

Organization of the talk

- The demands of development and the supply.
- The proposal
 - ▶ the Development Professional (DP)
 - ▶ the Development Research Institute (DRI)
- The knowledge and skills—case study
- Outcomes and the way forward.

The Development Demand

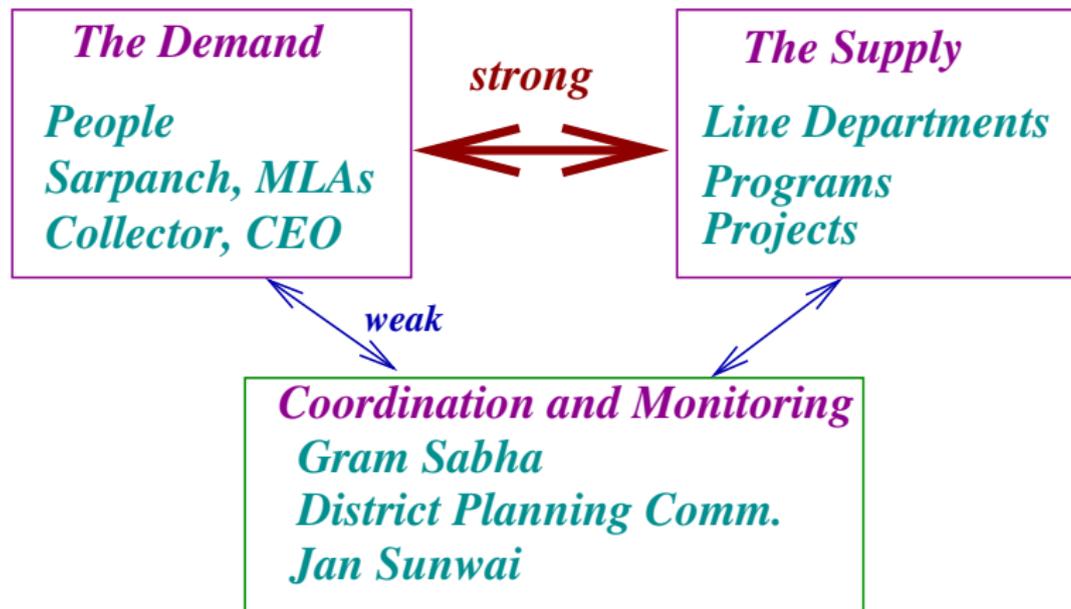


- Increasing aspirations
 - ▶ *sadak, bijlee, paani*-engineering services
- Scarce Resources
 - ▶ *climate change*-added unpredictability
- Rising Inequalities
 - ▶ asset and skill poverty, livelihoods
- **Wealth creation as well as wealth redistribution**

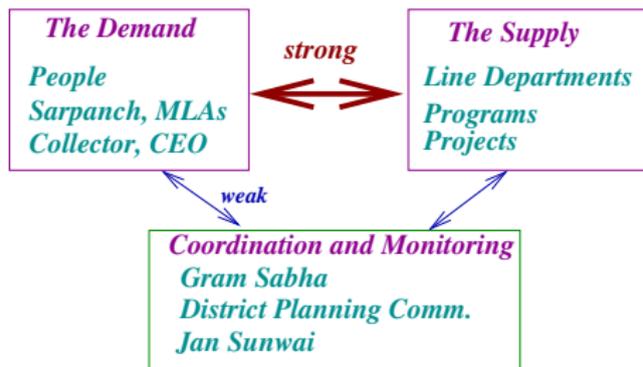
Governance under stress

- technical and applied social sciences skills
- stress on planning coordination, **outcome orientation**
- **R&D needs for both day-to-day and long-term**

The Governance Structure



The current status



- **The Supply** : Poor capacity to deliver
 - ▶ poor morale, poor conditions, poor institutional structure
- **The Demand**: Poor capacity of monitor
 - ▶ distracted by poverty, failing education system, failing resources
- **The Monitor**: Poor outcome, poor skills
 - ▶ no independent capacity, infrequent meetings, **no new knowledge**

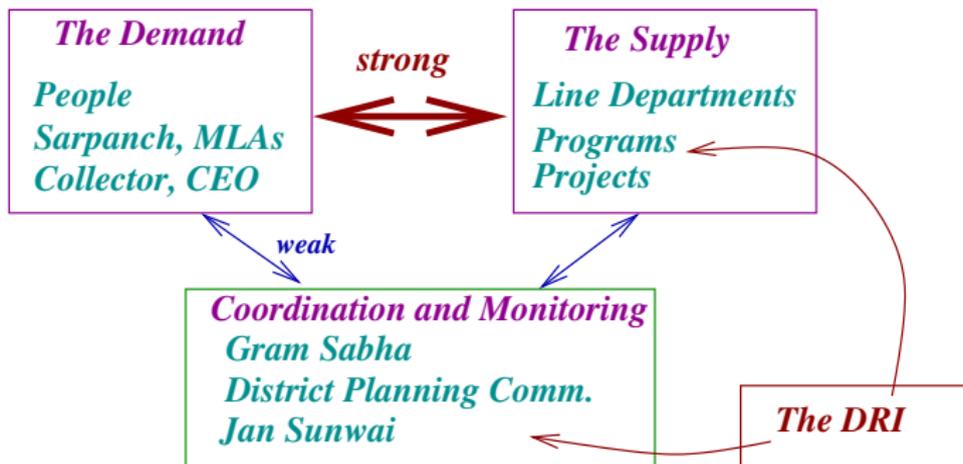
Development and Education

- The development sector poses important problems worthy of research and active engagement of research and educational institutes.
- Current set of companies may not have sufficient incentives to address these problems.
- These companies also do not have the need for the 5,00,000 p.a. or so engineering aspirants.
- The training of engineers is biased to employee-training and not towards skills needed to participate in the development sector.
- The research, if at all, does not match development demands.

Thus there is a supply-demand mismatch in both the corporate and the development sector!

The Development Research Institute

- University/Institutional participation in regional development problem —formulation and solution.
- Curriculum modification to allow students to take projects with local content and a focus on R&D for regional needs.
- **University as an important mediator.**



The Development Professionals

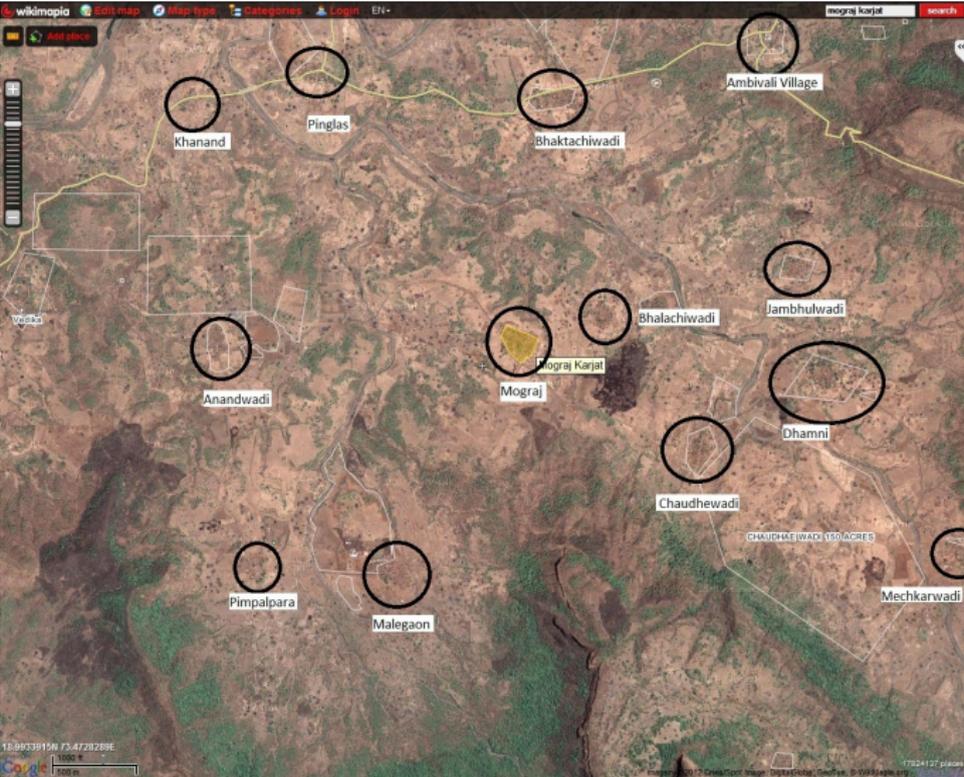
- **The District Development Coordinator:**
 - ▶ reports to planning body and Collector
- **The Program Coordinator:**
 - ▶ reports to program manager
- Monitor, coordinate and improve outcomes
- Formulate medium/long term R&D and interact with DRI
- **The Social Entrepreneur**
 - ▶ innovate in the energy, food, water, etc. development sectors.
 - ▶ mentoring and access by DRI

Belief

- These positions *will* deliver value.
- Collaboration with DRI will bring efficiency and new knowledge and practices.

Case studies from Drinking water

Mograj GP and habitations



Mograj GP -according to DDWS and actual!

	VillageName	HabitationName	SchemeNameDP	SanctionYear	SchemeType	Estimated Cost	DateOfCommencement	sourceTypeCategory	TypeOf Source	locationWater Source	Status as per CTARA survey as of March 2012
1											
2	AMBIWADI T.	AMBIWADI T. KOTHAL KHALATI	PWSS AMBIVALI	2008-2009	Piped Water Supply Scheme	25.00000	31/03/2009	Surface Water	River		Functional
3		AMBIWALI	PWSS AMBIVALI	2008-2009	Piped Water Supply Scheme	25.00000	31/03/2009	Ground Water	Openwell	near village	Repeated
4	DHAMNI	CHOUDHARWADI	Chowdhariwadi handpump	2000-2001	Hand Pump	0.35000	14/01/2000	Ground Water	Deep Tubewell	near field	Functional
5		DHAMANI	DHAMANI DUGWELL	2005-2006	DUG WELL	0.35000	01/09/2005	Ground Water	Openwell	in village	Functional
6		MECHKARWADI	MECHKARWADI PWSS	2002-2003	Piped Water Supply Scheme	13.32000	30/05/2003	Ground Water	Openwell	NEAR VILLAGE	Functional
7		MECHKARWADI	MECHKARWADI PWSS	2002-2003	Piped Water Supply Scheme	13.32000	30/05/2003	Ground Water	Openwell	near village	Failed for one wadi
8		PACHKHADAKWADI	DHAMANI DUGWELL	2005-2006	DUG WELL	0.35000	01/09/2005	Ground Water	Openwell	near village	No data
9	KHANAND	BHALAYACHIWADI	BHALYACHIWADI DUGWELL	2005-2006	DUG WELL	2.21000	20/04/2005	Ground Water	Openwell	in wadi	Functional
10		KHANAND	khanand pwss	2008-2009	Piped Water Supply Scheme	12.61000	12/06/2008	Surface Water	Pond		Not working
11		KHANAND	KHANAND VILLAGE TANK	2008-2009	DUG WELL	11.57000	07/12/2008	Ground Water	Openwell	Near village	Seasonal
12	MALEGAON T.	JAMBHULWADI	JAMBHULWADI HANDPUMP	2005-2006	Hand Pump	0.35000	20/04/2005	Ground Water	Deep Tubewell	in village	Functional
13		MALEGAON	malegaon pwss	2007-2008	Piped Water Supply Scheme	4.06000	30/03/2008	Ground Water	Openwell		Failed
14	MOGRAJ	ANANDWADI	MOGRAJ ANANDWADI PWSS	2003-2004	Combined Water Supply	8.27000	25/05/2003	Ground Water	Openwell	NEAR FIELD	Failed
15		BHAKTACHIWADI	BHAKTACHIWADI PWSS	2002-2003	Piped Water Supply Scheme	8.26000	30/05/2003	Ground Water	Deep Tubewell	NEAR VILLAGE	Failed
16		MOGRAJ	Mograj	2008-2009	Piped Water Supply Scheme	4.08000	30/03/2009	Ground Water	Openwell	near village	Failed
17		MOGRAJ	MOGRAJ WELL	2008-2009	DUG WELL	4.08000	07/12/2008	Ground Water	Openwell	Near village	Seasonal
18	PIMPALPADA	PIMPALPADA	pimpalpada pwss scheme	2008-2009	Piped Water Supply Scheme	4.44793	31/03/2008	Surface Water	Treated Surface Water		Failed
19		PIMPALPADA	PIMPALPADA WELL	2007-2008	DUG WELL	4.44000	31/03/2008	Ground Water	Openwell		No data
20	PINGLAS	PINGLAS	Pinglas WSS	1998-1999	Piped Water Supply Scheme	43.00000	26/04/2000	Surface Water	River		Failed
21											
22			Source: http://indiawater.gov.in								

- **Recommendations:** Technical review, watch the yield tests, protect source from competitive users.

Tanker-fed villages



160 out of 1700 were tanker fed. **60 repeatedly so!**

Largely in the 4 tribal talukas:
Jawhar, Mokhada, Murbad and
Shahpur.

Fraction of ST population.

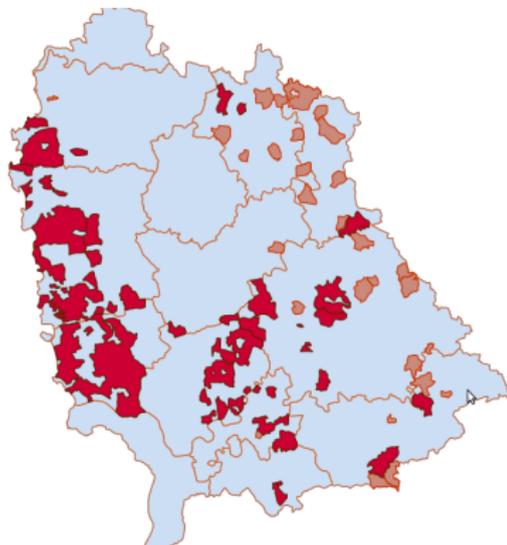
	Ja.	Mo.	Mu.	Sh.
Tanker	0.97	0.93	0.74	0.62
Taluka	0.97	0.91	0.24	0.35

Mean elevation (in *m.*):

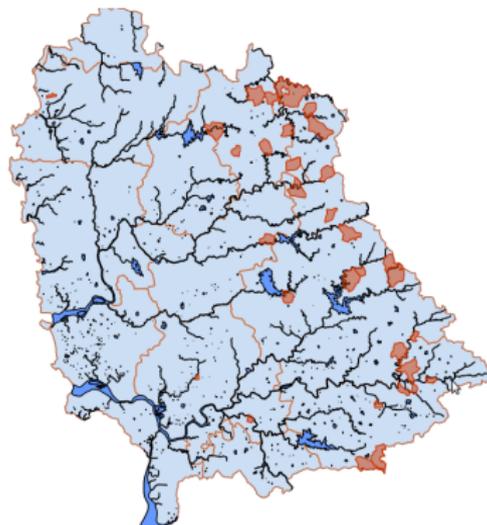
	Ja.	Mo.	Mu.	Sh.
Tanker	344	361	123	197
Taluka	320	350	126	132

More analysis

Location of large rural regional drinking water schemes



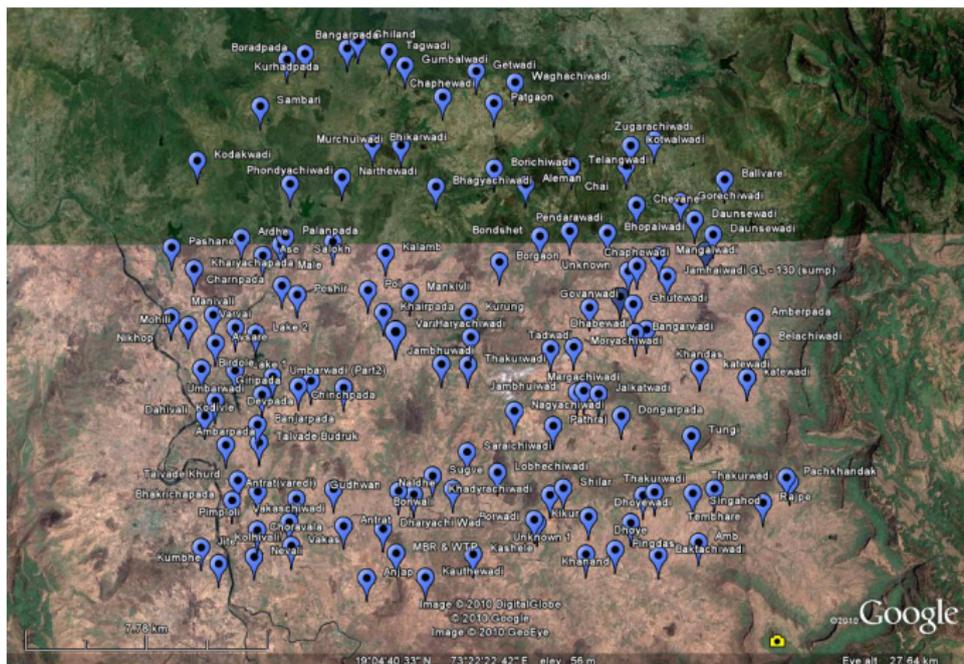
Location of rivers and lakes



Data from MRSAC, Census 2001, District administrative offices

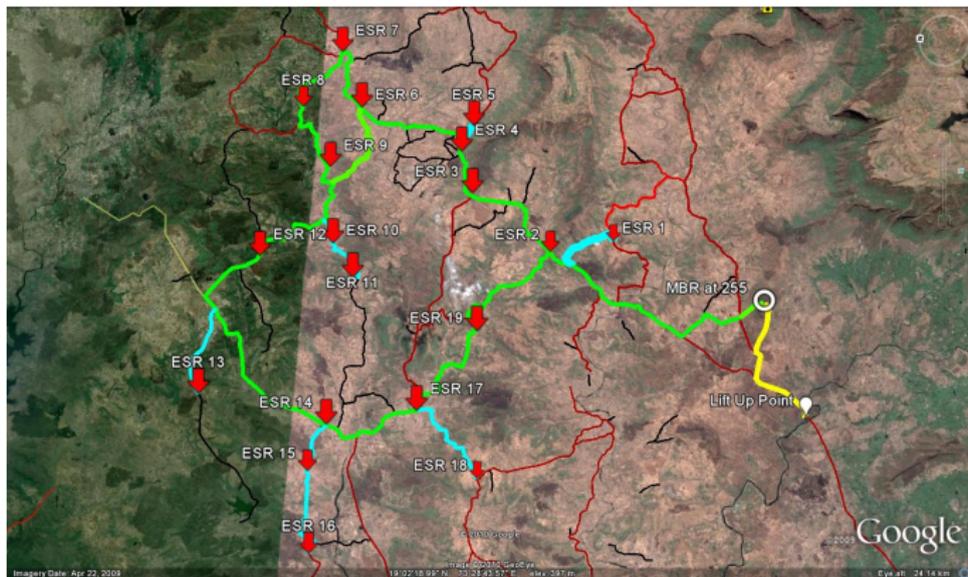
Applicable R&D with DRI

A Rural-Regional scheme design.



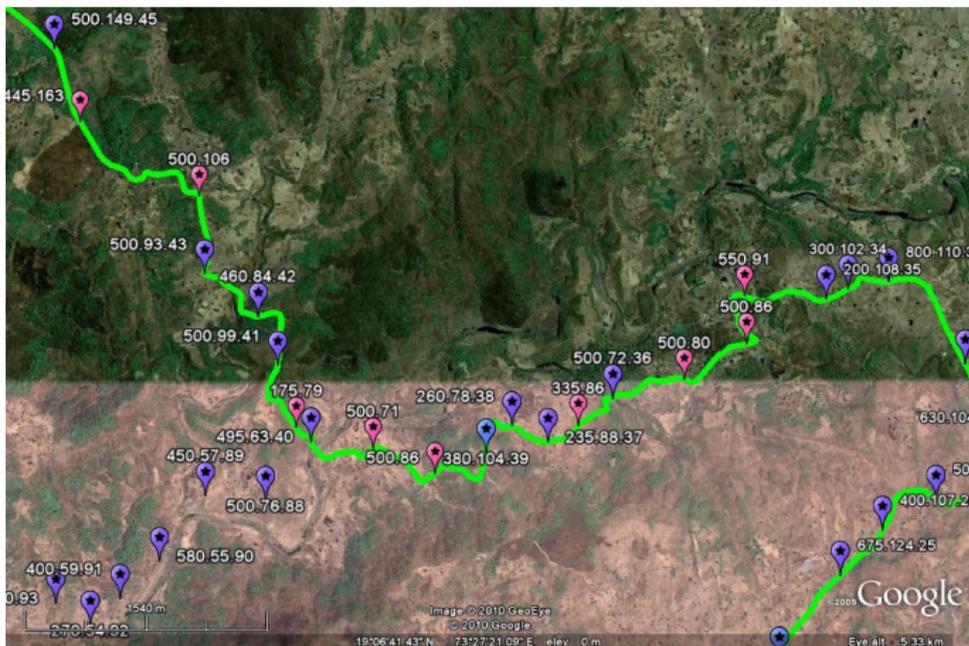
Latitude, longitude, elevation, population and growth rate.

The designed network



17 ESRs and a 2-loop network.

A close-up



Hundreds of nodes and edges. Pipes along roads.

Finally...

Estimated Net Investment for design population of 81,400.

200 lpcd	Rs.7051 per capita	Rs. 57 crores
40 lpcd	Rs. 2119 per capita	Rs. 17 crores

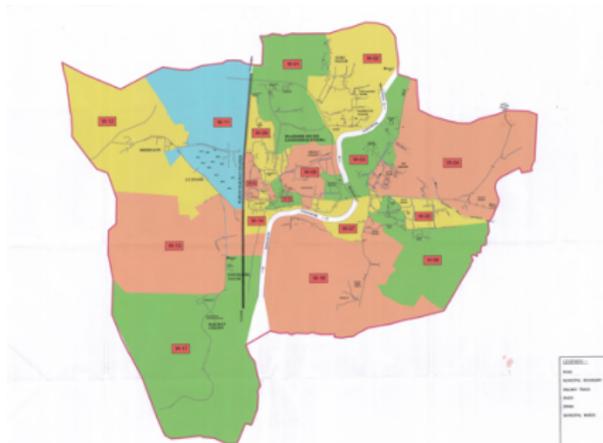
Energy costs(at Rs. 5 per unit, pumping efficiency 75%)

- 200 lpcd - Rs.400 per capita per annum
- 40 lpcd - Rs. 79 per capita per annum
- Energy cost per 1000 litre Rs. 4.56

Net investment for piped water at both norms of 40/200 lpcd to north Karjat is economically feasible.

Karjat City-a small taluka town in Maharashtra

- 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



water system.

- 3 zones OK but higher capital costs, 1 zone poorly designed.
- Pump efficiencies lower (51% , 60%) than standard (70%).
- financial stress-unmetered connection, commercial and residential
- competition with private bore-wells

The Development Research Institute



- Broad research and teaching—both engineering and applied social sciences
- Commitment to excellence in R&D
- Interest in and knowledge of governance, development
- Flexible academic programs

Foremost

- Have a rigorous program to train the *development professional!*
- Recognize the importance of inter-disciplinarity and field work.
- Use the best tools and methods to further development.

Snapshots



Snapshots



Snapshots



Snapshots



Snapshots



The Proposal



- 10 2-year fellowships for *Development Professional*.
- Rs. 5.00 lakhs p.a., of which Rs. 3.6 lakhs to DP, Rs. 1.4 lakhs to DRI.
 - ▶ Expected that Collector/Program Managers to top-up and add amenities.
- DRI to set eligibility.
- DRI to publicize with State administrations and help DPs and collectors meet and arrive at contract.
- DRI to assist in consultancy and R&D.
- 2 faculty positions and support-staff.

Long-term outcomes



- A profession alligned to development needs and a training to suit it.
- A multitude of DRIs—IIT Mandi, RIT Islampur and so on.
- A development discourse within engineering and applied social sciences academia
- **A betterment in the lives of our people.**

Thanks

