Development Engineering

CSEP 590B
Ashok Gadgil (UCB) & Richard Anderson
May 26, 2020
Today – Removing arsenic from drinking water

• Announcements
• Ashok Gadgil, UC Berkeley,
• Discussion Ashok
Announcements

• Discussion Sections – Zoom – Attend one
  • Wednesday: 3:00-4:00 pm
  • Wednesday: 5:00-6:00 pm

• Homework 8, Due June 1.
  • Short paper comparing today’s topic with others in course
  • Submit by email
  • Course grade based on 7 of 9 assignments

• Next weeks lecture: Monday, June 1, Jenny Aker, Tufts
# Course Schedule

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<th>Date</th>
<th>Topic</th>
<th>Lead</th>
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<td>April 6</td>
<td>Engineering the Vaccine Cold Chain</td>
<td>Richard Anderson</td>
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<td>April 13</td>
<td>Community Cellular Networks</td>
<td>Kurtis Heimerl</td>
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<td>April 20</td>
<td>Remote Temperature Monitoring</td>
<td>Martin Lukac, Nexleaf</td>
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<td>April 27</td>
<td>Election Monitoring</td>
<td>James Long</td>
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<td>May 4</td>
<td>Global Goods Software</td>
<td>Skye Gilbert</td>
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<td>May 11</td>
<td>Voice Based Social Networks</td>
<td>Aditya Vashistha</td>
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<td>May 18</td>
<td>Open Data Kit</td>
<td>Waylon Brunette</td>
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<td>May 26</td>
<td>Removing Arsenic from Drinking Water</td>
<td>Ashok Gadgil</td>
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<td>June 1</td>
<td>Fintech for Rural Networks</td>
<td>Jenny Aker</td>
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<td>June 8</td>
<td>Development Engineering Discussion</td>
<td>Temina Madon and Anustubh Agnihotri</td>
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The field of Development Engineering (or DevEng) is focused on accelerating progress toward the SDGs, through the discovery of technological solutions that can achieve impact, at scale, in resource-constrained settings.

Antecedents: Appropriate Technology and Frugal Innovation, Market oriented approaches, Humanitarian Engineering, ICTD, Human-centered and participatory design
Market Constraints

- Income uncertainty
- High transport costs
- Shallow markets
- Lack of risk markets
- Labor market failures
- Missing human capital
- Input/output market inefficiencies
- Market distorting policies
- Capital constraints (weak credit markets)
- Missing information
- High transaction costs
Research Workflow
How do the case studies presented in this course compare as engineering projects?

• Innovation
• Iteration
• Adaptation
• Evaluation

• For each project, what is the theory of change?
Today – Ashok Gadgil, UC Berkeley

• Faculty Senior Scientist, Lawrence Berkeley National Laboratory
• Professor of Civil and Environmental Engineering, UC Berkeley

• Education
  • BSc Physics, University of Bombay
  • MSc Physics, IIT Kanpur
  • PhD Physics, UC Berkeley

• Awards
  • Indian National Academy of Engineering, National Inventors Hall of Fame, National Academy of Engineering, Lemelson-MIT Global Innovator Award
Over to you Ashok . . .