

Reimagine  
&  
Redesign

A Report on  
Technical workshop  
of

**“Vishwakarma Yojana : Sustainable planning  
for villages”**

Better  
Villages  
Better  
Future

Date: 25<sup>th</sup> October, Friday 2013

Venue: Auditorium, V. V. P Engineering College, Rajkot

Towards  
Rurbanization  
with  
Sustainability



Energy Audit



Sustainable Solutions

Eco Sanitation



*Presented By:*

*Dr. Indrajit Patel & Mrs. Jagruti Shah*



*Gujarat Technological University  
Ahmedabad, Gujarat*

---

**Gujarat Technological University,  
Ahmedabad, Gujarat.**

**Technical workshop of Vishwakarma Yojana at VVP College, Rajkot**

---

(25<sup>th</sup> October, 2013)

GTU had organized a one day Technical workshop of Vishwakarma: Phase-II for Saurashtra region held on 25<sup>th</sup> October, 2013 from 10:00 am at auditorium of VVP College, Rajkot.

Technical workshop had been chaired by Shri P. R. Maniar, Chairman VVP Engineering College, Rajkot. Prof. Sachin Parekh, Principal VVP College, expert speaker Prof. Yogesh Prajapati, Mrs. Jagruti Shah, Project Coordinator Vishwakarma Yojana, 13 Nodal officers from VVP – Rajkot, GP – Rajkot, RKU–Rajkot, SSEC – Bhavnagar, GEC – Bhavnagar, BPT – Bhavnagar, JNM–Amreli, GEC–Bhuj, GP–Bhuj, GP–Jamnagar & 95 Students of respective colleges attended the workshop.

Prof. Sagar Virani welcomed all invitees & participants in the workshop. The function was inaugurated with prayer & lighting the lamp. He requested Prof. Sachin Parekh, Principal to share his view on this occasion.

Prof. Parekh thanked GTU for giving students such an opportunity to get experience of existing situation of real world. He shared his experience & solutions for better Villages. He acknowledged the efforts of GTU & its team. He motivated the students to give their best solution by applying all technical knowledge.

Shri P. R. Maniar thanked GTU for allowing them the opportunity to organized workshop which is very helpful for students. He shared his experience of Villages. Situation of Villages, in Pre-independence & Post-independence era



are same. He told students to conceptualize design which can fulfill present need but should be the futuristic also. He motivated students for helping the society and Nation.



Mrs. Jagruti Shah, Project Coordinator briefed all participants about the core themes of workshop. Technical Session has been grouped in three core themes:

- I. Energy Audit
- II. Waste Management
- III. Eco Sanitation for Villages

### **Technical Session – I: Energy Audit**

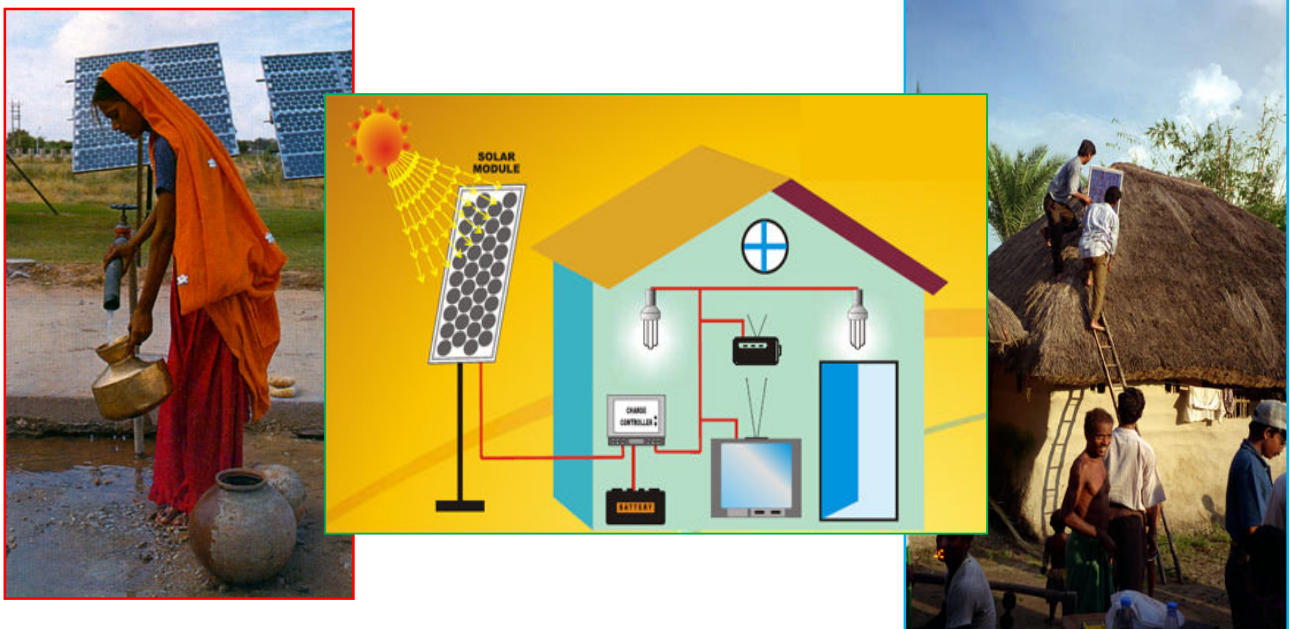
The first Session was conducted by Prof. Yogesh Prajapati from BVM Engineering Collage. He is a certified Engineer from the Bureau of Energy Audit. Mr. Prajapati has performed energy audit for Reserve bank of India, Zudys Cadila Pharmacy, ONGC-Hajira & other well-known firms.

In his presentation, he presented Energy Scenario, Energy Basics, Energy Audit, its Need, Types, Phases, Typical Energy Audit Questions, Energy Audit of some load found in Villages, Energy saving Examples, Instruments and Metering for Energy Audit, Energy Consumption Scenario in Rural India and Some Applications of Renewable Energy sources for Rural Development. He explained the students the meaning of Energy audit. Energy Audit means the



verification, monitoring and analysis of use of energy including submission of technical report containing recommendations for improving energy efficiency with cost benefit analysis and an action plan to reduce energy consumption. Energy Audit is a systematic study of energy inputs, conversion and outputs of energy consuming equipment. The Goal of Energy Audit is to reduce energy consumption per unit.

He also briefed some points to save energy like: Switching OFF ideal Lights, Fans, Reduce Water, Steam, Compressed Air Leakages, Use of high Efficiency Pumps, Fans, Motors, Lights, Cleaning of equipment, water treatments etc., Use of Compressors, Fans, Pumps with minimum pressure, Temperature,, flow, Use of small size equipment like Motors, Pumps, Refrigerators, T.V sets, 400 Ltr. Fridge will consume more energy than 165 Ltr. 42 Inch T.V consume 4 times more power than 21 Inch., Cycling/ walking in place of 2/4 wheelers., Mail, Telephone in place of Travel.



He also explained some applications of renewable energy sources for rural area with design. Students from Electrical Engineering branch asked various



questions regarding electrification problems in villages at the end of the session. Prof. Sagar Virani - Nodal officer thanked Prof. Prajapati for enhancing the knowledge of students & Nodal officers.

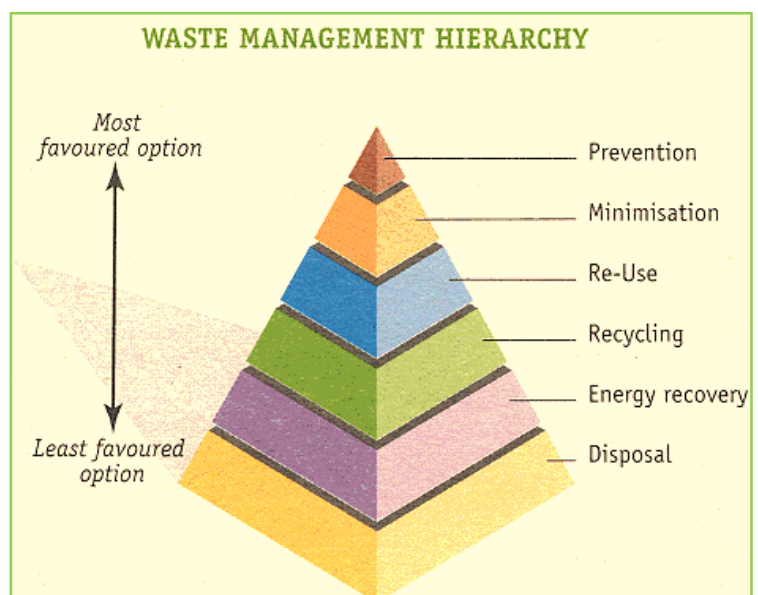


## **Technical Session – II: Waste Management- A case study of Integrated and Sustainable Solid & Liquid Resource Management (TAPI Model)**

This session was conducted by Mrs. Jagruti Shah, Project coordinator & urban planner, Vishwakarma Yojana- GTU. She presented the theme of waste management for villages.

Waste management is one of the challenges for urban as well as rural areas. In her presentation, the definition of waste, types of waste, waste management techniques, different parameters for design and guidelines to design a waste management model have been explained.

The TAPI model is one of the most sustainable approaches for waste management in which a Zero waste management centre was built by local material, local manpower and with optimum cost. Door-to-door collection has been



done by local people only. Three SHG members involved in door to door collection for every 250 to 300 families. Primary segregation or source segregation should take place at households for which two dustbins each have been provided. Secondary Segregation of organic (wet) waste into 20 types and inorganic (Dry) waste into 17 types in ZWM Centre. Aerobic composting (Windrow) & using cattle to reduce the volume of organic waste makes this model more sustainable.



*Waste Is Not Waste Always, But Wealth....*



Nodal officers and students asked various issues faced by them and solutions were given. Prof. Sagar Virani thanked Mrs. Jagruti Shah for her valuable guidance of Waste management.



### Technical Session – III: Eco Sanitation for Villages

This session was again conducted by Mrs. Jagruti Shah, Project coordinator & Urban Planner, Vishwakarma Yojana- GTU. She presented theme of Eco Sanitation for villages.

In her presentation, she discussed the impact of the absence of sanitation facilities, sanitation scenario in world, condition of human health, issues faced by Indian villages, various program under TSC, Definition of Eco sanitation, Types, Design, feasibility and benefits to village dwellers.

81% of 1.1 billion people that defecate in the open worldwide live in major 10 countries from which 638 million people live in India as per 2008 data.

*“The cause of many of our diseases is the condition of our lavatories and our bad habit of disposing of excreta anywhere and everywhere.”*

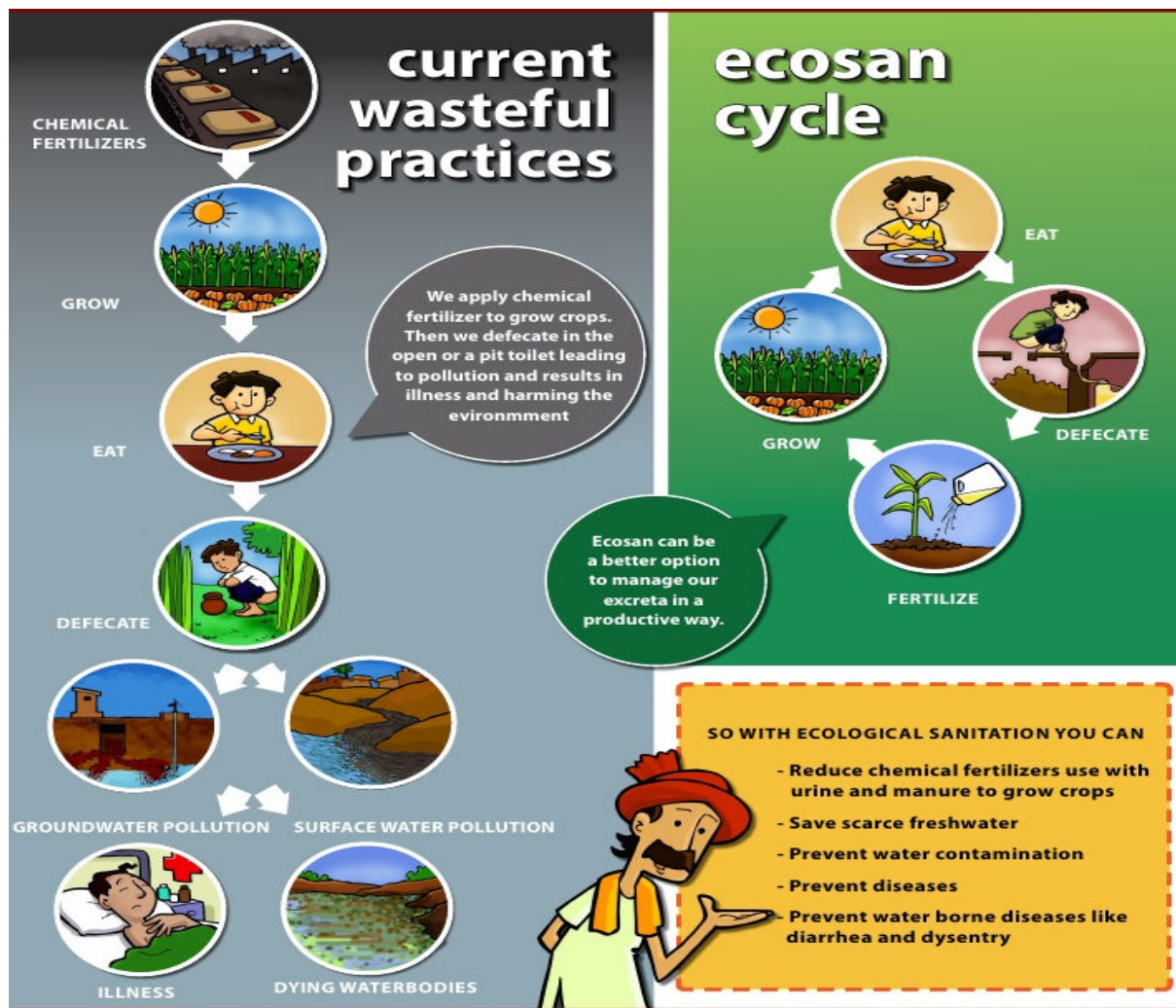
*“Sanitation is more important than Independence”- Mahatma Gandhi*

The main objectives of the TSC are as under: Bring about an improvement in the general quality of life in the rural areas, Accelerate sanitation coverage in rural areas and achieve cent percent sanitation coverage by 2017. Cover Schools and Anganwadis with Communication (IEC), human resource sanitation facilities in rural areas by 2013 development, and promote hygiene education and sanitary facilities among students. Motivate communities and Panchayati Raj Institutions in generating felt demand for sanitation facilities through awareness creation and



health education. Encourage cost effective, appropriate & sustainable sanitation technologies in sanitation. Develop community managed environmental sanitation systems focusing on solid and liquid waste management.

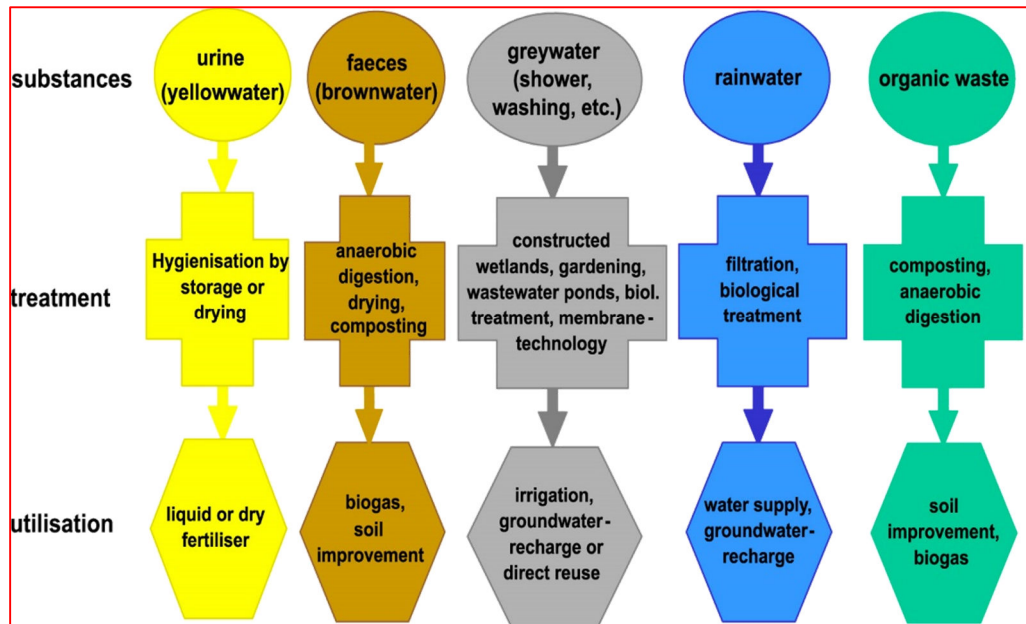
Eco sanitation is one of the feasible solutions to provide sanitation facilities in rural area. It has more benefits than our current wasteful practices.



She has discussed various components, design parameters, design principles and guidelines as per handbook published by Unicef India. In Ecosan toilets, separation of faeces, urine and wash water is achieved using specially designed pans with separation arrangements. Different types of ready to install ecosan toilet pans are being manufactured in India using fibre, plastic, concrete and ceramic materials. Cost of an ecosan pan ranges between Rs 500 – Rs 2000 depending on the material used and design.







## Various Ecological Sanitation Systems

She informed that standard design considerations based on the requirement of users and local climatic conditions are useful in optimising the design of toilet units. The design considerations can be grouped into various aspects such as anthropometric requirements, climatic conditions and wind and sunlight penetration. Some of these details are adopted from SSHE Manual published by UNICEF and DDWS prepared by VINYAS.

She presented case study of China for Eco sanitation. The development in Guangxi province in China is an example of the Vietnamese concept brought up to date. Following the success of the original pilot project more than 100,000 families in other parts of Guangxi province installed urine-diverting, ventilated, double-vault toilets inside their houses between 1998 and 2003. The total number of eco-toilets in China is estimated at 685,000 in 17 provinces (2003).



Mrs. Jagruti briefed about the design phase to Student & Nodal Officers. Student & Nodal officers shared their problems & issues for designs in villages. She has given various solutions to their issues & difficulties. She shared various guidelines for designing part.



Prof. Raguvendra Naidu, Nodal officer thanked all Students, Nodal Officers, Staff of VVP College & team of GTU for making orientation program success for Vishwakarma Yojana.

**On behalf of Vishwakarma Yojana, GTU, Ahemdabad**

**Dr. Indrajit Patel**

**Usha Banker**

**Jagruti Shah**

