

UMA Empanelment Process and Timeline

UMA Advisory Committee Meeting, 24th May 2017

Raj Desai
CTARA, IIT Bombay

UMA Selection Process Summary

Stage 1: Application of Colleges and Preliminary Screening

1. Covering Letter of applicant college
2. Participation Sheet submitted by college
3. Scoring Sheet filled by UMA team

Stage 2: Onsite Review and Detailed Scrutiny

4. UMA Review Committee Visit and Preparation of Visit Report
5. Final Submission Report of college and Review Committee Recommendation

Stage 3:

6. Final Recommendations of UMA Advisory Committee

Stage 1: 23rd Jan to 29th Jan

The UMA team at CTARA scrutinized and scored the participation sheets sent in by 18 colleges. The parameters included-

- Curricular Aspects, UMA and T&DC (20)
- Student Profile (Rural/urban) (10)
- Infrastructure (10)
- Past Projects (30)
- Guest Lectures (10)
- Faculty Consulting (20)

Based on the scores, 14 colleges were shortlisted and 4 eliminated.

Screening Based on Weighted Scores

Sr. No.	Name of institution	Sub total out of 60 (projs+guest lecs+fac cons)	Curricular aspects, UMA and	Student profile (10)	Infrastructure (10)	Total Weighted Score
1	Tatyasaheb Kore Institute of Engineering and Technology, Warananagar	55	20	10	10	95
2	D.Y. Patil College of Engineering and Technology, Kolhapur	45	20	5	10	80
3	Kolhapur Institute of Technology College of Engineering, Kolhapur	40	20	5	10	75
4	Government Polytechnic, Nanded	15	20	10	10	55
5	Matoshri Pratishthan's School Of Engineering, Jijau Nagar, Nanded	5	20	10	10	45
6	Matoshri Pratishthan's Vishwabharti Polytechnic Institute, Jijau Nagar, Nanded	5	20	10	10	45
7	Gramodyogik Shikshan Mandal's Marathwada Institute of Technology, Aurangabad					
8	Gramodyogik Shikshan Mandal's Maharashtra Institute of Technology, Aurangabad	25	20	5	10	60
9	Ghards Foundation's Ghards Institute of Technology, Khed, Ratnagiri	35	20	0	10	60
10	Amrutvahini Sheti & Shikshan Vikas Sanstha's Amrutvahini College of Engineering, Sangamner	25	20	5	10	60
		30	20	10	10	70
11	Shetkari Shikshan Mandal's Pad. Vasantraodada Patil Institute of Technology, Budhgaon, Sangli	30	20	5	10	65
12	Prof. Ram Meghe Institute of Technology & Research, Amravati	35	20	5	10	70
13	St. John College of Engineering and Management, Palghar	25	20	0	10	55
14	SSBT's College of Engineering and Technology, Bambhori, Jalgaon	40	20	0	10	70
15	Rayat Shikshan Sanstha's Karmaveer Bhaurao Patil College of Engineering, Satara	25	20	5	10	60
16	Shri Shivaji Vidya Prasarak Sanstha's Late Bapusaheb Shivaji Rao Deore College of Engineering, Dhule	45	20	5	10	80
17	Walchand Institute of Technology, Solapur	55	20	5	10	90
18	SVERI's College of Engineering Pandharpur	50	20	10	10	90

List of Shortlisted Colleges

1.	Karmaveer Bhaurao Patil College Of Engineering Satara
2.	Marathwada Institute Of Technology Aurangabad
3.	Maharashtra Institute Of Technology Aurangabad
4.	Shrama Sadhana Bombay Trust's College Of Engineering Jalgaon
5.	Shri Shivaji Vidya Prasarak Sanstha's Bapusaheb Shivajirao Deore College Of Engineering Dhule
6.	Prof. Ram Meghe Institute Of Technology And Research Amravati
7.	Dr. DY Patil Pratishthan's DY Patil College Of Engineering And Technology Kolhapur
8.	Shree Warana Vibhag Shikshan Mandal's Tatyasaheb Kore Institute Of Engineering And Technology Warananagar
9.	Kolhapur Institute of Technology's College Of Engineering Kolhapur
10.	Amrutvahini Sheti and Shikshan Vikas Sanstha's Amrutvahini College Of Engineering Sangamner
11.	Shri Vithal Education and Research Institute's College Of Engineering Pandharpur
12.	Shri Aillak Pannalal Digamber Jain Pathashala's Walchand Institute Of Technology Solapur
13.	Gharda Foundation's Gharda Institute Of Technology Khed
14.	Dr. VP Shetkari Shikshan Mandal's Padmabhooshan Vasantnada Patil Institute Of Technology Budhgaon

Stage 2: Review Committee Visit to the Shortlisted Colleges

UMA Team (Mr. Raj Desai and Ms. Oshin Dharap) visited the 14 shortlisted colleges to-

- Assess their technical capabilities to conduct UMA activities
- Review supporting documents (reports, MoUs, agreements, etc)

Based on this, a summary visit report was prepared by the team for each college.

Final submission by colleges includes institute profile, a brief synopsis of 6-7 key projects along with department wise list of projects relevant to UMA.

Sample Field Visit Report

Stage 2: UMA Summary Report

Name of institution: TKIET Warananagar

Date: 8th March 2017

Parameter	Documentary Proof/ Verification	UMA Review Committee Remarks
Experience in development sector		
Past projects in the development sector	Yes (student reports)	Verification of projects in participation sheet
Prior experience in field-work and reporting	Yes (student reports)	
Prior experience in conducting inter-disciplinary projects	Yes (student reports)	Inter-disciplinary projects involving Mechanical, Civil, Chemical and Electronics departments
Networking and collaboration		
Interaction with regional agencies	Yes (MoUs and agreements with industry, industry sponsored student projects)	Strong industry-institute connect Stakeholders include TCS, Infosys, Menon and Menon, Texas Instruments, IIT-B, Warana Sahakari Dudh Utpadak Prakriya Sangh, Savitri Mahila Industrial Sahakari Sanstha, etc.
Interaction/correspondence with local government bodies	Yes (MoUs and agreements with Kolhapur Municipal Corporation, GramPanchayat, Nagar Parishad (Vadgaon, Panhala) etc))	
Guest lectures	Yes (photographs)	
Faculty consulting	Yes (reports/certificates)	Testing and consultancy by Civil, Mechanical department (Karishma Construction, Zilla parishad, Vijayshree Industries, Warana Sahakari Dudh Utpadak Prakriya Sangh, etc.)
Certificates		
Recognition/approval letter from regulatory authority	AICTE Approved, DTE Recognized	
Accreditation documents	NAAC	NAAC 'A' Grade

	6. Design and fabrication of potato sowing machine
Computer Science Engineering	1. Medical ATM 2. Automation of water supply in irrigation 3. Voice command control for Microsoft
Electronics Engineering	1. E-yantra smart city 2. Automated irrigation system
Chemical Engineering	1. Pollutant air purifier 2. Oil and gas refinery 3. Biomethanation of waste materials 4. Textile waste water treatment 5. Protein recovery from dairy waste

Other projects-

1. Jaggery making unit (IITB- TKIET joint project)
2. Biogas production
3. Jalyukta Shivar of Jakhale

Remarks-

This college is recommended for empanelment under UMA.


Mr. Raj Desai

Project Manager, CTARA


Ms. Oshin Dharap

Project Research Assistant, CTARA

Stage 3: Advisory Committee Approval

- ❑ Submission of Summary Field Visit Reports and Presentations from 14 Shortlisted colleges before the UMA Advisory Committee for approval.
- ❑ Final Decision of the UMA Advisory Committee to be conveyed to the respective institutions.
- ❑ A new GR enlisting the empaneled colleges and empowering them to participate in UMA projects and activities to be released.



Thank you

Unnat Maharashtra Abhiyan (UMA)

Connecting HTE with the development sector

Objectives

- Reform teaching, curricula and research
- Train future professionals and align with development objectives
- Make institutions regional resources
- Provide mechanism for citizens to approach institutions for service
- Provides for data and fees



UMA Projects Highlights

Characteristics

- Real Stakeholders
- Field Visit and Case Study as Key Mechanism
- Interaction with Stakeholders
- Demand driven Service Model
- Usable Output



UMA Projects Highlights

- Participation in Government Programs (Jalyukta Shivar, Rural Water Supply, Village Planning)
- Commercialized Products/Services for Rural (Solar Cooker/ Wood Gasifier for Community Kitchens, Masala Roaster, Khova Making Machine,for SHG, Plastic Road, Rain Water Harvesting, Hot Water bamb, Foldable Toilet, Solar Milking Machine,)
- Technology Upgrade(Haldi Cooker, Lacquer Mixer, Khova Making, Shrikhand Making Machine)
- Innovations for Agriculture(Potato digger, Multi Function Implement, Laser Land Leveler, Pesticide Sprayer etc.)
- Technology Dissemination(Solar Dryer, Water Filter)

Use of Plastic Waste in Flexible Pavement- Ambayde a Case Study

Introduction

Environmental Issue number 1:

Exhausting sources of conventional materials used in construction industry.

Environmental Issue number 2:

Failure of roads in the form of cracks, pot holes.



Environmental Issue number 3
Maintenance of roads creating traffic problems



Objectives: Utilization of waste plastic in bituminous road by dry and wet process.

Methodology

IRC:SP-98-2013

GUIDELINES FOR
THE USE
OF
WASTE PLASTIC IN HOT
BITUMINOUS MIXES
(DRY PROCESS)
IN WEARING COURSES

A)SHREDDING



Study of physical properties of materials



Wet Process



Dry Process



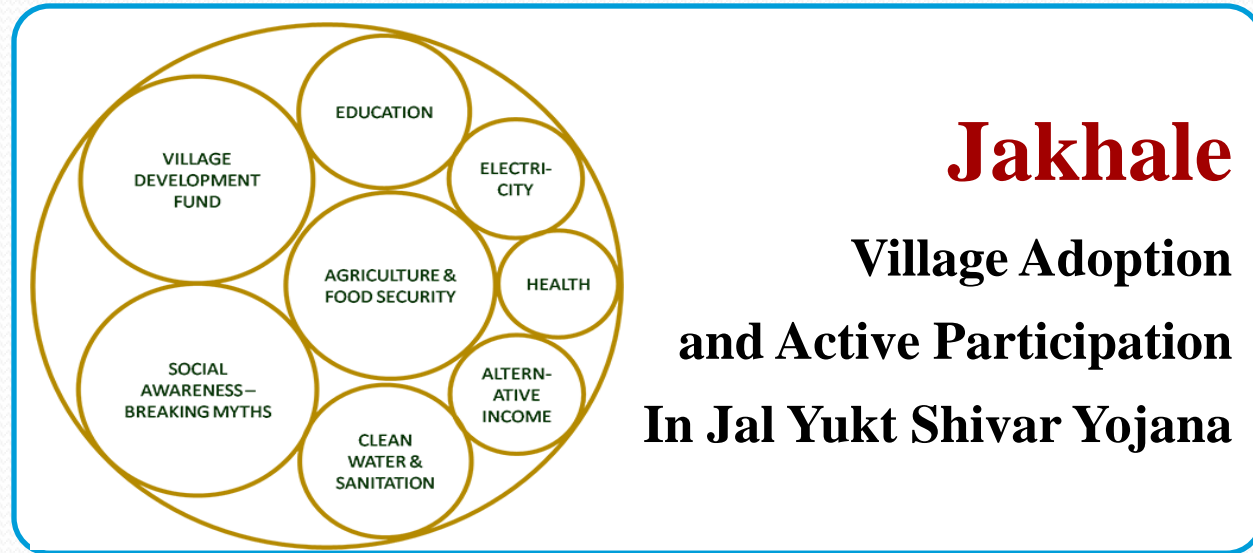
Continuous Jaggery Making Pilot Plant

- 60 Jaggery making Units.
- Highly inefficient manual Jaggery making process.
- Non availability of skilled labor.
- Project undertaken in collaboration with IIT Bombay
- Pilot plant set up with a capacity of 1T per day.
- Pilot trials completed.
- MOU signed with Future Agro for transfer of technology.



Implementation of Jalyukta Shivar

- Jakhale Village in Panhala taluka has a population of 7000
- Helped with part of design of Jalyukta Shivar Yojana.
- Active Participation by students and faculty
- Other development program undertaken
- CNBS, CCTS and other works completed.



Technical Audit of '*Jalyukt Shivar Yojana*'



Innovations in Alternate Energy Sector



Nisargruna Biogas



Seed BANK



Food Drying Facility



Laser Land Leveler



Automatic Weather Station



RHRDF Building

Soil Testing Lab



VTD



Workshop



Water Filter

ECO VILLAGE DEVELOPMENT PLAN - JAITAL

AIM :
**TO PREPARE
ENVIRONMENTALLY
SUSTAINABLE VILLAGE
DEVELOPMENT PLAN OF JAITAL.**

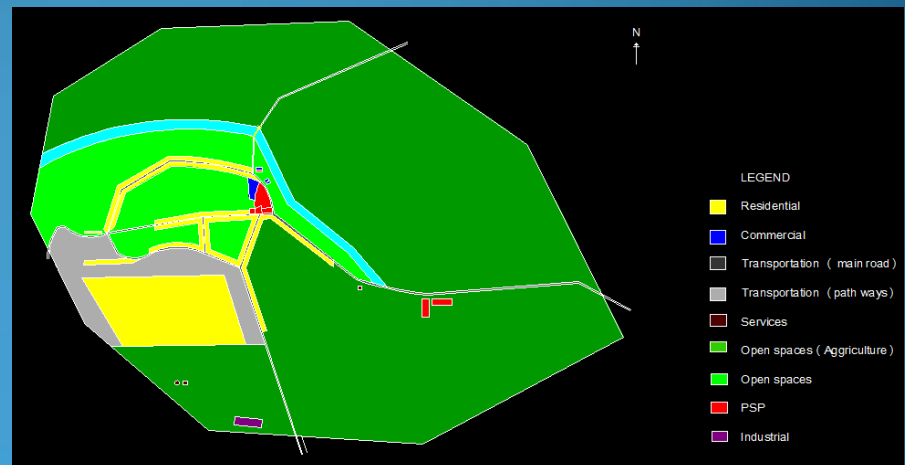
OBJECTIVES:

- To study the various parameters of village development.
- To identify the study area and prepare base map depending on survey.
- To study the existing land use of the study area and identify the scope of development.
- To prepare PLU map for study area and to suggest necessary development proposals.

**Satellite image of
Jaital village**



CAD map of Jaital village (ELU)

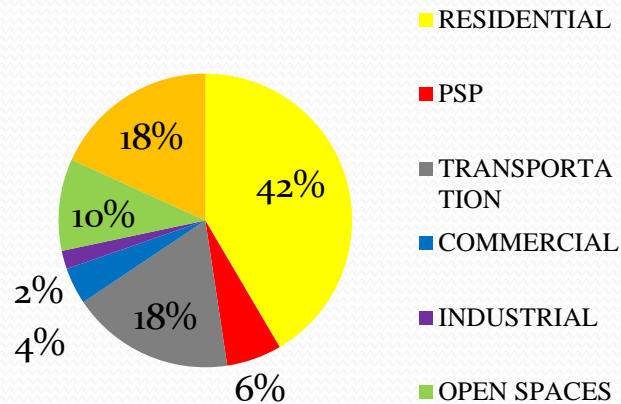


PARAMETERS OF VILLAGE DEVELOPMENT

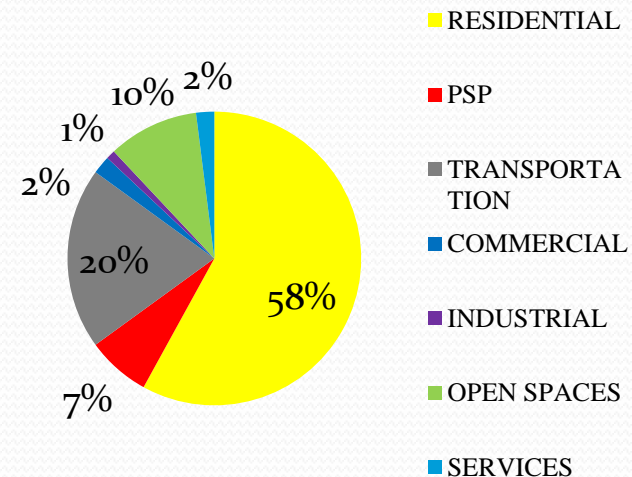
- ☐ Demography
- ☐ Regional setting
- ☐ Agriculture and livestock
- ☐ Housing
- ☐ Public-Semi-Public (schools, hospitals etc.)
- ☐ Transportation
- ☐ Water supply
- ☐ Sewage
- ☐ Solid waste management
- ☐ Economy
- ☐ Finance
- ☐ Budget

LANDUSE ANALYSIS OF CASE STUDY AREA

EXISTING LANDUSE



PROPOSED LANDUSE



Krushak A Multipurpose Agriculture Equipment

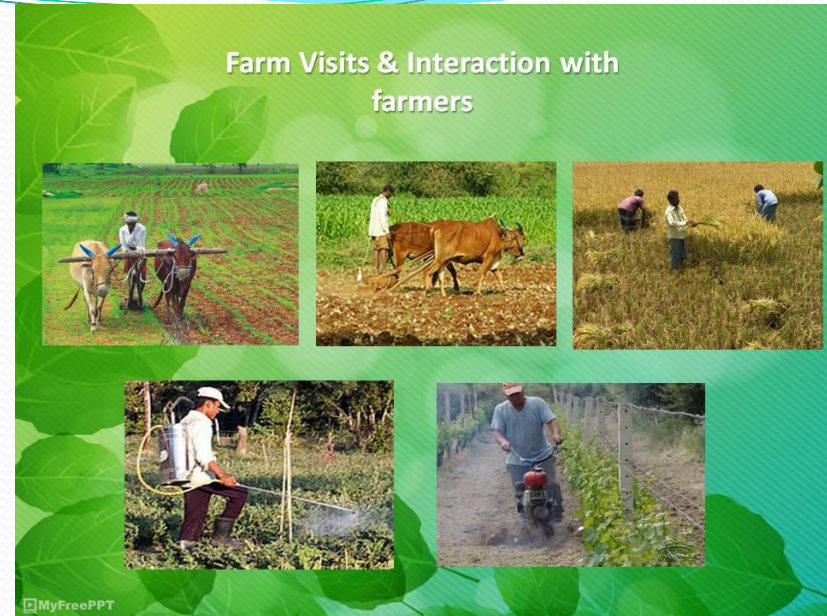
IEDC SPONSORED

1. It is specifically designed for farmers having less land area.
2. By using this machine they will be able to perform processes like tilling, weeding, seed sowing, spraying, crop cutting with less efforts and time.
3. It is compact, semi-atomized and multipurpose agriculture equipment in affordable price for farmer
4. 70% reduction in cost of Machine required for different operation.
5. 50% reduction in maintenance cost.

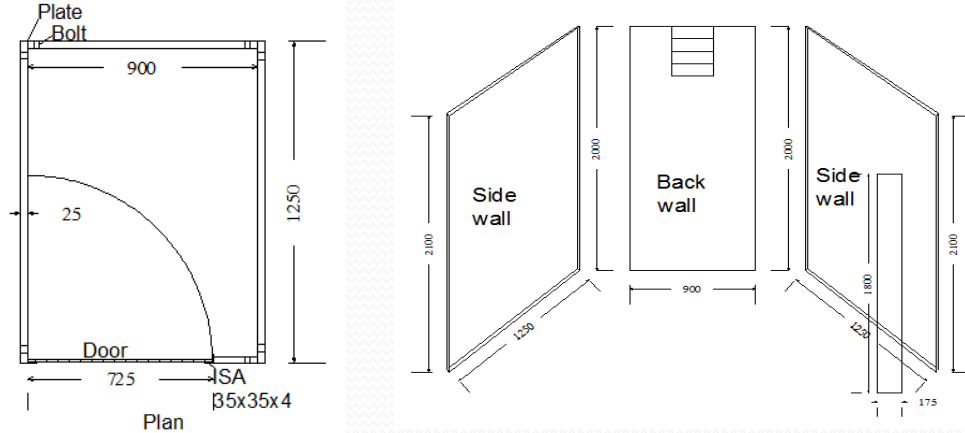


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NEWS VIDEO



Application of Ferrocement Technique To Rural Sanitation System



Advantages

- ❖ Fabricated into any conceivable form.
- ❖ Basic raw materials for its construction is readily available.
- ❖ It is easy to transport as all the units can be handled easily.
- ❖ Structure is highly waterproof.
- ❖ Maintenance cost is almost nil.
- ❖ It requires less space for construction.
- ❖ A new era in construction industry.
- ❖ To build the structures which are cost effective, light weight and speedy to construct.
- ❖ Affordable to the low income group.
- ❖ Best suited for Melas at shrine Places (Mass Gathering)



Estimated cost of Ferrocement (Mobile) Latrine Unit = Rs.7156/-

Feasibility of Drinking Water Supply in Village Area by Gravity Flow

Objective: To develop efficient water supply system for villages by gravity flow.

Outcome: Saving of about 75% of water is possible for every rotation from dam. Also, minimize the electricity charges by avoiding lifting/pumping.

Special Achievements: This project, fetches a grant of Rs. 2 Lac under BCUD, SPPU, Pune.

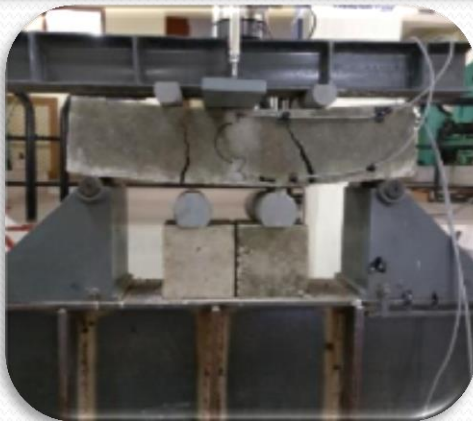
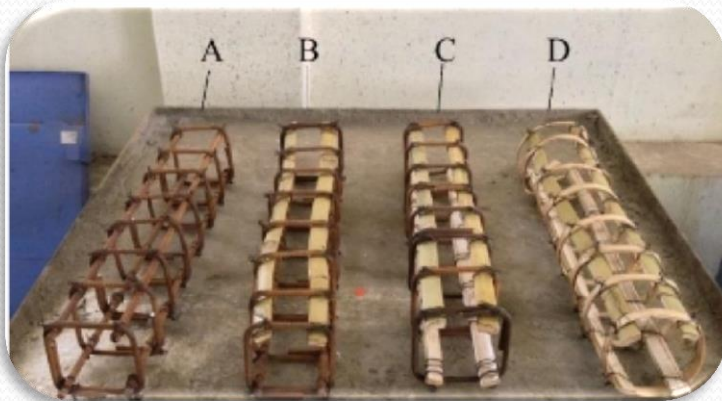


Bamboo Reinforced House

Objective: To analyze and design the bamboo reinforced concrete structures.

Outcome: Alternative to the steel reinforcement, which reduces the cost of construction.

Bamboo used for construction : *Dendrocalamus strictus* species



Other technical things can be found on Journal of Institutes of Engineers (Series A) , 94(4), 2013, 235-242

bagasse

❖ Problem Identification:

Bagasse is available as huge waste from Sugar mills as waste product & is to be converted into useful chemical- **activated carbon[AC]**.

❖ Methodology Adopted:

chemical activation is applied here using K_2HPO_4

chemical activation can be by other chemicals $ZnCl_2$, H_2O_2 etc

100 g bagasse resulted in 30.7 g AC [activated carbon]

Cost of bagasse = 2 Rs/kg

Cost of AC= 40 Rs/kg

2 Rs/kg bagasse converted into 12.8 Rs /kg product-AC

Optimum Parameters: K_2HPO_4
concentration (2M), impregnation time (6 hr), temperature (30°C), and impregnation ratio (0.0125 g/ml)
Adsorptivity of AC produced = 142.7 mg/g
Adsorptivity of AC [commercial] = 174.7 mg/g

Bagasse: a renewable source. So it is a sustainable process



Electrification of Remote tribal village using locally available Bio-fuel

- The basic idea is to establish a micro-grid using a electricity generator that runs on biodiesel.
- The biodiesel is to be prepared locally using locally available biofuel.
- In Melghat Mahua is available in ample quantity and mahua oil can be converted in to good grade biodiesel.
- A pilot project was erected in village Khamda



USE OF FOUNDRY SAND AS CONSTRUCTION MATERIAL

Client Stakeholder- Construction Industry, society etc

Problem- Replacement of waste foundry sand up to 30% of natural sand in concrete.

Approach- An experimental investigation is carried out on a concrete containing waste foundry sand in the range of 0%, 20%, 25%, 30% and 35% by weight of fine aggregate required for M-25 grade concrete.

Solution- The use of foundry sand as a partial replacement of natural or artificial sand has a great potential towards the development of eco-friendly sustainable concretes.

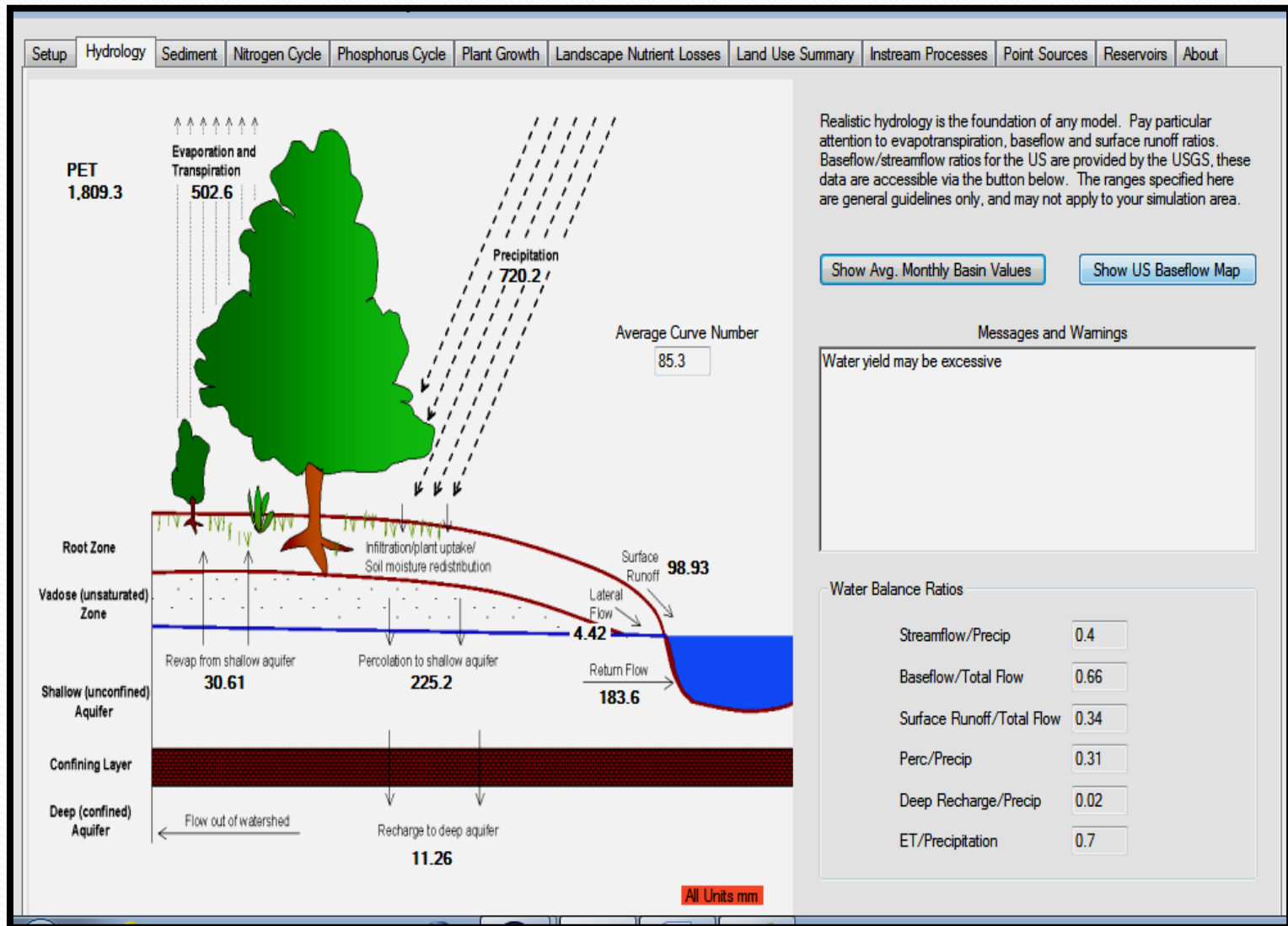


Room automation using Sensors for power saving

- Client/Stakeholder: Society, etc.
- Approach: Automation is done by 3 ways viz.- **Laser in HoD E&TC cabin, Single PIR sensor in E&TC Gents washroom and dual sensors in Principal cabin**
- Outcome: To **minimize the energy cost** affecting production and quality and minimize environmental effects.



Watershed management: SWAT Model



Some More Innovations

