

**First Meeting of the Unnat Bharat Abhiyan- Subject Expert Group titled  
'Capacity Building and Change of Ethos in Technical Institutions'**

**17th November 2018**

**IIT Bombay**

**Minutes of Meeting**

The first meeting of the members of the Unnat Bharat Abhiyan (UBA)- Subject Expert Group (SEG) titled 'Capacity Building and Change of Ethos in Technical Institutions' was held at CTARA, IIT Bombay on 17th November 2018 from 10am to 5pm.

The names of the members of the SEG are provided in Annexure I.

The members present for the meeting were Svati Bhogle, Asha Achutan, Sujata Sriram, Sanjaykumar Sonar, Anindya Chatterjee, Nishikant Kale, Satish Agnihotri and Milind Sohoni. Shruti Tambe, Sharad Lele, Milind Dandekar, and Subir Kumar Saha informed the organisers about their inability to attend the meeting.

**A. Discussion**

The meeting began with Prof. Satish Agnihotri, Head, CTARA and the attendees introducing themselves. Following this, Prof Milind Sohoni, Professor, CTARA, briefed the new members about UBA and SEG and clarified some of the technical issues raised by them. After the initial presentation, there was an open discussion on the topics listed in the meeting agenda, which is provided in Annexure II. The following is a summarisation of the comments and suggestions made by each member:

**Svati Bhogle**

- ❖ We need to talk about 'technology/engineering' access, akin to water or energy access.
- ❖ Basic engineering equipment needs to be made available in each UBA engineering college.
- ❖ UBA needs to invest in brand-building/creating visibility among stakeholders (district collectors, community leaders, etc.)
- ❖ Karnataka S&T Council sponsored/supported student projects in regional colleges- students are enthusiastic and motivated but the faculty are incompetent.

- ❖ At a failure conclave held at Bangalore for entrepreneurs, it was discovered that the biggest cause of failure of SMEs is bureaucratic red-tape (licenses, permissions, registrations, etc) that stifles productivity.
- ❖ Owing to the wafer thin margins in the SME sector, SMEs work well only in 'clusters'. Clustering ensures economies of scale and cost-effectiveness. This 'cluster' approach needs to be included in student case-studies. Also, a suite of case-studies examining backward and forward linkages in SMEs needs to be generated for each cluster to validate claims/suggestions. Some issues that may be tackled in these case-studies include quality, safety, hygiene, profitability and sustainability. The working group on SMEs can prepare guidelines notes/standardised templates for student case-studies.
- ❖ A course on Rural Enterprises can be designed by the working group on SMEs.

### **Asha Achutan**

- ❖ We need to incorporate gender perspectives on science and technology interventions.
- ❖ Important aspects that need to be taken into account while designing curricula in an integrated framework include stakeholder interaction, knowledge contributors, technology design, technology access and technology dissemination.
- ❖ Problem identification stage should involve a collaborative, interdisciplinary approach, taking into consideration social science, engineering and community perspectives. The methodological training for this needs to be designed. A possible resource guide in this regard is *Breaking the Silo: Integrated Science Education in India*.
- ❖ Students should be included in the 4 working groups proposed by the SEG and a consultative session should be held with them to capture their interests, aspirations and challenges.

### **Sujata Sriram**

- ❖ Issues of student well-being need to be addressed by HEIs.
- ❖ There needs to be greater emphasis on co-curricular activities such as holding seminar series and guest lectures and hosting visitors and scholars in residence.
- ❖ There are no academic avenues or training for UBA. Methodological training for UBA needs to be embedded in a UBA centric course.
- ❖ The UBA proposal format/template needs to be formalised.

### **Anindya Chatterjee**

- ❖ The SEG needs to capture the idea of aspirational dysfunction in its report.
- ❖ Faculty need to be encouraged to publish in Indian journals.
- ❖ Faculty time spent on development related work needs to be accounted for.

- ❖ Students, after completing their 3rd year BTech, should be allowed a one year immersion break/gap to start their own venture. During this time, they can discover the nitty-gritties of starting their own business. This immersion experience/course can become an important avenue to boost entrepreneurship.
- ❖ Entrepreneurship needs to be eased.

### **Sanjaykumar Sonar**

- ❖ There needs to be more dialogue between planners and engineers. 'Planning' should be introduced as a component in engineering education.
- ❖ GoM has recently appointed 300 planners at the tehsil level, creating an interesting delivery point for development.

### **Nishikant Kale (PPT presentation)**

- ❖ Colleges face difficulties in rolling out UBA type programs at the institution level. The time and efforts spent by faculty members on development related activities need to be accounted for. Academic space for students to do development projects needs to be created. This may be in the form of elective courses, or student projects at UG and PG level.

### **Milind Sohoni**

- ❖ We need a new perspective on engineering: we need to stop looking at engineering as a product oriented activity and look at it as service oriented one.
- ❖ Important datasets-village maps, city and village maps need to be released in the public domain. Census data needs to be introduced to students in high school and college.
- ❖ Engineering is context-specific.

### **Satish Agnihotri**

- ❖ We need to talk about the upskilling of the existing workforce.
- ❖ We could propose a 15 day orientation workshop to brief students about entrepreneurship and its challenges.

### **B. Decisions**

- ❖ The Regional Engineering framework was accepted as the broad framework for institutions to follow, and it was agreed that Development Engineering and similar courses need to be designed. For the Regional Engineering framework and the

Development Engineering course, please see <http://www.ctara.iitb.ac.in/en/uma-resources-development-engineering>.

- ❖ The SEG Terms of Reference document was tentatively agreed upon. Please refer to Annexure III.
- ❖ 4 working groups were created. Each group agreed to produce a chapter on a given facet of technical education. The chapters and their respective members are as follows-
  1. Chapter on aligning the development agenda with technical education curriculum: Milind Dandekar, Nishikant Kale.
  2. Chapter on integrating applied social science component in technical education: Shruti Tambe, Asha Achutan, Sujata Sriram.
  3. Chapter on working with small and medium enterprises: Svati Bhogle, Anindya Chatterjee.
  4. Chapter on integrating planning component in technical education and working with government programs: Sanjaykumar Sonar, Sharad Lele, Milind Sohoni.
- ❖ It was decided that a consultative workshop will be held with students from different academic streams next month to understand their aspirations and experiences.
- ❖ It was decided that higher level points or avenues, such as faculty incentives and publishing of good case-studies in the development sector in national journals need to be pursued at the MHRD/DTE level.

### **C. Timeline**

- ❖ The SEG Terms of Reference document is to be finalised by 15th December 2018. The members are requested to give comments before the deadline.
- ❖ A preliminary report with a precis of the 4 proposed chapters is to be finalised by 30th January 2019.

## **Annexure I** **SEG Members**

<b><u>Name</u></b>	<b><u>Designation and Institution</u></b>
Svati Bhogle	Founder, Promoter and Managing Director, Sustaintech India Private Limited Secretary, Technology Informatics Design Endeavour (TIDE)
Anindya Chatterjee	Professor, Mechanical Engineering Department, IIT Kanpur
Asha Achutan	Assistant Professor, Advanced Centre for Women's Studies, School of Development Studies, TISS Mumbai
Sujata Sriram	Professor, School of Human Ecology, TISS Mumbai
Sanjaykumar Sonar	Associate Professor, Town Planning Section, Civil Engineering Department, College of Engineering, Pune
Shruti Tambe	Head and Professor, Department of Sociology, University of Pune
Sharachchandra Lele	Distinguished Fellow in Environmental Policy & Governance, Centre for Environment & Development, Ashoka Trust for Research in Ecology and the Environment
Nishikant Kale	Professor, Mechanical Engineering Department, Prof. Ram Meghe Institute of Technology & Research, Badnera- Amravati
Milind Dandekar	Professor, Industrial and Production Engineering Department, Shri Govindram Seksaria Institute of Technology and Science, Indore
Sudhir Chella Rajan	Professor, Department of Humanities and Social Sciences, IIT Madras
Chandan Mahanta	Professor, Civil Engineering Department, IIT Guwahati
Subir Kumar Saha	Professor, Mechanical Engineering Department, IIT Delhi
Satish Agnihotri	Head and Professor, Centre for Technology Alternatives for Rural Areas and Centre for Policy Studies
Milind Sohoni	Professor, Centre for Technology Alternatives for Rural Areas and Computer Science and Engineering Department

**Annexure II**

**Venue: CTARA Conference Room 1, IIT Bombay, Powai**

<b>Time</b>	<b>Agenda Item</b>	<b>Speakers/Venue</b>
9:30 am- 10:00 am	Welcome and Refreshments	<b>Meeting venue</b>
10:00 am- 10:20 am	Welcome remarks and round of Introductions	<b>Prof. Milind Sohoni</b>
10:20 am- 10:40 am	Information about CTARA and UBA	<b>Prof. Satish Agnihotri</b>
10:40 am- 11:10 am	Introduction to SEG <ul style="list-style-type: none"> <li>● Setting the Agenda</li> <li>● Possible solution approaches</li> </ul>	<b>Prof. Milind Sohoni</b>
11:10 am- 1:00 pm	Each member speaks for 10 mins and shares their views on the analysis and the way ahead. Tea served during the session.	Coordinated by- <b>Ms. Oshin Dharap</b>
1:00 pm- 2:00 pm	Lunch	<b>Jal Vihar Guesthouse</b>
2:00 pm- 2:30 pm	Brainstorming Session-1 <ul style="list-style-type: none"> <li>● University-Community Engagement (The Nirguna - Abstract)</li> </ul> Role of University Pedagogy and Theories Pressing needs of development Review of existing documents.	Chair: <b>Prof. Anindya Chatterjee</b>
2:30 pm- 3:00 pm	Brainstorming Session-2 <ul style="list-style-type: none"> <li>● University-Community Engagement (The Saguna - Concrete)</li> </ul> Relevant Research. Relevant Case studies. Review of existing documents. Courses. Support. Funding. Data.	Chair: <b>Prof. Nishikant Kale</b>
3:00 pm-3:15 pm	Tea	<b>Meeting venue</b>
3:15 pm- 4:00 pm	Focussed discussion (15 mins each) <ul style="list-style-type: none"> <li>- Small Enterprises and Education</li> <li>- Social Sciences Training for non-social scientists</li> <li>- The role of NGOs, elected representatives and other agencies, government programs</li> <li>- Planning as an area of research and training</li> </ul>	Chair: <b>Ms. Svati Bhogle</b>
4:00 pm- 4:30 pm	Conclusion: Curriculum and Pedagogy Reform-A possible report structure.	Chair: <b>Prof. Milind Sohoni</b>

4:30 pm- 5:00 pm	<p style="text-align: center;">Way forward-</p> <ul style="list-style-type: none"> <li>● How the group can contribute to UBA, modus operandi, setting the ToR</li> <li>● Any studies needed? Members volunteer</li> <li>● Things to be done in next six months</li> </ul>	
5:00 pm- 5:05 pm	Vote of thanks	<b>Ms. Oshin Dharap</b>

**Annexure III**

**Unnat Bharat Abhiyan- Subject Expert Group on**

## **‘Capacity Building and Change of Ethos in Technical Institutions’**

### **Terms of Reference**

Unnat Bharat Abhiyan (UBA), is a flagship program of the Ministry of Human Resource Development (MHRD), Government of India (GoI). The program envisions *‘to bring a transformational change in rural development processes by leveraging knowledge institutions to help build the architecture of an Inclusive India.’* It aims to involve faculty and students from educational institutes in the larger development process and create a network of Higher Education Institutes (HEIs) across the country for the same.

In last few years, hundreds of HEIs have subscribed to this agenda and are now known as UBA institutions. The mission of Unnat Bharat Abhiyan is *‘to enable higher educational institutions to work with the people of rural India in identifying development challenges and evolving appropriate solutions for accelerating sustainable growth.’* It also aims to create a virtuous cycle between society and an inclusive academic system by providing knowledge and practices for emerging professions and to upgrade the capabilities of both the public and the private sectors in responding to the development needs of rural India.

To implement the above mission, UBA has set following goals-

1. To build an understanding of the development agenda within HEIs and an institutional capacity and training relevant to national needs, especially those of rural India.
2. To re-emphasize the need for field work, stakeholder interactions and design for societal objectives as the basis of higher education.
3. To provide rural India and regional agencies with access to the professional resources of HEIs, especially those that have acquired academic excellence in the field of science, engineering and technology, and management.
4. To stress on rigorous reporting and useful outputs as central to developing new professions.
5. To develop new professions and new processes to sustain and absorb the outcomes of research and to improve development outcomes as a consequence of this research.
6. To foster a new dialogue within the larger community on science, society and the environment and to develop a sense of dignity and collective destiny.

As an important pillar of the program, the National Steering Committee (NSC-UBA) has created a number of Subject Expert Groups (SEGs) to provide inputs on different aspects of the UBA program. Most of the SEGs have focus on needs of specific sectors i.e. Agriculture, Water, Rural Energy, etc. One of the SEGs has been given the task to work on "Capacity Building and Change of Ethos in Technical Institutions" (henceforth SEG) and CTARA, IITB has been assigned the task to steer the group.

The SEG’s mandate is to strengthen the UBA framework and enable UBA institutions to achieve the goals of the program. Broadly speaking, the key objectives and terms of reference of the group would be-



1. To create formal space within curricula, research and reporting for work in development areas.
2. To create mechanisms for institutions to interact with regional agencies.
3. To guide institutions on the conduct of development projects/case-studies.

The group is supposed to be active for around three years and may meet bi-annually or as decided by the SEG.

The list of members of the SEG are as follows-

<b><u>Name</u></b>	<b><u>Designation and Institution</u></b>
Svati Bhogle	Founder, Promoter and Managing Director, Sustaintech India Private Limited Secretary, Technology Informatics Design Endeavour (TIDE)
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## **I. Preliminary Recommendations of the SEG**

The current working arrangement of UBA requires UBA institutions to “adopt” a few villages in their locality and “help them to develop”. However, to fulfil the UBA vision and mission through the goals stated above, UBA needs to design suitable academic programs, institutional frameworks and incentives which drive this interaction, and not mechanisms such as holding Gram Sabha meetings, or piece meal activities such as holding of blood donation drives, tree plantations or Yoga days through NSS or volunteers. Working in the development sector requires as much intellectual rigour and serious scholarship as traditional academics. Therefore, there is a need for capacity building and change of ethos in technical UBA institutions.

A few possible suggestions have been discussed below.

### **1. Curriculum/Pedagogy**

The UBA rests on the shoulders of students and the students need to be prepared for it. One way is for the institution to design a curriculum and research practice that facilitates hands-on, case study based engagement with societal needs. Preparing students for real-life project work through development case-studies will achieve several objectives of UBA and much more. These are:

- (i) enable the university to explore, understand and eventually undertake research on important regional problems.
- (ii) develop skills of problem identification, analysis and reporting, all in a social context. This will also significantly improve graduate employability.
- (iii) build rapport with regional state agencies/ line departments and also obtain funds from DST etc. which are frequently tied to concrete problems.

As a starting point, each major department in the university should identify, in consultation with other internal and external stakeholders (government agencies, community leaders, NGOs,) 3-4 key areas of local importance for action research. It should then proceed to develop between 5-10 concrete case-studies every year in each area through credit-based student projects. For this, it will have to design suitable interdisciplinary academic courses for students. Once a sufficient body of knowledge has been generated in each of these areas, the department can professionally engage with the community (local government, state government, NGOs, MSMEs) and respond to community demands in the same area and deliver solutions.

Also, the new developments in AICTE/UGC (new model curriculum of AICTE, CBCS of UGC) have provided room for electives in the course curriculum. UBA needs to design innovative courses which can be accommodated in the current course of study and which prepare the learner. Examples include the ‘*Development Engineering*’ course being taught at IIT Bombay

and the '*Rural Engagement*' course recommended by the National Council of Rural Industries. (details thereof attached at the end).

## **2. Robust Mechanism for UBA Cell at Institute Level**

UBA institutions are required to establish a UBA cell to carry out the activities of UBA in that institution. The cell is to develop linkages with the selected rural cluster, involve in the planning process and to promote the requisite interventions to improvise and expedite the developmental efforts in that cluster. However, there are no clear guidelines regarding the functioning of this cell and its mechanisms of interaction. A possible solution is to create a more professional, interdisciplinary cell consisting of faculty members, students and researchers to support case-studies in various core departments, liaison with state and district-level agencies and manage funding, data and coordination.

## **3. Institutional Arrangements**

**A. Faculty Incentives.** To produce rigorous research that is timely, accessible and relevant to the public, faculty members need to build and nurture productive relationships with the broader society. This requires time and effort and faculty members should be rewarded for their engaged scholarship and applied research. Universities should evolve a method of measuring faculty contributions, attributing faculty time, and rewarding excellence in relevance.

**B. Avenues for Reporting Research.** Another important factor in faculty disinterest is the paucity of respectable avenues for reporting development-related case-studies or research. As a suggestion, a consortium of reputed engineering institutions, such as the IITs, can start an Indian Journal of Development Engineering, an official avenue for reporting research and publishing important case-studies in these areas.

**C. Research Funding.** An IMPRINT like program can also be initiated for work in development sectors.

**D. Coordination Centre.** The Coordination Centre at the institution must serve as a project facilitation unit. It should support for liaising with external agencies, fieldwork, provisioning of data, and appropriate funding.

## **II. The Unnat Maharashtra Abhiyan (UMA): Framework for Implementation of UBA**

In light of the above recommendations, it is important to mention the Unnat Maharashtra Abhiyan (UMA) framework for engineering colleges, currently being rolled out in 31 colleges through a set of enabling GRs. UMA harmonises the Unnat Bharat Abhiyan (UBA) framework of MHRD at the state level.

1. UMA is a program under Higher and Technical Education, Government of Maharashtra. It is administered by an Advisory Committee, under the leadership of a nominee of IIT Bombay.

2. UMA extends core principles of alignment of academic programs with the development agenda and enables colleges to work with regional agencies.
3. UMA provides concrete academic mechanisms and support for colleges to work on live problems and to obtain funding for the same.
4. Much of the development agenda- agriculture, water, informal sector, electricity, amenities, etc. is covered in the state list.
5. Colleges are under the ambit of state DTEs and the data and resources required for development projects are with state agencies.

Enabling mechanisms and activities of UMA are as follows:

1. **Academic Frameworks.** UMA facilitates (i) the inclusion of basic developmental areas in departmental curricula through elective courses (such as Development Engineering), case-studies and BE/ME projects on development topics (ii) interdisciplinary theses and projects across all departments and the recognition of case-studies, analyses, designs, assessments, evaluations and policy studies as valid B.Tech./M.Tech. project outputs.
2. **Selection of UMA institutions.** From the UBA pool of institutions, periodically, through a rigorous screening process, institutions are selected to be empaneled into UMA. UMA institutions are strengthened in various ways through workshops. Guidance is given to institutions not selected in the specific areas in which they are deficient.
3. **Three-tier Structure.** An Advisory Committee with a chairman and officials from concerned departments as members was formed to steer and guide UMA. A Project Coordination Unit (PCU) was established at DTE to work as a link between the Advisory Committee, participating institutes, and government system. Each participating institute has to form a coordination cell called the Technology and Development Cell (T&DC) to liaison with regional partners such as the District Administration, elected bodies, local interest groups, etc.
4. **Government Resolutions for Project Topics, Funds and Data.** UMA has a set of enabling GRs that (i) clearly identify a list of development areas and case-studies for which regional agencies and elected representatives may approach regional institutions, (ii) earmark funds at the district level for supporting regional institutions for such work and (iii) provide access to data and project files as may be relevant.
5. **Workshops and Training Programs.** UMA trains faculty members and students of selected institutions, in various government programs and schemes in key development sectors. These workshops are done in partnership with development agencies and each college is paired up with a village/scheme/location, as the need may be, and has access to all documents, maps and stakeholders. This ensures that the studies undertaken by these institutions are rigorous. This will allow the institution to participate in regional evaluation and analysis of development programs.

### **III. Expected Outcomes of the first SEG meeting**

The expected outcomes of the first SEG meeting are as follows-

**1. Refinement and Agreement on Terms of Reference** to set the tone for the working of the group.

**2. Production of chapter on aligning the development agenda with technical education curriculum: Milind Dandekar, Nishikant Kale.**

The broad aim of UBA is to connect HEIs with local communities in a virtuous loop, whereby faculty and students develop the necessary skills and knowledge to address concrete development challenges of rural and urban India. This requires fresh and innovative thinking and deliberation on designing the architecture of the UBA program, especially collaborative mechanisms such as Unnat Maharashtra Abhiyan (UMA) that foster interaction between HEIs and external constituencies.

**3. Production of chapter on integrating applied social science component in technical education: Shruti Tambe, Asha Achutan, Sujata Sriram.**

Increasingly, government agencies and private organizations are relying on inputs (feasibility studies, regional analyses, audits and failure analyses) from technical institutions to diagnose and solve regional developmental problems. This has opened up a new frontier for fresh graduates willing to apply their analytical skills, derived from a wide range of technical and non-technical disciplines, to address socio-economic development problems. Students now need to be trained to function as development professionals, researchers, analysts, designers, innovators and consultants through interdisciplinary, stakeholder driven field-work and case-studies. Besides this instrumental need, there is also the need to broaden the perspective of engineering students as well as other graduates in social comprehension, narratives, immersion and critical thought and expression.

**4. Production of chapter on working with small and medium enterprises: Svati Bhogle, Anindya Chatterjee.**

Existing large industries are seen as the only source of jobs. The fact is that this is actually a small pool of jobs located largely in big cities. Support for small and informal sector, rural and agricultural industry through consultancy and technical services, is an important source of jobs. These could be assisting them in quality control, marketing, aggregation and collectivization, access to laboratories and so on. Moreover, industrial growth, particularly in the SME sector, will be the driver of economic growth in India. Linkages with the SME sector need to be systematically developed at the university level through curricular and research avenues.

**5. Production of chapter on integrating planning component in technical education and working with government programs: Sanjaykumar Sonar, Sharad Lele, Milind Sohoni.**

It has been well-documented that the provision of basic amenities such as adequate drinking water and uninterrupted power supply are the backbone of the welfare of any society and the precursor to formalization, industrialization and better jobs. There is now a growing understanding that key development sectors such as drinking water, rural and urban amenities, irrigation, public transport, sanitation, rural enterprises etc require new knowledge and innovations and a planning perspective, i.e., of socio-economic or “people” systems which pose demands, engineers or “professionals” who arrange for supply, and politics which oversees allocation and access. To prepare students and researchers for academic work in these development sectors, we need to provide an overarching curricular and research framework that

includes development data-sets and GIS, as well as develop 'Planning' as a new area of research and training.