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

- **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 practitioner

- 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

**Knowledge**
- Domain coursework and electives

**Skills**
- 2-3 common courses

**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

[Image of village scene and people gathering water]
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?

Veolia, a french water company with turn-over of $ 50 billion, started as a company to serve Lyon.
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- 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

Personally
- water, economic modelling, optimization

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~karjat/
~karjat/unicef

July 17, 2011 15 / 16
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Thanks