

# **IITB-Unnat Maharashtra Abhiyan**

**Building Maharashtra's knowledge  
infrastructure for regional development  
challenges**

**Rajaram Desai  
13<sup>th</sup> June 2018**

# Core Team

[Milind Sohoni](#). CSE and CTARA.

- Solid Modeling, Optimization, Railway timetables.
- Rural Development, Economics, Drinking Water.

[Rajaram Desai](#). IDC and TDSC.

- Chemical Engineer, Program Manager.
- Water supply, Govt. programs, Liaison with government agencies.

[Oshin Dharap](#). CTARA and UMA.

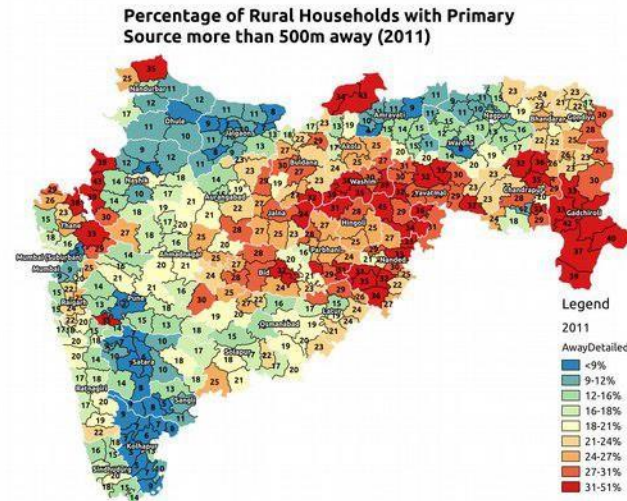
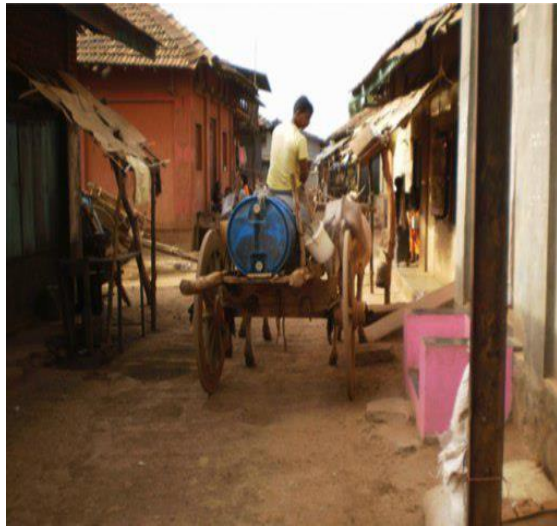
- Economist, Research Officer.
- Education, Development, Economics.

# Agenda for Today

- What are the **development issues** ?
- What is the role of **higher and technical institutions** in society?
- What is **Unnat Maharshta Abhiyan (UMA)**?
- How can engineering/technology institutions and institutions of higher education **interact** with government agencies/society at large and **deliver better value**?
- How can higher education institutions become **regional resources and knowledge providers**?

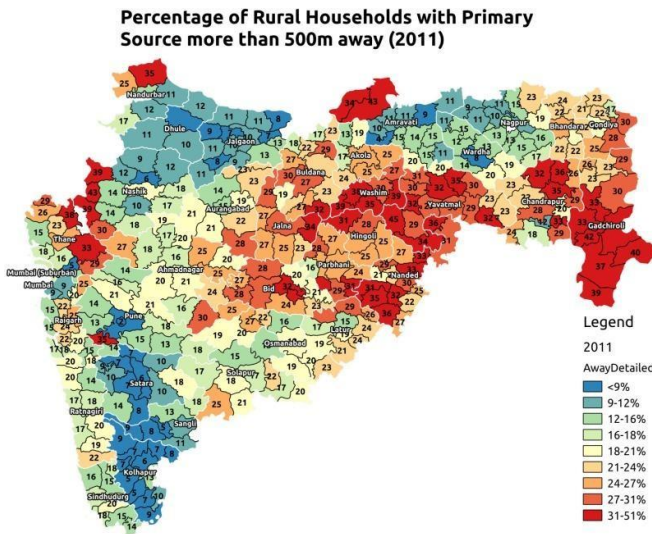


# Sample Development Issues



# Development Deficit and Employment

## Poor Development Outcomes



Development needs formalization and professionalization.

Must create academic and research frameworks and correct incentives.

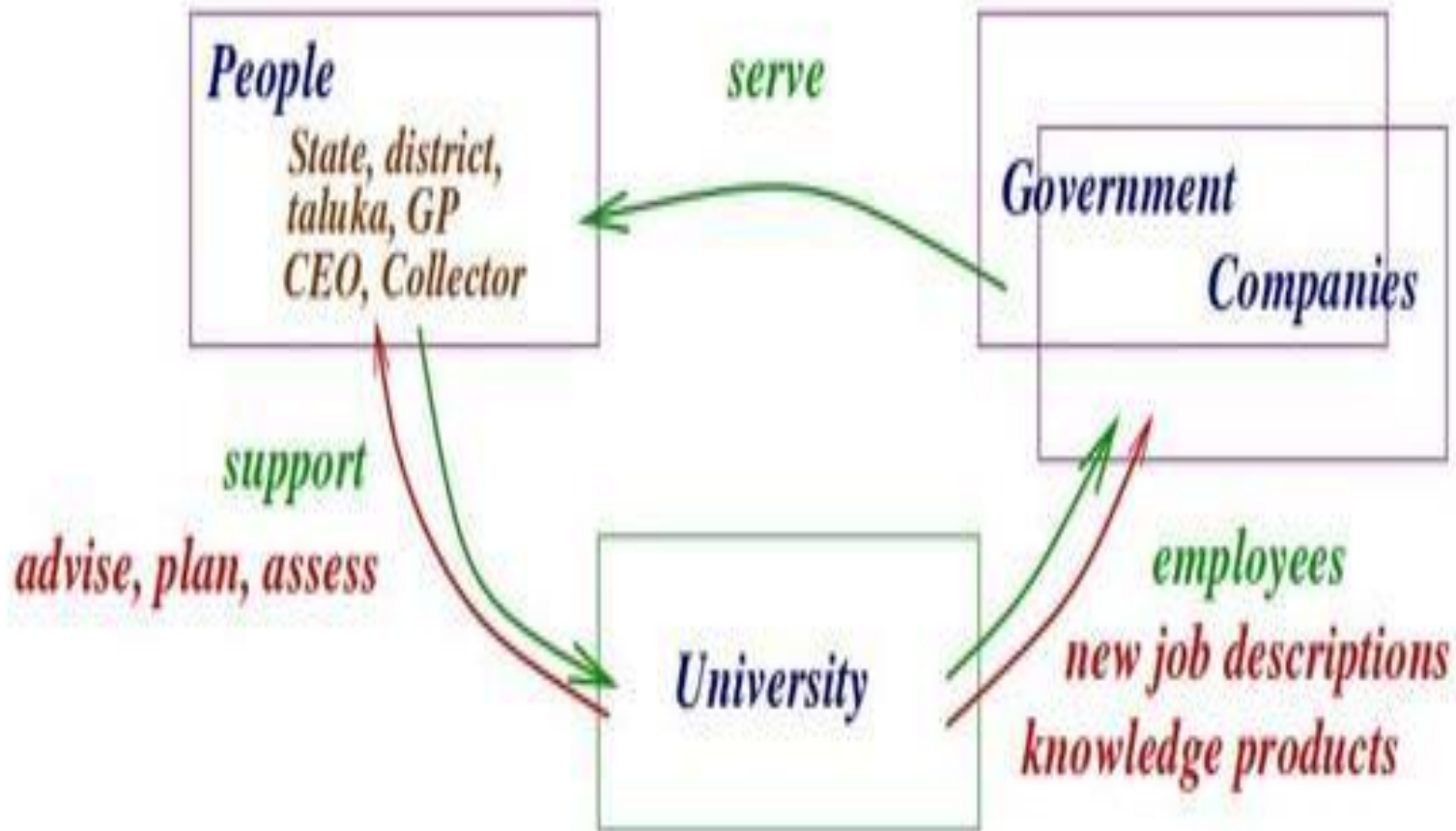
## Great Demand for Basic Amenities

- *Key source of good jobs. Leads to good jobs.*
- but not enough knowledge and professional mechanisms.

But what we have:

- Only 18% of Engineering Graduates work in core sector.
- 65% of IIT-B Engineers work in service sectors.

# Role of the University



# The Basic Argument

## **Maharashtra's Development Demands**

Civil amenities (water, energy, transport etc.), livelihoods, SMEs



## **Need for Knowledge, New Practices, New Research**

New Job Profiles, Avenues for Professionals



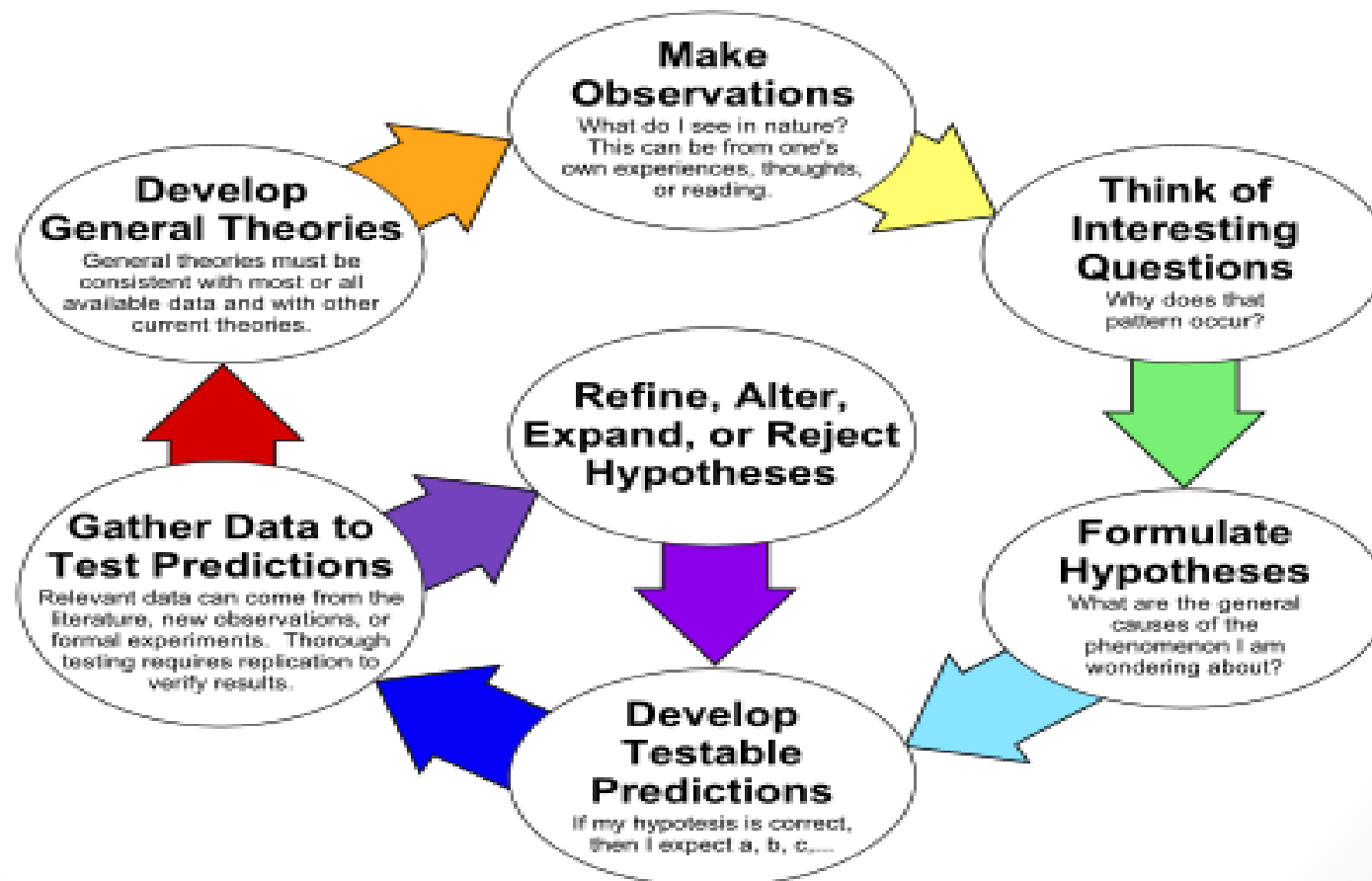
## **The role of University and Higher Education**

Knowledge Structures, Research in Key Areas

# Science and Scientific Method

Observing Phenomena and Explaining Them

## The Scientific Method as an Ongoing Process





# Problems or Opportunities???



# Technology and Development

## Opportunities and Challenges

- **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.

## But some road-blocks

- **Sectoral Knowledge.** Poor practices in *sadak, bijlee, paani*.
- **Skill Deficit.** Skills of working with state and local government, direct to customer, elected bodies and civil society!
- **Opportunity:** Few avenues for professionals.

# Unnat Maharashtra Abhiyan (UMA)

Connecting HTE with the development sector

## Objectives

- Reform teaching, curricula and research in HTE to align with development objectives
- Provide hands on training opportunities for engineers and future development professionals
- Create action research opportunities with mechanism for provision of data and funding
- Make institutions regional resources and knowledge centers
- Provide mechanism for citizens to approach institutions

राज्यातील अभियांत्रिकी महाविद्यालये तसेच  
तंत्रनिकेतने व अन्य शैक्षणिक व संशोधन  
संस्थांमधील विद्यार्थ्यांना राज्याच्या  
विकासात सहभागी करून घेण्याची योजना...

महाराष्ट्र शासन  
उच्च व तंत्र शिक्षण विभाग  
शासन निर्णय क्रमांक : बैठक- ३६११/(५६/१५)/तांशि २  
मंत्रालय विस्तार भवन, मुंबई ४०० ०३२.  
दिनांक : १३ जानेवारी, २०१६

संदर्भ :- शासन निर्णय क्रमांक : बैठक- ३६११/(५६/१५)/तांशि २, दिनांक २८/४/२०१५

### प्रस्तावना :-

राज्यातील विविध सामाजिक व विकासाशी संबंधित प्रश्नांची संशोधनाद्वारे उकल करून त्यावर अचूक उपाययोजना शोधणे आवश्यक आहे. त्या दृष्टीने विविध शासकीय यंत्रणा व शैक्षणिक संस्था यांच्या दरम्यान विशेषतः सामाजिक व आर्थिक स्वरूपाच्या महत्त्वाच्या गंभीर समस्यांसंदर्भातील संशोधन वृद्धिंगत करण्यासाठी आणि विविध प्रकल्प निहाय निरनिराळ्या योजनांमध्ये अभियांत्रिकी तसेच अन्य व्यावसायिक अभ्यासक्रमांसाठी शिक्षण घेणाऱ्या विद्यार्थ्यांचा सहभाग वाढविणे आवश्यक आहे.

२. देशातील ग्रामीण क्षेत्रातील विकास कामांमध्ये आय.आय.टी. सारख्या प्रगत शैक्षणिक संस्थांचा सहभाग वाढवून परिवर्तन घडविण्यासाठी केंद्र शासनामार्फत उन्नत भारत अभियान देशातील निवडक, प्रगत शैक्षणिक संस्थांमार्फत राबविण्यात येत आहे. याच धर्तीवर महाराष्ट्र राज्यात देखील अभियांत्रिकी महाविद्यालये, तंत्रनिकेतने आणि अन्य उच्च शिक्षण संस्थांमध्ये सुरु असलेले संशोधन हे अधिकाधिक राज्यातील विविध सामाजिक व विकासाशी निगडित दैनंदिन जीवनातील समस्यांची (उदा. ग्रामीण योजनांतर्गत ग्राम स्वच्छता, शोचालये, सांडपाणी व्यवस्थापन, पेयजल, रस्ते विकास, रस्त्याचे मुल्यांकन करून मजदूतीकरण, जलसंधारण, इंधन व उर्जा, आरोग्य, दुष्काळ आदी) उकल करून ते लोकाभिमुख करणे गरजेचे आहे. या संस्थांमधील संशोधन तसेच कुशल मनुष्यबळ वापरून सामाजिक क्षेत्रातील विकासाच्या समस्यांवर उचित तंत्रज्ञानाच्या वापराने तोडगा शोधणे गरजेचे आहे. सद्यस्थितीत अनेक शासकीय, निमशासकीय व खाजगी यंत्रणा व अनेक स्वयंसेवी संस्था विविध विकास योजनांवर ग्रामीण व शहरी भागातील समस्यांवर काम करीत आहेत. तथापि, यासंदर्भात जास्तीत जास्त शैक्षणिक संस्थांचा अशा प्रकल्पात सहभाग वाढविणे व एक संस्थात्मक संरचना निर्माण करणे गरजेचे आहे.

३. उपरोक्त सर्व बाबींचा विचार करून विविध विभागांतर्गत चालविल्या जाणा-या उपक्रमांमध्ये ठोस कार्यक्रम सुचविण्याकरिता मा. मुख्यमंत्री यांनी दिलेल्या निदेशानुसार संदर्भांमधील शासन निर्णयान्वये कार्य गटाची स्थापन करण्यात आली होती. सदरच्या कार्यगटाने खालील प्रमुख उद्दिष्ट साध्य करण्यासाठी शिफारशी केल्या आहेत.

१. पारंपारिक संशोधना व्यतिरिक्त उच्च शिक्षण संस्थांमध्ये, त्यांच्या परिसरातील विकास कामांच्या अडचणी / समस्या/ दर्जा/मूल्य/ शाश्वतता इ. साठी उचित तंत्रज्ञानाचा सुयोग्य वापर करून प्रभावी उपाय योजना सुचविणे व अशा प्रकारची संशोधनाची परंपरा सुरु करून ती जोपासणे व यासाठी एक सक्षम यंत्रणा शैक्षणिक संस्थांमध्ये निर्माण करणे.

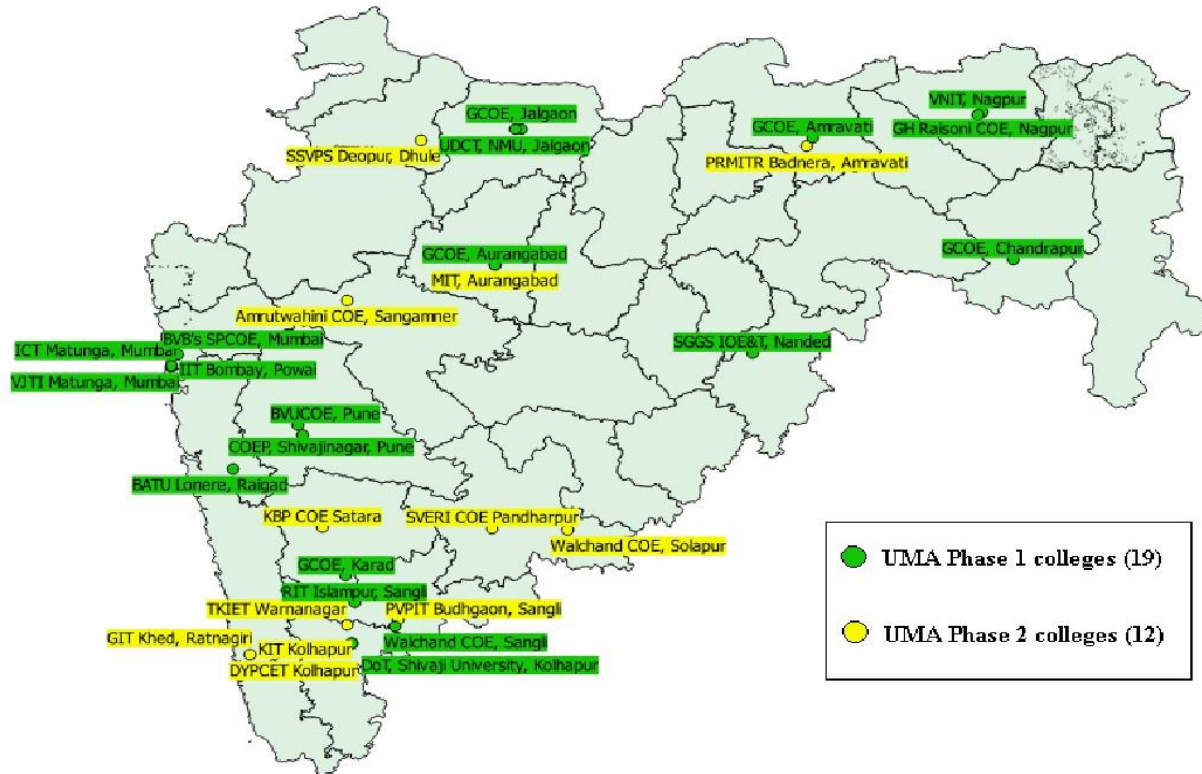


# UMA Structure

- UMA Advisory Committee- Heads of institutions, Director of Technical Education, and Directors of other arms of GoM.
- Head, CTARA as Head of UMA Advisory Committee.
- Project Coordination Unit (PCU), a cell within the DTE, to run the show. Assisted by UMA Cell at IIT Bombay having a Program Manager and a Research Officer.
- Setting up of an interdisciplinary Technology and Development cell (T&DC). The TDSC is the T&DC at IIT-B.



# Current UMA Institutions



## Target for next 2 years:

- 1-2 engineering colleges/Govt. Polytechnics in each district
- 3-4 Science/Arts/Management colleges in each district

# Empanelment of UMA Colleges

UMA Selection Committee was formed, Call for participation, Selection based on defined criteria, Selection team visited each college, *12 selected*.

Selection criteria:

- Past projects in the development sector (30)
- Academic flexibility and experience in inter-disciplinarity, fieldwork and reporting (20)
- Current infrastructural facilities (10)
- Faculty expertise and consulting and guest lectures (30)
- Student profile (Rural/Urban) (10)

GR released, empowering newly empaneled colleges to participate in UMA activities and projects such as:

- Training workshops and programmes
- Assessments, analyses, monitoring and evaluation of government schemes
- Technical support to government programmes

# UMA Colleges and their work



Plastic road (KBP Satara)    Cleaning of Krishna River (BVP Pune)    Irrigation at Sinnar (CTARA, IIT-B)



Solar Dryers (SSVPS Dhule)



Pencil Inspection & Sorting

Camlin Pencil Sorter (PVPIT Budhgaon)



# JSA and RWS Work Done by UMA Colleges





# UMA Cell: Engagement and Coordination

- Training programs and meetings
- Engagement with Government Departments, PRIs, Common People and Academicians to help solve development problems
- Handholding and Resource Development
- Empowerment of Private Colleges for participation in UMA
- Help Building Knowledge Repository, Knowledge Dissemination and Scale Up

# Technology and Development Cell (T&DC)

An inter-disciplinary cell to-

- (i) Engage with Government Departments, District Administration, Peoples' Representatives and Common People
- (ii) Internship, Projects and Fellowships with Case-Studies as key mechanism - water, energy, urban and rural planning, public transport, MSNA, JYS, MGNREGA
- (iii) Credits for the studies and
- (iv) Provision of funds from Government Departments

# UMA: What Next

- **Collaborations and Partnerships**
- 5 institutions are ready to be empaneled under the **rural water supply** GR of 15<sup>th</sup> June 2015
- UMA-UNICEF T&DC Fellowship in 5 UMA colleges in the WaSH Sector
- 6 colleges to be trained to support **Jalyukta Shivar** program
- UMA has signed a Letter of Intent with **Tribal Development Department** to establish a partnership and provide support to *ashramshalas*
- Support for VSTF and Make in Maharashtra/Make in India
- Establishment of Entrepreneurship Incubation Cells

# UMA: What Next

- Upcoming Training Programs
  - Rural electricity, Sanitation, Community Infrastructure
  - Orientation programme on how to run T&DC
- Curricula
  - Development engineering - Introductory course on applied social science, data and linkage with engineering
  - Appropriate electives in engineering/higher education
- Enabling GRs from departments (crucial)
  - Planning Department GR for District Innovation Funds
  - HTE GR for UMA funding for running UMA programmes
- Expansion
  - Include polytechnics and state universities under UMA
  - Integrate KVKs, NGOs, MSME for dissemination of technologies and grass root level innovations



# Principles of Professional Service

- Performance definition and benchmarking: relevant data: involve educational institutions
- Engagement with citizens and empowerment of them: feedback and inputs
- Capacity Building: Outdated skill set, shortage of manpower
- Lack of Managerial Skills
- Partnership with NGOs and people's representatives



**Thank you**