

# Report

on

## One Day Site Visit at Govardhan Ecovillage, Wada, Thane

A One Day Site Visit at Govardhan Ecovillage, Wada, Thane for Third Year Civil Engineering Students under the course of BTC 503 – Development Engineering (Theory) and BTC 552 – Development Engineering (lab). The Concept of ‘Sustainability through Eco-centric Measures’ has been executed through immense technical work and accuracy in this project.

### Green Building

GEV followed the green standards as per the Green Rating for Integrated Habitat Assessment (GRIHA) norms and complied to the following criterion: Some key features of this earth-conscious Construction Process that they followed in GEV are:

- Zoning – Thorough ecological planning prior to construction
- Protecting existing ecology – Fences around the important ecological landmarks
- Smart Sourcing – To reduce the overall carbon foot print
- Zoned Construction – Not allowed to spread all throughout the campus
- Mud is the essence – Simple, Natural Mud was the key constituent of the construction material.
- Foundation was of stone masonry with stabilized mud mortar & concrete short poles (as bond stone)
- Earthquake resistance – Conforming to the BIS norms (earthquake proofing methods to protect).
- CSEB Bricks – Lesser amount of energy is consumed in preparation against modern day fired bricks
- Assembled Arches – Saves cost on RCC, saves cost on plastering ceiling with cement, saves waste and offer more strength and stability.
- Natural Insulation – A sloped roof with double layer of Mangalore tiles with an air gap between the two. It ensures that the temperature inside the room is moderate as compared to outside.

### Water Conservation

The goal at GEV was to create a system which could help us attain our goal without disturbing the existing ecology while keeping cost feasibility in mind. Therefore, they undertook a hydro-geological survey of the entire ecovillage to identify suitable recharge and discharge points. A recharge point is the ideal location to build rain water harvesting units to recharge the underground aquifers. A discharge point is the ideal location to draw underground water through open wells and bore-wells. At Govardhan Ecovillage they have taken a positive step by adopting various rural-specific alternative sources, minimizing our carbon footprint. They have successfully created a 30-cubic meter model biogas plant, which runs on cow dung and other food wastes. The gas produced from this plant is directly used as a fuel for cooking, minimizing our need for Liquefied Petroleum Gas. The village also houses a 30kVA solar power plant and many stand-alone solar powered street lights. Another alternative source are the various animal driven prime movers (ADPMs) which utilize animal power and form an excellent alternative for common electro-mechanical devices. GEV currently houses a bull-driven water pump, bull-driven grass cutting machine and various bullock carts for transportation. The bulls are worked in turns, engaging them on alternate days, thus harnessing useful clean power and ensuring the wellbeing and quality care of the animals.

### Soil Biotechnology

At GEV water contamination due to agricultural run-off is tackled through a strict zero-chemical policy for farming. Demonstrating a revolutionary technique in waste water treatment, the Soil Biotechnology (SBT) plant at GEV is a chemical-free alternative for sewage treatment. SBT consists of impervious containment and incorporates soil, formulated granular filter media and a select culture of macro

organisms such as earthworms and plants. It involves a combination of physical and biological process for processing of waste water and it derives its fundamental principle from the functioning of a terrestrial ecosystem. Patented by IIT Bombay, the SBT process by design, integrates with the natural bio-geochemical cycles of nature and hence proves to be most effective eco-friendly technology for waste water treatment. The SBT plant at GEV processes up to 30,000 litres of sewage every day recycling up to 10 million litres of water annually.

### **Rural Empowerment**

They entrust the villagers with all the responsibilities that allows them to lead a life full of vision. They have helped develop the nearby villages around the ashram by providing them basic infrastructure, education, basic amenities, etc. and have raised funds from the proceeds that they get from our ashram. Govardhan Ecovillage in true sense is not only a firm supporter of sustainable living but also supports rural empowerment to its fullest capacity. Since our inception they have stressed importance on taking people along with us in our vision to achieve a sustainable living along with their empowerment.

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