



NEW HORIZON COLLEGE OF ENGINEERING

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NATIONAL SERVICE SCHEME (NSS) Report

Department: CSE	Course Code: 22NSS50
Semester: V	Section: D
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Topic: Students should select any one activity from the following:

1. Developing Sustainable Water management system for rural areas and implementation approaches.
2. Contribution to any national level initiative of Government of India. Foreg. Digital India, Skill India, Swachh Bharat, Atmanirbhar Bharath, Make in India, Mudra scheme, Skill development programs etc.
3. Spreading public awareness under rural outreach programs. (minimum 5 programs).

Topic Selected: Developing Sustainable Water management system for rural areas and implementation approaches.

Developing Sustainable Water Management System for Rural Areas: A Case Study of Panathur

Introduction

Water management is a critical issue for rural areas, especially in regions with limited infrastructure and resources. Panathur, like many rural regions, faces challenges such as water scarcity, poor water quality, and inefficient management practices. Developing a sustainable water management system for Panathur involves addressing these challenges by integrating traditional knowledge with modern technologies to ensure the availability and quality of water for future generations. This report outlines key strategies and implementation approaches for creating an efficient and sustainable water management system in Panathur.

Key Challenges in Water Management in Panathur

Water Scarcity: Panathur experiences significant water scarcity, especially during dry seasons, due to fluctuating rainfall patterns. Groundwater depletion and surface water contamination further worsen the situation.

Water Quality: Local water sources like wells, ponds, and rivers are often polluted by agricultural runoff, improper waste disposal, and industrial activities. Ensuring access to clean and potable water remains a major concern.

Inadequate Infrastructure: The region has limited water collection and storage systems. Moreover, the lack of proper drainage and sewage systems often leads to contamination of freshwater sources.

Lack of Awareness: Many residents are unaware of sustainable water practices, contributing to over-extraction, inefficient usage, and improper conservation techniques.

Strategies for Sustainable Water Management in Panathur

Rainwater Harvesting (RWH):

- Rainwater harvesting can significantly augment water supply during dry periods.
- Rooftops of buildings like schools, community centers, and homes can be used to collect rainwater, which can then be stored in tanks or ponds.
- The collected rainwater can be filtered and used for domestic purposes, irrigation, and even for drinking.

Watershed Management:

- The surrounding natural landscape offers opportunities for watershed management.
- Construction of check dams, ponds, and percolation tanks can capture rainwater and increase groundwater recharge.
- Practices such as reforestation and soil conservation (e.g., terracing) can improve water retention and reduce soil erosion, benefiting water sources.

Groundwater Recharge:

- Groundwater is a vital resource for Panathur, but over-extraction depletes the water table.
- Artificial recharge systems like recharge pits, borewell recharge systems, and rainwater percolation pits can help replenish groundwater supplies.
- Ensuring sustainable extraction through regulated use can prevent over-depletion.

Water Conservation and Efficient Irrigation:

- Agriculture is a major water user in Panathur, and traditional irrigation systems

often waste significant amounts of water.

- Promoting efficient irrigation systems like drip irrigation or sprinklers will reduce water wastage and improve crop productivity.
- Educating farmers on drought-resistant crops, water-saving irrigation practices, and better water management techniques is essential.

Wastewater Treatment and Reuse:

- Employing low-cost, decentralized wastewater treatment technologies, such as constructed wetlands and biofilters, can treat wastewater in an environmentally friendly manner.
- Treated water can be reused for irrigation, industrial applications, or for non-potable domestic purposes, thus reducing overall water demand.

Community Participation and Awareness:

- Engaging the local community in water management is crucial for long-term sustainability.
- Creating water user committees and holding regular awareness programs will foster a sense of ownership and responsibility.
- Educating residents on water conservation techniques, water quality testing, and proper sanitation practices can promote better water management practices.

Implementation Approaches for Panathur

Local Government and Institutional Support:

- Collaboration with local government bodies, NGOs, and village panchayats is vital for the success of the water management initiatives.
- These organizations can provide training, resources, and funding for infrastructure development and maintenance.

Monitoring and Evaluation:

- Regular monitoring of water quality and quantity, through water audits and community-based tracking systems, will ensure the effectiveness of water management strategies.
- Using modern technologies like GIS, remote sensing, and mobile-based water tracking tools can help assess the condition of water resources and provide timely data for better management.

Collaborations and Partnerships:

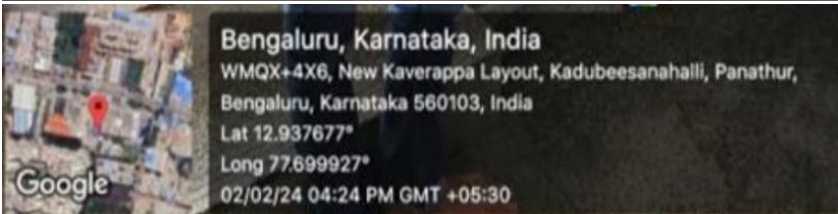
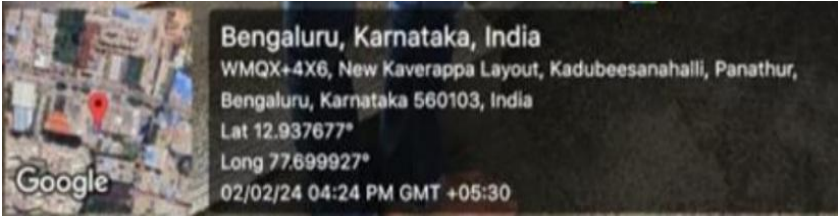
- Partnerships with research institutions, environmental organizations, and governmental agencies can bring additional expertise and funding.
- Collaboration with external organizations can help in piloting innovative technologies, gathering data, and scaling successful interventions.

Conclusion

Developing a sustainable water management system in Panathur is critical to ensuring long-term access to clean and reliable water sources for its residents. By adopting practices such as rainwater harvesting, watershed management, efficient irrigation, and wastewater reuse, and by fostering community involvement, Panathur can mitigate water scarcity, improve water quality, and enhance agricultural productivity. Through the concerted efforts of local communities, government institutions, and partnerships with external organizations, Panathur can create a model of sustainable water management for rural areas in India.

GEO tagged photos: (minimum 6 pics)





Student Signature:

Date of submission:

Name of the faculty coordinator of the department:

Signature of the faculty coordinator of the department:

Signature of HOD:

Signature of NSS Program officer:

Signature of Principal: