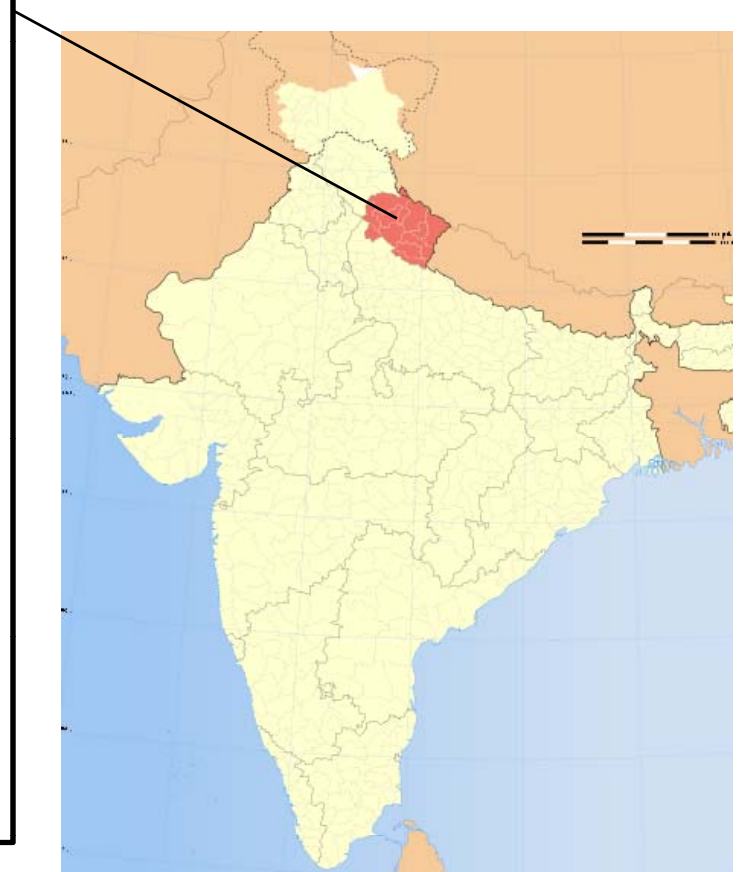


D-Lab India: Ranikhet & Avani

Six anonymous MIT students

Ranikhet & Avani



Ranikhet & Avani

Issues

- Deforestation due to energy needs
- Invasive species (overgrowth of pine)
- Geographical isolation
- Burning of fossil fuel
- Depleting water supply
- Waterborne disease

Community Partners

Pan-Himalayan Grassroots Development Foundation

- Non-profit NGO in Ranikhet
- Environmental degradation leads to lower quality of life
- Focus on water supply & sanitation, renewable energy, forestry, enterprise

Avani

- Community of approx. 40 people
- Focus on building self-reliance, sustainable works
- Areas of work include renewable energy, water management, farm-based enterprise, and textiles

Our Contribution

- Solar Light
- Solar Dryer
- Education
- Water filtration system
- Charcoal
- Walnut Crusher

In the Works:

- Pine Needle Gasifier
- Health Awareness

Solar Light

Grassroots :

Solar torch:

< \$10 sale cost

Daily use, portable

Solar lantern:

~ \$40 sale cost (2000-2500 rupees)

Design: Hangs from ceiling to light whole room

Want IDDS light, but no lathe ava

Avani:

Looking for a cheap torch

Lasts 2-3 hrs

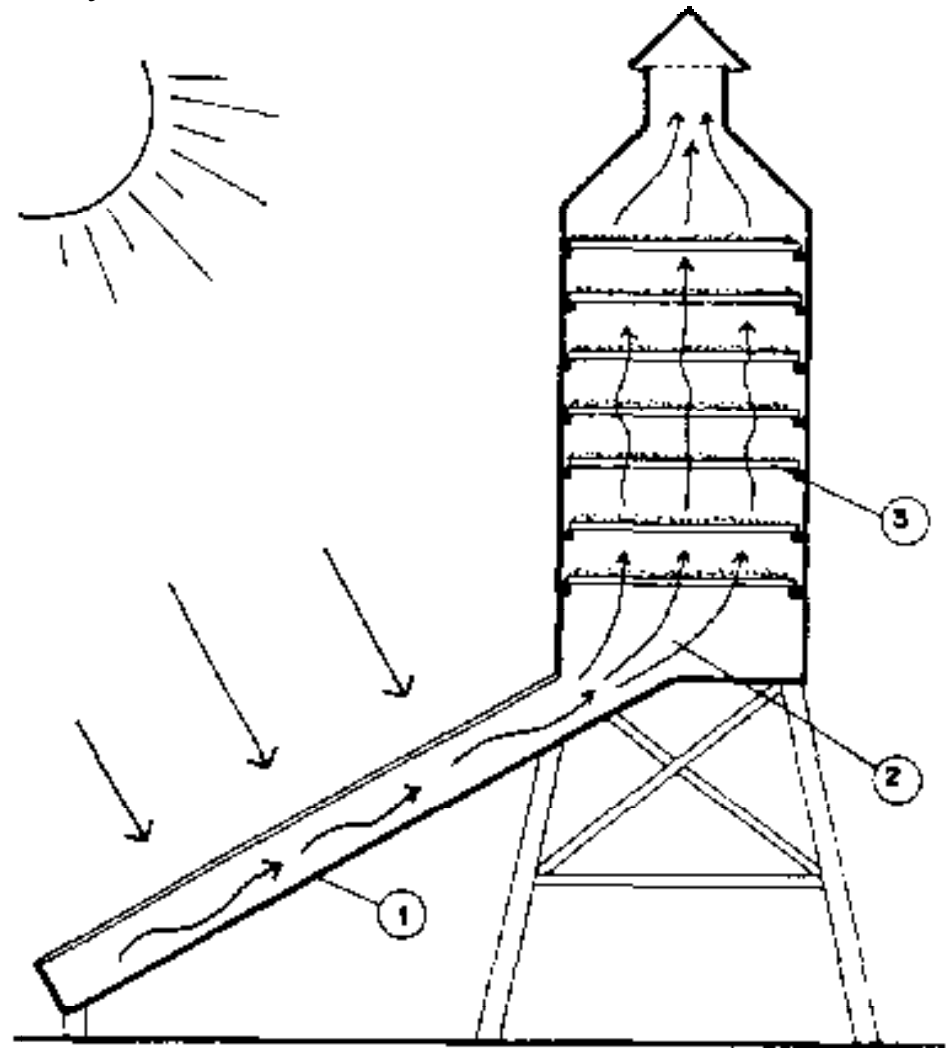
Smaller battery pack and solar panel

Solar Dryer

Region has abundance of fruit
Looking for way to increase food security

Solar dryer

- Dries fruits for preserve
- Dries herbs for cooking



Education

Target: Primary school children

Subject: Basic Science

Lesson Plans drafted:

- Circuits
- Earth science
- Lego Cars
- Microbiology

Lesson Plans in Progress:

- Laser Mazes

Water Filtration

Water Sources:

- Nearby Springs
- Rainwater harvesting
- Infiltration Wells (Ranikhet)

Focus is on household water treatment and sanitation

Filtration Methods:

- Sodis
- Slow-Sand filters

Looking into chemical treatment options

Additionally,

Goal is to educate communities importance of clean water and proper sanitation

Charcoal

- Emissions Testing
- Possible Binders
 - Tops of banana plants
 - Rice water
 - Aloe Vera
- Binder is negligible when it comes to emissions testing
- Test more in the U.S.

Walnut Crusher

Large supply of walnuts (500,00 per year per person)

Problems with walnut crackers:

- crush walnut inside

- time spent separating walnut from shell

Last year, modeled large rotating peanut sheller

Walnuts were too hard for machine to crack

Methods:

- Density separation

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