

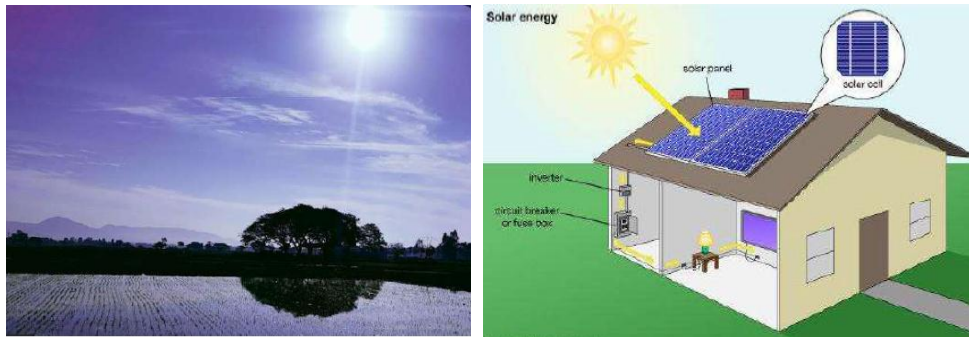


**K.S. SCHOOL OF ENGINEERING AND MANAGEMENT**  
**Mallasandra, Off. Kanakapura Road, Bengaluru-560109**  
**Phone: 08028425012/013 website: www.kssem.edu.in**  
**DEPARTMENT OF CIVIL ENGINEERING**

**SOCIALLY RELATED PROJECTS (2021-22)**

**Generating Alternate Energy to Provide Uninterrupted Power Supply to Rural Villages**

India has immense potential for making clean power through renewable energy sources such as hydro, wind and solar, tidal energy, geothermal energy and biomass energy. This project emphasizes on providing 24 hours of uninterrupted power supply to villages. The research study brings new dimensions and understanding about off-grid technologies in Banave village of Mysore district. From the data analysis and designing, 10 solar panels were required for 24 hours uninterrupted power supply for the village and the estimated cost of this project was estimated to be Rs.6, 47, 500.



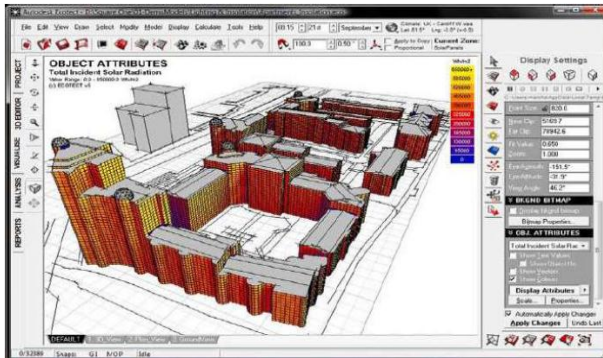
**Utilization of Waste Plastic in Bituminous Pavements with Local Aggregates by Wet and Dry Blending**

Conventional building materials have tended to perform satisfactorily in most highway pavement and airfield runways applications. However, due to the increased traffic levels, larger and heavier loads, new axle designs and increase tyre pressures have added to the already severe demands of load and environment on the pavement system. This has facilitated a need to enhance the properties of bituminous pavement. The current study focused on utilization of waste plastic in bituminous pavement by wet and dry blending. Wet/Dry blending of 4% waste plastic for dense graded bituminous mix was found to be optimum blended mix with enhanced properties in terms of strength and stability. Wet blending of dense graded bituminous mix with 4% waste plastic improved its marshall stability value by 43%. Dry blending of dense graded bituminous mix with 4% waste plastic improved its marshall stability value by 56%.



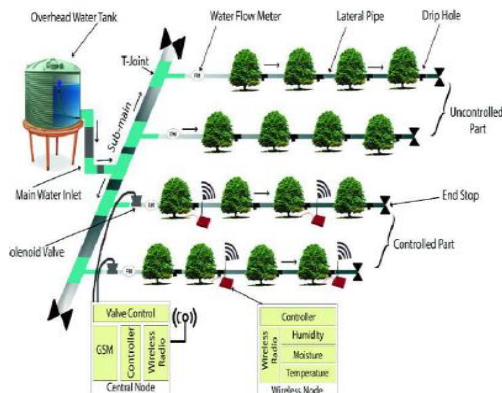
## Sustainability of Traditional Vernacular Mud Houses using Autodesk Ecotect

Sustainability improves quality of our lives, protects our ecosystem and preserves our natural resources for future generations. The main aim of this work was to evaluate the vernacular settlement of Kanakapura village in terms of thermal comfort. The study showed that there was 18% increase in moisture content in mud walls compared to modern concrete walls using moisture meter. The thermal comfort when calculated for a building of same size with a concrete wall and concrete roof, the percentage of dissatisfaction was found to be 59.45% greater which proves traditional huts in Kanakapura are more efficient in thermal comfort.



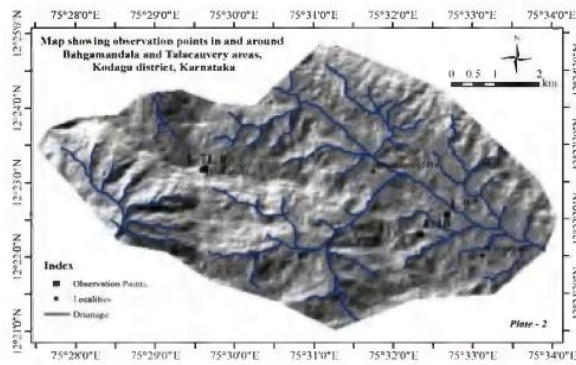
## Smart Irrigation with IOT

As water supply is becoming scarce in today's world, there is an urgent need to adopt smart ways of irrigation. This project describes how irrigation can be handled smartly using IoT, thus saving time and avoiding problems such as constant vigilance. It also helped in conserving water by automatically providing water to the plants depending on water requirements by detecting the moisture content of soil. All the information is sent to the user's mobile phone. The results obtained from laboratory experiments showed that the smart irrigation system using IoT was found to be more economical when compared to the traditional method of irrigation system as the smart irrigation system consumed less water, less electricity and reduction in man power.



## Slope Stability Analysis of Madikeri District and Landslide Mitigation

This project contains the study of landslides in Kodagu, Karnataka due to heavy rainfall in August 2018. These events resulted in many damages to the existing infrastructure in Kodagu district. The analysis of slopes of Korangala village of Bhagamandala has been carried out. The stability analysis of soil slope is evaluated through the factor of safety using Mohr-Coulomb methods under different density conditions. Remedial measures based on the study were recommended to keep the existing slopes in stable condition.



### To Manufacture & Study the Strength Properties of Different Blocks using Straw

In India, blocks are generally made up of clay and sand. In this project, straw bale is used as an alternative to sand in block preparation and properties of water absorption and compressive strength were studied after 7 days and 28 days of curing and compared with the results obtained for solid blocks.



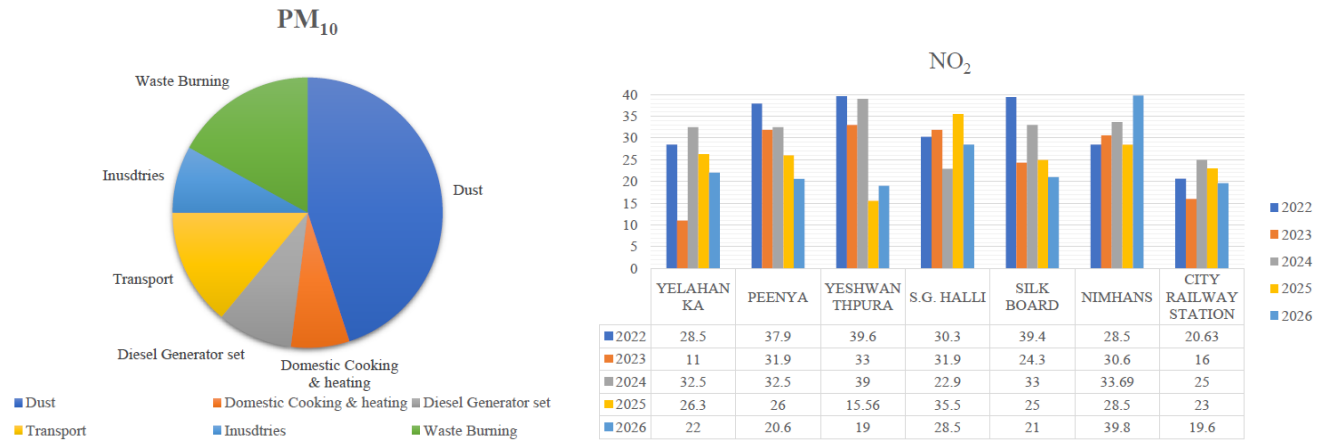
### Experimental Investigation on Utilization of Bamboo in RC Structures

Reinforced cement concrete structures carry gravity loads and use HYSD bars as reinforcement in order to take care of tensile stresses produced in the beams. However, the HYSD bars are having many disadvantages such as being heavy weight apart from being non-ecofriendly and non-renewable material. To mitigate this concern, Bamboo which is an eco-friendly and sustainable material is used as reinforcement to replace the HYSD bars either partially or fully. Feasibility of using Bamboo as reinforcement was investigated through experimental work in the laboratory by conducting flexural strength test and load-deflection behavior analysis. The results obtained showed that the bamboo reinforced beams showed significantly higher load carrying capacity.



## Parametric Study of Air Quality Index at Salient Points of Bangalore

Air pollution has become one of the most hazardous global concerns, killing an estimated 7 million people worldwide every year. Bengaluru has been facing deteriorating environmental conditions owing to its rapid development. The sole objective of this project was to analyze the air pollution trend from 2022-2026 at various industrial, residential, sensitive and moderate locations in Bengaluru on various factors that contribute to air pollution.



## Transit Oriented Development: A Case Study of Bengaluru Metro Line Phase 1

The study proposed a methodology to evaluate the impact of planned Transit Oriented Development (TOD) along a new METRO rail project. Using this method, the applicability of TOD principles using vertical development in rapidly developing metropolitan city of Bengaluru was explored. The methodology focused on prediction of mode choice behavior of people, change of street scape, socio-economic analysis and accident analysis after implementation of planned TOD. Findings of this study show that TOD can be an effective tool for achieving sustainable development in highly congested metropolitan cities of developing countries.

