

Orientation 2011

M.Tech./Ph.D. in Technology and Development

Milind Sohoni

Centre for Technology Alternatives for Rural Areas



Agenda

- Introduction to CTARA
- Core CTARA values and the T&D program
- Development situations and the future
- How to get about.

Centre for Technology Alternatives for Rural Areas

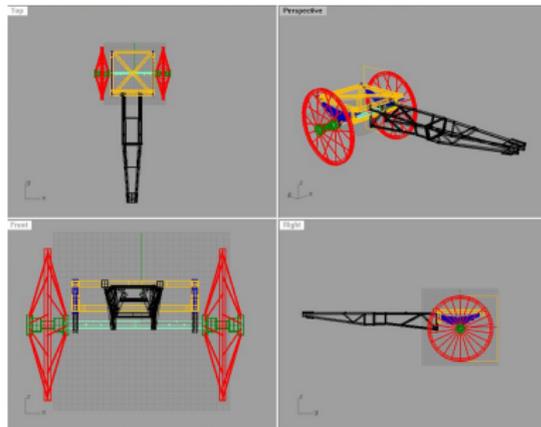
- An academic center of IIT-Bombay, started in 1985
- To study and to develop solutions for problems from rural India

Initial work:

- Agricultural machines and implements
- energy and drudgery saving devices

KVIC nodal center

- herbal oils extraction process
- Bio-diesel from waste oil



Later work

- 2005: Check-dam at Gudwanwadi, 85m, 20,000 cu.m. for Rs. 25 lakhs
- 2009: Vertical Shaft Brick Kiln at Pen *taluka*

Academic Initiatives

- 2007: M.Tech. program in Technology and Development.
- 2010: TDSL-interaction with other departments and UGs.



Core Faculty

- **A. W. Date**-Appropriate Technology, Rural systems
- **U. N. Gaitonde**-Mechanical Engineering, Energy and Thermal system
- **Anand Rao**-Energy and Environment, Climate Change
- **N. C. Narayanan**-Water and Governance, Development Theory
- **N. Shah**-Food, Agriculture and Agro-Industry
- **Milind Sohoni**-Water, Rural systems

Adjunct Faculty:

- **S. Wagle**-Policy and Governance
- **Bakul Rao**
-Environment Analysis and Assessment
- **P. Modak** -Environment and Natural Resource Mgt.
- **S. Agnihotri**
-Governance and Govt. Programs

The T&D core values

- Concrete beneficiary/stake-holder-the bottom 80%, households, hamlets, gram-panchayats, villages, towns and cities
- Basic areas-soil, water, energy, livelihoods, public health
 - ▶ end-user defined or demand-driven
- **Towards change**- as close to implementation as possible
 - ▶ deliver solutions -technology, policy
 - ▶ deliver knowledge -consultancy, capacity-building, debate.

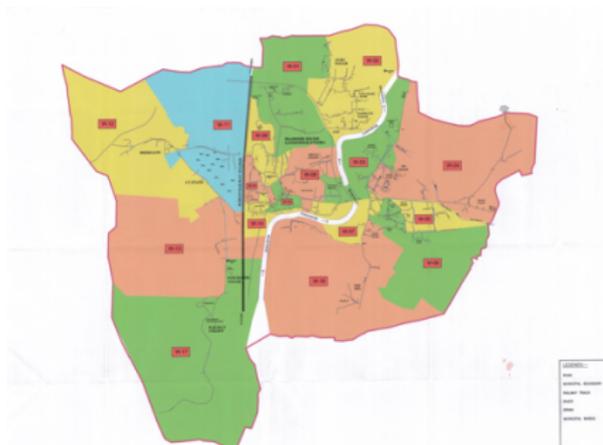
Objectives of the M.Tech. program

To produce the developmentalist/development practioner

- Analyse "development" situations and design solutions
- Work with implementation agencies and see them to completion

Two case studies

- Request from Municipal Council to analyse City Development Plan.
- **Ongoing work**-water, sewerage, solid waste, municipal budget and so on.
- **Skills**: GIS, simulations, social and governance analysis



- Why did a drinking water scheme fail?
- What are the options.

TDSL and TDCC-Coordinator: Pooja Prasad

- **TD-Supervised Learning:** An opportunity for UGs to do development projects.
 - ▶ **Access to medicines and medical supplies in Mumbai -** Consumer Guidance Soc. of India.
- **TD-Consultancy Cell:** Development advise to various bodies
 - ▶ **Community and Household Bio-gas-** nearby colleges

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Structure of the M.Tech program

Perspective

3-4 common courses

Skills

2-3 common courses

Knowledge

Domain coursework and
electives

Practice

Fieldwork and delivery
specifics

The current M.Tech. in T&D

Coursework

- **Perspective-philosophical nuts and bolts**
Development Theory, Appropriate Technology, Policy and Governance
- **Sectors-the knowledge base**
Water, Soil and Agriculture, Energy, Environment
- **Skills-to bring rigour to field work**
Social Sci. Res. Meth, System Dynamics, Project Mgt. and Analysis
- **Field work-** 10 week structured rural stay, field visits.
- **Two-Stage Project-Ideally**
 - ▶ Ist Stage-**Situation and alternatives**-Appreciation
 - ▶ IInd Stage-**Technology or Policy**-Generation

Our students (and our faculty) in the field



Our locations-*Naldhe*



At our 10-week field stay



Selected M.Tech. Projects

- Study and design of cages for aqua-culture
- Design enhancement and dissemination of improved cooking chulha in a village
- Handling of food grain bags in FCI godowns Mechanization and improvement possibilities
- Living with floods - Community based adaptation to floods in North Bihar
- Analysis of groundwater regulation in various states of India
- Simulation of hybrid energy systems for village applications using HOMER
- Jal-Swarajya in Thane district-An evaluation

What after M.Tech?

What do we train you for-

- An initial stint with an NGO/CSO in a particular sector
- Or a company in the development sector
- An independent consultancy, business
- A Ph.D. in development subjects and teaching
- Advisor-ship, expert consultant to collectors, ministers, banks and agencies
- Leadership role in flagship NGOs, government, regulatory bodies, or independent Centers
- Corporate roles-new companies and new areas

OK-but what about starting with big companies?

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OK-but what about starting with big companies?

- Is there a big company delivering water to the bottom 80%?
- *Veolia*, a french water company with turn-over of \$ 50 billion, started as a company to serve Lyon.

Remember-a few things

- **Fear the brand name**
 - ▶ what does/should the IIT brand mean
 - ▶ use your time here to grow
- **Respect Field-work**
 - ▶ unique to CTARA, common in every developed society
 - ▶ ideal training for the entrepreneur, economist, engineer
 - ▶ methodology-humility, initiative and creativity
- **Understand development**
 - ▶ beware of prejudices and cliches
 - ▶ confluence of engineering, economics and environment
 - ▶ and also culture, esthetics, nature, history...
 - ▶ Development practice vs. theory-Engagement vs. Destination

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- **Personally** -water, economic modelling, optimization
- www.cse.iitb.ac.in/~sohoni, [~karjat](http://www.cse.iitb.ac.in/~karjat),
[~karjat/unicef](http://www.cse.iitb.ac.in/~karjat/unicef)

Thanks

