

# Renewable Energy for International Development

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## Arriving in Costa Rica

- Flying into San Jose, Costa Rica. Right away I could tell that this country was different from other Latin American countries I had visited. There are wind turbines on the mountains right next to the airport.



## **Alajuela, Costa Rica**

This photo exemplifies many aspects of Costa Rica.

First, the power lines are heavily laden and definitely not up to U.S. code but do get the job done. Second, the streets are lined with parked sedans and even a few driving, exemplifying development.

Third, everything is clean and well maintained a very common occurrence in Costa Rica also exemplifying a developed region not that different from many places in the U.S.





# Headed to the Rancho Mastatal

- The trip, by bus, to the ranch was a long one in close quarters. The feel as we went from urban setting the rural pacific mountains of Costa Rica was one of two very different yet similar worlds



# Rancho Mastatal

- The ranch was one of simplicity yet comfort. I was never uncomfortable at the ranch even though there were only outhouses to use, no internet, and the simplest gas stoves for the cooking. The ranch found a fine balance between low impact living and not making oneself miserable.

### **The Milking Shed - Rancho Mastatal**

Like most of Rancho Mastatal the milk shed had just enough lighting to make it work without over taxing the power sources. In this case a small solar panel on the roof of the milking shed.





## **Permanente Resident of Rancho Mastatal**

Very simple living with minimal energy use.  
There was an wall outlet in the room(not pictured).  
Lots of open space for ventilation(no need for AC).



## **The Specialized Hard Rock Coffee Grinder**

This human powered coffee grinder really does a good job exemplifying how they feel about energy use at Rancho Mastatal.

In the U.S. hand powered coffee grinders are far and few between, most are electric or we buy our coffee preground.

To me this bike powered grinder is a perfect example of cutting energy use easily and efficiently.





# Renewable Energy Projects

- We worked on a number of different projects and examples of renewable energy systems.
- Some of the projects took a lot of sweat and work but others were a little easier.

## **Bio-Digester**

In a very rural town close to Mastatal.

Currently not producing any fuel but when it does it will be used for cooking purposes and will be replacing non-renewable propane.

Took a lot of sweat and hard work to dig the 1x1.5x3 meter hole for the system.





## **Solar Hot Water Heater**

Fully functioning(besides a few leaks) providing hot water for the main Rancho Mastatal building.

Hot water to be used for cooking and washing dishes mostly.

First time having hot water in the kitchen ever(besides boiling water on the stove).





## **The Solar Oven**

This solar oven was built by our group.

This is an example of people using renewable energy to reduce the amount of limited resources they consume.

The oven is cost effective and will receive many years of use.



# In the Classroom

- We spend a large part of our time in a “classroom”
- Learned a lot of the fundamentals of different renewable energy systems. From wind turbines to bio digesters and much more.
- Spent some time visiting different already installed versions of what we learned about in the “classroom”.
- The time in the “classroom” was essential to understanding the effectiveness and feasibility of renewable energy on a small scale in developing countries.

## **The Rocket Stove**

This stove is used regularly by the Rancho Mastatal kitchen.

It is one of the most efficient ways of using wood to cook.

It uses wood which isn't ideal but uses it more efficiently which is extremely important considering the large percentage of the worlds population who still use wood to cook.





# The Experience

- Costa Rica was a rich mixture of many old and new styles of living.
- They have embraced renewable energies like no other place I have been. Shooting to be one of the first “green” countries.
- Will absolutely be returning to Costa Rica. Whether to learn more or just have fun in a beautiful country.

