ENPRO 355: ACARA CHALLENGE

MIDTERM REPORT

AFFORDABLE AND SUSTAINABLE WATER SOLUTION FOR UNDER-PRIVILEGED COMMUNITIES IN INDIA

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OUTLINE

- Statement of Problem
- Description
- Progress
- Methodology
- Business Plan
- Obstacles
- Future Tasks and Goals

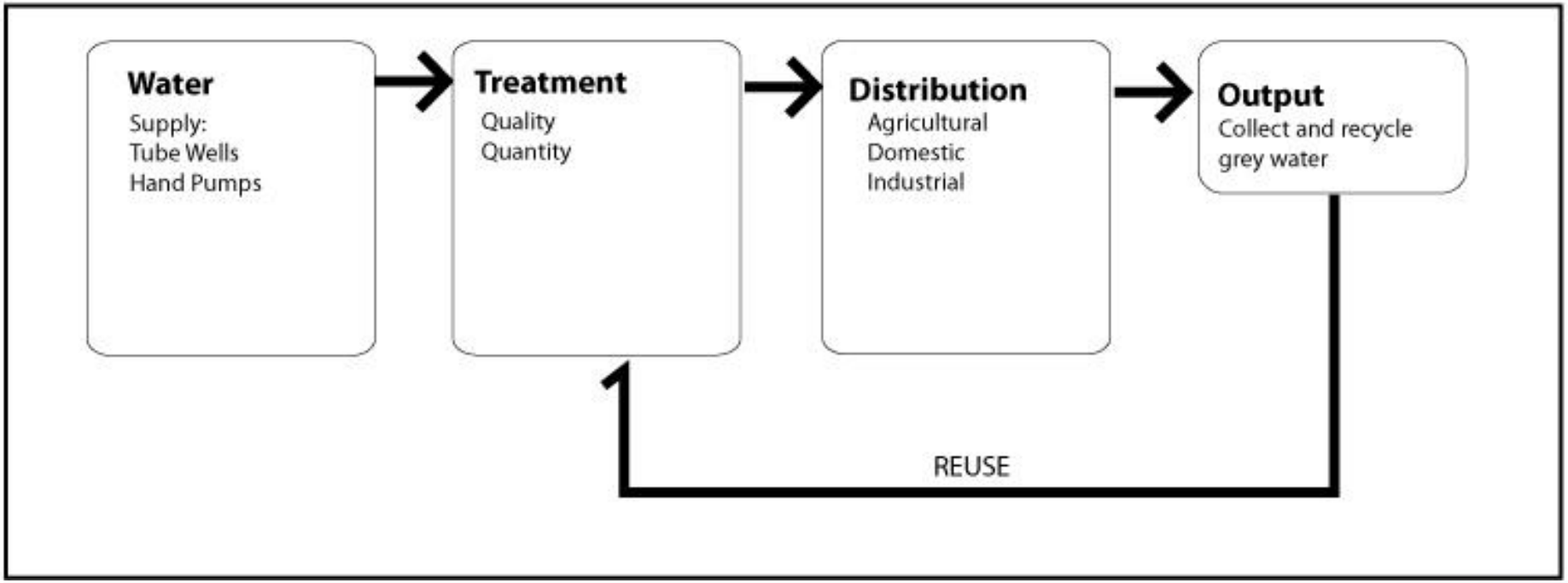
BACKGROUND

- ACARA Challenge
- Second IPRO Acara challenge at IIT
  - -1st focus on slums in Mumbai (last year)
  - -2nd Urban village focused Uttaranchal (this year)
- Collaboration with universities in North America and developing countries
- End goal to produce solution based on solid business plan
- Focus on water supply

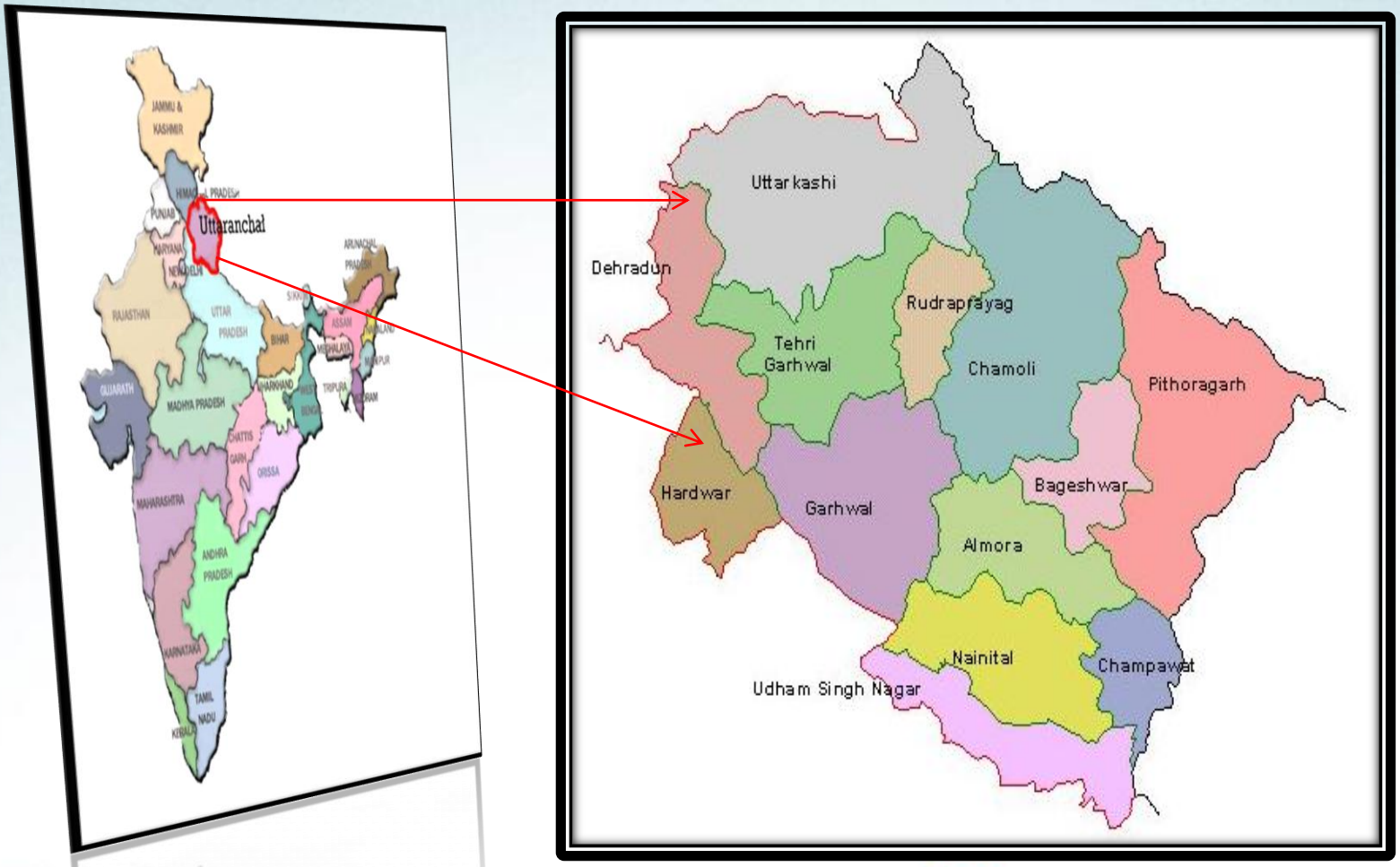
PROBLEM STATEMENT

- Challenges
  - Water Supply
  - Health
  - Energy
  - Waste
  - Deforestation

CURRENT WATER SITUATION | CHARBA



Dehradun, Uttarkhand in India



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PROJECT FOCUS

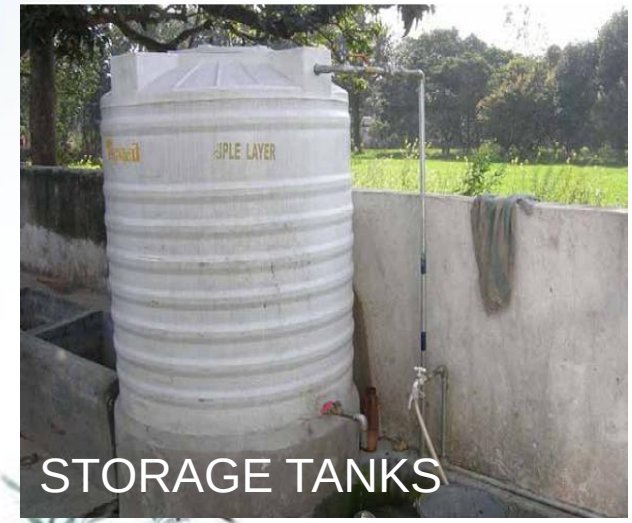
The Village of Charba, Dehradun

- Area: Second largest village in Uttarchand state, 60 sq km
- Population: 1540 families, 800 below the poverty line
- Economic conditions vary greatly
- Occupation: Mostly agriculture. A few work in nearby factories.
- Electricity available for 16 hr/day
- Water available for 2-3 hours daily in the morning and evening
- Selected by our partner team IIT ROORKEE

SUPPLY OF WATER


HAND PUMPS


TUBE WELLS


STORAGE TANKS

Wealthy people can store water for later use

Tube well (main water source)

- 8 tube wells provided by the government
- Each well about 250 feet deep
- Water available for 2-3 hours in the morning, evening

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OTHER WATER USES

DAIRY FARMING

WASHING

Sugar Cane

AGRICULTURE

Rice

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PROGRESS

- Established communication with local Charba community through IIT Roorkee
- Identification of target audience
- Key problem water supply not water quality
- Other uses of potable water: irrigation and industrial usage
- Increased use of wood for cooking->deforestation-> receding water table
- Consideration of energy usage associated with water delivery and consumption

METHODOLOGY

- Internet research and reports from international and national agencies
- Information supplied by IIT Roorkee in response to our questions
- Group Discussions and brainstorming
- Systems approach to analysis of problem

BUSINESS PLAN

Key Considerations

Positioning

- Non-profit
- Price positioning
  - "low price, high volume"
- Decreasing overhead
  - Join a local business organization

Distribution

- Two-level structure
  - Reducing overhead
  - Communicating with customers

Advertising

- Low cost ad
  - Newspaper and yellow pages
  - Mail Promotioin
  - Publicizing the harm of unclean water

OBSTACLES

- Communications with contacts in India
  - -Email
  - -Time difference (11 ½ hours)
- Lack of resources
- Inability to visit Charba
- Data about water quality and specifically the town of Charba
- Coordination between various teams relevant to project

FUTURE TASKS

- Obtain detailed data on water quality, supply, distribution
- Information regarding water usage/availability, socio-economic + health conditions
- Develop field research protocol for IITR
- Develop detailed business plan and possibly a prototype
- Schedule regular web conferences with IITR and other contacts

OUR GOALS

- Create the best business model to address the water problem
- Improve the quality of life of all segments of the Charba population
- WIN THE CHALLENGE

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