Knowledge Infrastructure for Maharashtra
The beginning of a Public-University-Private (PUP) Partnership

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The basic argument

Maharashtra’s Development Demands
Water, Public Transport, SME, Energy

↓

Need for Knowledge, New Practices, New Research
New Job Profiles, Avenues for Professionals.

↓

The role of University and Higher Education
Knowledge Structures. Key Areas.

↓

Mechanisms for a Partnership
Basic Well-being, Resources and Livelihoods

- Basic issues of water, food, health and *living*!
- Severe stress in natural resources. *Fodder, Firewood.*
The Data

Year-round drinking water availability.

<table>
<thead>
<tr>
<th>Year</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012 per 1000</td>
<td>858</td>
<td>896</td>
</tr>
<tr>
<td>(69th NSSO)</td>
<td>858</td>
<td>896</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>745</td>
<td>931</td>
</tr>
<tr>
<td>2008</td>
<td>862</td>
<td>911</td>
</tr>
</tbody>
</table>

Also affecting livelihoods...

similarly about Milk, Electricity, Cooking Fuel.
Urban Drinking Water
Drinking Water and formal sector jobs

Transport and health also very important. Also see Kelkar Committee report.
Analysis-The Governance Gap

- **Under-staffing.** Example: 2 rural water supply engineers and less than one field geologist per taluka.
  - delays, poor monitoring, no time for assessments.
  - No expansion possible for current job description.

- **Poor Data, Outdated procedures.** Example: Design of multi-village schemes, watershed treatment. Regional planning.
  - MEETRA, MERI, Yashada, GSDA. State Statistical Board

- **No new business models or space for professionals.** Disinterest of the private sector. Very little collaboration with institutions of learning and very little relevant research.

Basic Question: How do we generate and transmit new knowledge products? *What are knowledge products?*
Knowledge Structures-Examples from CTARA

Water Supply

- **Monitoring and Execution**: Actual performance of programs. Taluka and district-level assessments of NRDWP. Assisting GPs and ULBs during execution. Testing. Organizing information, material and financial flows.

- **Evaluation and Assessment**: Evaluation of Groundwater quality, design of WTPs. Assessment of MSNA for Parbhani.

- **Planning and Designs**: Economic models, GIS, Optimization frameworks. Jalyukta shivar. Irrigation and Water-use efficiency.

- **Failure Analysis**: Failed rural regional schemes. Failed bandharas. Testing.

Society and the University—a virtuous loop

The University
- repository of knowledge and practices
- training agents who deliver value

The Elite University
- thought leadership, the arts, long-term research, destiny
- symbolic of what a society values!
Training role: Employees for traditional Industry and State.
- Disconnect between research and reality.
- Focus on placement and packages. IT dominance.

<table>
<thead>
<tr>
<th>Research Papers since 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply</td>
</tr>
<tr>
<td>Public Transport</td>
</tr>
</tbody>
</table>
The New Institution

New jobs!

- Energy expert. Drinking Water consultant.
- District Public Transport Manager. Taluka-level planner.
- New research. New definition of rigour!
- Research which is accessible by society!
The Way Ahead

Three Questions:

- How do we design the new role of Higher Education?
- How do we incentivize and help them move to this new role? What other entities need to be modified?
- How do we measure progress and evaluate this?

- What are the short, medium and long-term action items?
Objectives: Water sector as a research area.
- Activities, case-studies, problems and solutions, curricula for development.

Highlights
- Participation from 17 colleges, TISS, Collector, Osmanabad, Unicef, WSSD, Meetra.
- Mechanisms of TDSL, TDSC for regional problems.
- Standard Templates: Rural DW security, water quality, MSNA as research areas.
The design

- **The Apex Body at DTE**
  - Definition of the program
  - Selection of institutions
  - Funding through TEQIP and other sources

- **The institution-Phase I**
  - Academic space for development and field projects
  - Networking with agencies and amongst ourselves
  - TDSC+TDSL: coordinating cell within institution Access to institute facility, faculty time, coordination staff, funding
  - How will it be sustainable?

- **Various Knowledge types**
  - Case-studies and Research Projects
  - Internships and fellowships
  - Who initiates, who provides liaison, who pays

- **Strategic analysis**
The areas of the future

- **SME and Informal Enterprises.** Bringing the benefits of technology, increasing efficiency, improving market access.

- **City and District Administration.** Improving planning, transport, infrastructure, logistics, optimization.

- **Core Sectors.** Water supply and sanitation, Electricity grid, Solar, Food, supply chains.

This would in turn create the demand for new instruments, gadgets, machines, tools for analysis and design, simulators ⇒ better engineering, better efficiency, better value.
### Examples

<table>
<thead>
<tr>
<th>From</th>
<th>Problem</th>
<th>Type</th>
<th>Sector</th>
<th>Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP, Collector</td>
<td>JYS</td>
<td>CS, RP</td>
<td>Agri.</td>
<td>DPC</td>
</tr>
<tr>
<td>GP</td>
<td>Village Plan</td>
<td>CS</td>
<td>RDD</td>
<td>RDD</td>
</tr>
<tr>
<td>MLA</td>
<td>Power Quality</td>
<td>RP</td>
<td>MSEDCL</td>
<td>MERC</td>
</tr>
<tr>
<td>DPC</td>
<td>GIS planning</td>
<td>RP, IP</td>
<td>DPC</td>
<td>DPC</td>
</tr>
<tr>
<td>ULB</td>
<td>MSNA</td>
<td>all</td>
<td>ULB</td>
<td>ULB</td>
</tr>
<tr>
<td>ULB</td>
<td>SWM Plan</td>
<td>ULB</td>
<td>ULB</td>
<td>ULB</td>
</tr>
<tr>
<td>MLA</td>
<td>Water Budget</td>
<td>RP</td>
<td>Irrigation</td>
<td>MERI</td>
</tr>
</tbody>
</table>

- Various types—design, feasibility study, failure analysis, assessment.
- Various models of payment-1%, 30K p.m.
- Funds: received by institute and routed to TDSC
CTARA

- Academic and research programs. Journals.
- Coordination role, eventually circulating.
  - standardizing case-studies, writing articles, lobbying, data
- Research Areas- *Paired Projects* (needs faculty approval)
  - *simultaneous launch* of similar projects
  - joint training in the summer
  - collaboration through-out the year
- Coordination Costs: TEQIP?
This year

Through TDSC

- Hostel stay for student, joint workshops, joint work with TDSC and students

Areas

- Mokhada-Watershed planning. Summer Internship.
- Jal Yukta Shivar-Summer Internship + Thesis.
- Taluka Water Balance-Summer Internship + Thesis.
- Urban+Large Village groundwater and sanitation Sangli and Aurangabad?
CTARA at IIT Bombay

- Creating the Development Professional
  - inter-disciplinary training for engineers.
  - field-work, core sectors, people-centric.
  - Projects in *sadak, bijlee, pani*
- Project-based course for students, consultancy for development
  - [www.ctara.iitb.ac.in/tdsl](http://www.ctara.iitb.ac.in/tdsl),
  [www.ctara.iitb.ac.in/tdsc](http://www.ctara.iitb.ac.in/tdsc)
- works with governments, cities, GPs, local bodies, citizen groups.
Thanks