



### Module 4

#### **SYLLABUS:**

**Water Conservation: knowing the present practices in the surrounding villages and implementation in the campus, documentary or photo blog presenting the current practices.**

#### **Introduction**

The DK Nirmithi Kendra was established under the National Network of Building Centers in India on 5-01-1990 and is registered under the societies Act 1956. It is located at the premises of National Institute of Technology Karnataka.

Nirmithi Kendra located in the vibrant city of Mangalore in Karnataka, India, stands as a beacon of innovation and sustainable development in the realm of construction and architecture. Founded with the vision of promoting indigenous building materials and techniques, Nirmithi Kendra has played a pivotal role in revolutionizing the construction industry and promoting eco-friendly practices in the region.

At the heart of Nirmithi Kendra mission is the promotion of vernacular architecture and traditional building practices that harness the natural resources and cultural heritage of the region. By championing the use of locally available materials such as clay, bamboo, stone, and wood, Nirmithi Kendra aims to reduce the environmental footprint of construction projects while empowering local communities and artisans.

Through its diverse range of programs, workshops, and training sessions, Nirmithi Kendra provides valuable knowledge and skills to architects, engineers, students, and builders interested in adopting sustainable building practices. From earth-friendly construction techniques to rainwater harvesting systems and solar energy solutions, Nirmithi Kendra offers practical solutions to address the challenges of urbanization, climate change, and resource depletion.

Furthermore, Nirmithi Kendra serves as a catalyst for community development and socio-economic empowerment by promoting self-help groups, women's cooperatives, and skill development initiatives



## SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---

in rural and peri-urban areas. By fostering innovation, collaboration, and knowledge exchange, Nirmithi Kendra continues to inspire positive change and transform the built environment for generations to come.

In essence, Nirmithi Kendra embodies the spirit of sustainability, innovation, and inclusivity in its pursuit of creating a built environment that is harmonious with nature and reflective of the cultural identity of the region. As a beacon of hope and inspiration, Nirmithi Kendra Mangalore stands as a shining example of how architecture and construction can serve as catalysts for positive social and environmental change.

### **Planning**

We had to make sure to confirm the date and time, as well as any requirements or restrictions for visitors. Therefore we scheduled our visit at 2:00 PM on 30<sup>th</sup> January 2024.

We had to go to the Nirmithi Kendra directly from our college, we all had college bus facility. Two faculties from our department guided us.

### **Data Collection**

The Construction activity is enormously increasing day by day in India which leads to either acute shortage of building materials or to accept the sub standard materials which are available in the market which increases not only the cost of construction but also waste of available energies like Fire wood, Petroleum by products which is a burden on National resources.

There are so many R & D institutes in India like CBRI, SERC, IIT, RRL etc., have developed so many alternative technologies so that we can reduce the cost of construction and also we can conserve the energy to a large extent and also recycling of waste materials. Government of India has established Building Centers in each district under the National Network of “Building Centers” in India.

These are all “Technology Transfer” Centers. These Building Centers will promote and propagate the proven technologies from the above R&D Institutes to the field on “Lab to Land” principles. Dakshina Kannada district administration has established one such centre called “DAKSHINA KANNADA



## SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---

NIRMITHI KENDRA ” on 1989, which is located at Surathkal and it is functioning by the having body under the Chairmanship of Deputy Commissioner, D.K. district.

### **Analysis**

Nirmithi Kendra will take up construction of various types of buildings from Government sector as well as from Private Sector in order to show the efficacy of the Cost Effective Technologies Compound hall.

### **Rain water Harvesting:**

Rainwater harvesting (RWH) is the collection and storage of rain, rather than allowing it to run off. Rainwater is collected from a roof-like surface and redirected to a tank, cistern, deep pit (well, shaft, or borehole), aquifer, or a reservoir with percolation, so that it seeps down and restores the ground water.

Here certain equipments and process followed to capture maximum Rain is water. These are the Methods followed by DKNK.

- Ensure 100% of rain water from rooftops is planned to be directly for domestic use.
- Rain water filters at Base of down pipes will ensure adequate filtration
- Roof slopes and water hipes should be checked and cleaned periodically.
- Ensure all the rainwater that falls on the ground or led into a natural bond or a well.
- One way to facilitate hercolation is mimise the amount of hard surface or having on the ground to It is also important that rain water pipes designed for percolation are planned taking account the terrain as well as of soil present to ensure maximum fercolation into the ground.
- In ease of places with high water table, wells or hondos could be used after providing adequate slopes on ground.
- Construct channels covered with grates at entry hoints to the plot to ensure any water from outside plot.



## SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---

Looking outside the plots, we should ensure the are roads and streets abutting our homes planned with adequate slope to storm drains along the sides. This water can be collected at neighbour hood level into localised wells or tanks.

### **Rain water Harvesting in Pools:**

- Man-made Pools are. Store water. constructed to store water.
- Here the Pools donot use any Concrete for Construction Instead they use Jute Bags.
- The land is Dug Deep and large layers of jute bags are used to cover the pool. So that the water will not Porcelate into the Ground.
- The Jute Bag Layer is Plastered or Painted . So that the water will be on the top of the layer to stop drying of water.
- So here the Rain water can be directly harvested or collected in the pool it self and can be used for different purpose.
- Water can be also collected by using Roof top pipes etc.

### **Filtering technology System :**

- However, rainwater could not directly be stored in tanks, One has to use filtering method to remove colour, micro organisms, insects etc.
- The normal method of channelising rain water through crushed stones, sand and netlon filters would remove impurities in water and then, it could either be stored in tanks or used to recharge open wells or borewells.
- Rainwater havesting for groundwater recharge would help improve the groundwater level in the locality.
- The rainwater stored in tanks could be utilized during dry days.
- The water tank measuring 1 meter by 1 meter could hold 1000 litres of water, one could easily store not less than 10,000 litres of rainwater in an average size tank.



## SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---

- So here the rain water is collected from all the available source and they are sent through the pipes, they are filtered and stored in huge tanks.



**Rain water Harvesting and Sand bed filter**



**Filtering**



## SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---



**Civil Batch group photo**

### APPLICATIONS

- **Domestic use**

Rooftop rainwater harvesting is used to provide drinking water, domestic water, water for livestock, water for small irrigation, and a way to replenish groundwater levels.

- **Agriculture**

In regards to urban agriculture, rainwater harvesting in urban areas reduces the impact of runoff and flooding. The combination of urban 'green' rooftops with rainwater catchments has been found to reduce building temperatures by more than 1.3 degrees Celsius.

- Rainwater harvesting increases the availability of water during dry seasons by increasing the levels of dried bore wells and wells.



**SOCIAL CONNECT AND RESPONSIBILITY (SCR-BSCK307)**

Prepared by: Ms. Deeksha Anand, Asst. Prof.

---

**Conclusion**

- The water conservation methods used in Nirmiti Kendra Mangalore offer practical and effective solutions for conserving water resources.
- These methods include rainwater harvesting, water recycling, and the use of low-flow fixtures, which can significantly reduce water consumption and promote sustainable water management practices.
- Water recycling involves treating and reusing wastewater for non-potable purposes, such as irrigation or flushing, which can save significant amounts of freshwater.

SUBJECT COORDINATOR

HOD