vijay P. Singh, Ashok K. Mishra, H.Chowdhary And C. Prakash Khedun; Chapter; Nov 2014 Climate Change And Its Impact On Water Resources;

15. Sayan Battacharya; Article; 2015; Water Harvesting Structures And Sustainable Water Management In India: A Socio-Hydrological Review.