VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangama, Belagavi- 590018

Social Connect and Responsibilities (BSCK307)

Report On: Activity-4

"Water Conversation"

*Submitted in partial fulfilment of the requirements for the **Third Semester** degree of **Bachelor of Engineering in Computer Science Engineering** of Visvesvaraya Technological University, Belagavi*

Submitted by

[Sample Name]

[Sample USN]

Under the Coordinator of

Muralikrishna A R

Associate Professor, Dept. of CSE

ESTD: 2002

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MS Engineering College

NAAC accredited Approved by AICTE, New Delhi, Affiliated to VTU, Belagavi, Navarathna Agrahara, Off International Airport Road, Bengaluru -562110

2023-2024

ACKNOWLEDGEMENT

An activity work of immense Sheer Size and it cannot be proficient by an individual all by them ultimately, I am gratifying to a number of individuals whose qualified guidance and assistance and encouragement have made it a pleasant venture to undertake this activity work.

I am grateful to my Institution **MS Engineering College** with its ideals and inspiration for having provided us with the facilities, which has made this activity work a success.

It is my pleasure to tender my heartfelt thanks to our **College Trustees** for their vision behind, towards the successful completion of our activity.

I would like to express my gratitude to **Dr. P Mahadevaswamy**, **Principal** MSEC, who is the source of inspiration as well providing an amiable atmosphere to work in.

Further, I would like to express my kind gratitude towards **Dr. Malatesh S.H. HOD, Dept. of CSE** and the whole department for providing us kindly environment for the successful completion of the activity work.

I also extend my sincere thanks to my activity work coordinator **Muralikrishna A R**, for the timely suggestions and co-operation throughout my dissertation.

It's my duty to thank one and all faculties of CSE Department, who have directly or indirectly supported to accomplish the activity work successfully.

I would also like to thank my friends, who really helped us to complete this activity work successfully.

[Sample Name]

[Sample USN]

OBJECTIVES

The Major objective of the activity is to protect natural water bodies and their aquatic environments. These objectives related to the volume and quality of water to remain in rivers for the protection of a natural water body and its aquatic environment.

The aim of water conservation is to ensure that water resources are available to future generations by protecting and improving the quantity and quality of water on Earth.

The objectives of water conservation are assessment, pollution prevention, wastage prevention, ecosystem protection, sustainable supply, policy development, and cost reduction.

CONTENTS

INTRODUCTION

Water conservation is a critical practice that addresses the growing concern of water scarcity and environmental sustainability. With global populations increasing and climate change impacting weather patterns, ensuring the availability of clean and reliable water resources has become more challenging than ever. Water conservation involves the mindful and responsible use of water resources to minimize waste, preserve ecosystems, and meet the needs of both present and future generations.

From reducing domestic consumption to implementing efficient agricultural irrigation techniques, water conservation efforts play a vital role in safeguarding freshwater ecosystems, supporting biodiversity, and mitigating the impacts of droughts and water shortages. In this essay, we will explore the importance of water conservation, its benefits, and various strategies that individuals, communities, and governments can adopt to conserve this precious resource.

Water conservation offers numerous benefits, both environmental and economic. By using water more efficiently, we can reduce pressure on freshwater ecosystems, protect aquatic habitats, and maintain water quality. Conserving water also lowers energy consumption associated with water treatment and distribution, leading to cost savings and reduced greenhouse gas emissions. Additionally, water conservation can enhance resilience to droughts and water shortages, helping communities adapt to changing environmental conditions.

NEED FOR WATER CONSERVATION

The need for water conservation arises from a combination of factors that collectively threaten the availability and quality of freshwater resources. One of the most pressing concerns is the increasing demand for water due to population growth, urbanization, and industrialization. As more people inhabit urban areas and economies develop, the demand for water for domestic, agricultural, and industrial purposes escalates, placing strain on already limited water supplies.

Additionally, climate change exacerbates water-related challenges by altering precipitation patterns, leading to more frequent and severe droughts in some regions and intense rainfall events in others. These shifts in weather patterns disrupt water availability and exacerbate water scarcity in vulnerable areas, further stressing ecosystems and communities reliant on freshwater resources.

Furthermore, inefficient water uses and management practices contribute to wastage and depletion of water resources. From leaky pipes and inefficient irrigation systems to excessive water consumption in households and industries, inefficient water use exacerbates water scarcity and undermines efforts to sustainably manage water resources.

Moreover, water pollution poses a significant threat to freshwater ecosystems and human health. Contamination from agricultural runoff, industrial discharges, and untreated sewage not only degrades water quality but also reduces the availability of clean water for drinking, sanitation, and irrigation.

Given these challenges, water conservation is imperative to ensure the sustainable management of freshwater resources. By implementing measures to reduce water wastage, improve efficiency, and protect water quality, we can mitigate the impacts of water scarcity, support ecosystems, and safeguard the health and well-being of communities around the world.

In conclusion, the need for water conservation is driven by increasing demand, climate change, inefficient water use, and pollution. By prioritizing water conservation efforts, we can address these challenges and ensure the availability of clean and reliable water for current and future generations.

The need for water conservation has become increasingly urgent in the face of growing challenges related to water scarcity, population growth, and climate change.

WATER POLLUTION AND CONTROL MEASURES

Water pollution poses a significant threat to freshwater ecosystems, human health, and the sustainability of water resources. To address this issue, effective control measures are essential. Here are some key strategies for controlling water pollution:

Source Control: Preventing pollution at its source is the most effective approach to water quality management. This involves implementing regulations, policies, and best management practices to minimize the discharge of pollutants into water bodies. Industries, agriculture, and urban areas can adopt measures such as wastewater treatment, pollution prevention plans, and stormwater management practices to reduce pollutant loads.

Wastewater Treatment: Proper treatment of wastewater is essential to remove contaminants before discharge into water bodies. Municipal wastewater treatment plants use physical, chemical, and biological processes to remove pollutants such as suspended solids, nutrients, pathogens, and toxic substances. Advanced treatment technologies, such as membrane filtration and ultraviolet disinfection, can further improve treatment efficiency and water quality.

Stormwater Management: Stormwater runoff can carry pollutants such as sediment, chemicals, heavy metals, and oils from urban and industrial areas into water bodies. Implementing stormwater management practices, such as green infrastructure, permeable pavement, vegetated swales, and retention ponds, helps capture and treat stormwater runoff before it reaches waterways, reducing pollution and protecting water quality.

Agricultural Best Practices: Agriculture is a major source of water pollution due to runoff of fertilizers, pesticides, and animal waste. Adopting agricultural best management practices, such as precision farming, conservation tillage, buffer strips, and cover crops, can minimize soil erosion, nutrient runoff, and pesticide contamination, thereby reducing agricultural pollution.

Regulatory Frameworks: Governments play a crucial role in establishing and enforcing regulations to control water pollution. Legislation such as the Clean Water Act (CWA) in the United States and the Water Framework Directive (WFD) in the European Union sets water quality standards, regulates pollutant discharges, and requires permits for wastewater discharge and pollutant control.

Public Awareness and Education: Increasing public awareness about water pollution issues and the importance of water conservation is essential for fostering behavior change and promoting responsible stewardship of water resources. Educational programs, outreach campaigns, and community engagement initiatives can empower individuals and communities to take action to prevent water pollution and protect water quality.

Research and Innovation: Continued research and innovation are essential for developing new technologies, methods, and approaches to address emerging water pollution challenges. Investing in research on pollution control technologies, water treatment processes, and monitoring techniques can help identify effective solutions and improve the efficiency of water pollution control measures.

Radioactive Wastes:

After usage of radioactive materials for nuclear wagons or as an energy source, they are mostly dumped into water bodies or in glaciers that will immediately mix with water when the temperature rises.

Control Measures of Water Pollution:

Prevention and control of water pollution could be done in so many ways. To start off, it is to plant more trees around water bodies as they naturally help to assimilate and recycle the pollutants.

Some important points are summarized below.

- There is a plant known as 'Water Hyacinth' that absorbs dissolved toxic substances like cadmium and mercury from water bodies, thus actively removing pollutants from water.
- It is important to dispose-off waste carefully and not to dump it directly into water bodies, without proper waste treatment.
- Using natural fertilizers and pesticides as substitutes for chemical ones is good for plants and water.
- Chemical processes such as coagulation, ion exchange method, reverse osmosis, etc. will greatly reduce the level of water pollution.
- Lastly, it is better to reduce the consumption of water in our daily activities and reuse water whenever possible to reduce the overall level of pollution.

Source of Water pollution:

Industrial Waste

Sewage and Waste

Radioactive Wastes

Agricultural Activities

KNOWING THE PRESENT PRACTICES IN THE SURROUNDING VILLAGES

In the surrounding village there are many ways of water conservation:

Chikkaballapur:

- Ponds have been dug at many places to store rain water that can be use further for irrigation.
- Rain water is being stored in the ground made tank to use it after the rainy season.
- Also, farmers, for the irrigation, they are using sprinkler-irrigation method (a method of applying irrigation water which is similar to natural rainfall) to use less water for their plants.
- Dam is constructed over the river to retain the water, Dams are built to provide water for human consumption, for irrigating arid and semiarid lands, or for use in industrial processes.

WATER CONSERVATION AND IMPLEMENTATION IN THE COLLEGE CAMPUS

Water scarcity is one of the growing concerns of the present time the only solution is for which is water conservation. It is taken care in different level in college

- In our college campus Ran water is use for the tree plantation and also for harvesting water.
- Sensor has been used in the tank to switch off the motor before the overflow.
- In the college campus one big tank is made under the ground to store the water for emergency use.

DESCRIPTION OF THE ACTIVITY

The whole Activity is carried out by all the group members by collecting the information from various source and visiting in neighboring village.

Photoblog link: https://theapex.water.blog/

CONCLUSION

To sum it up, Water is the foundation of life on the globe. Despite having a lot of water on earth, we are unable to use all of it without making it suitable. So, whatever amount of water reachable is required to be use carefully so that we will not have to face a situation of water scarcity. Water conservation is the key to prevent us from water scarcity.

There are lot of ways that we can conserve water at our home, industries and agricultural fields. Instead of waiting for somebody else to start conserving, let us, an individual, take the first step towards conserving water!

References:

https://en.wikipedia.org/wiki/Water_conservation

https://www.epa.gov/greeningepa/water-conservation-epa

https://byjus.com/biology/how-can-we-conserve-water/

Best Award
Of
2024

CERTIFICATE OF COMPLETION

This Certificate Is Presented To

Sample Name

For the completion of

"Water Conversation"

Activity in the subject of Social Connect And Responsibility

Murlikrishna A R
Assistant Professor, CSE Dept.

Dr. Malatesh S.H.
HOD CSE,Dept.