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Project: Farmers' Rice Cooperative (Rice Hulls)

### **Individual introduction**

- Name
- Why you're taking this class
- Your interests (related to this class[how does this help you reach your goal?])

### **Client background**

- Name: Farmers' Rice Cooperative
- Based: Based in Sacramento
- Market: FRC is California's largest rice market (25% of California's rice). Farmers' Rice Cooperative is also the largest marketer of medium grain rice in the United States. Their products are useful for exports to Asia and the Middle East.
- Competition: Pacific International Rice Mills - One of the largest, most successful rice mills in the state of California.

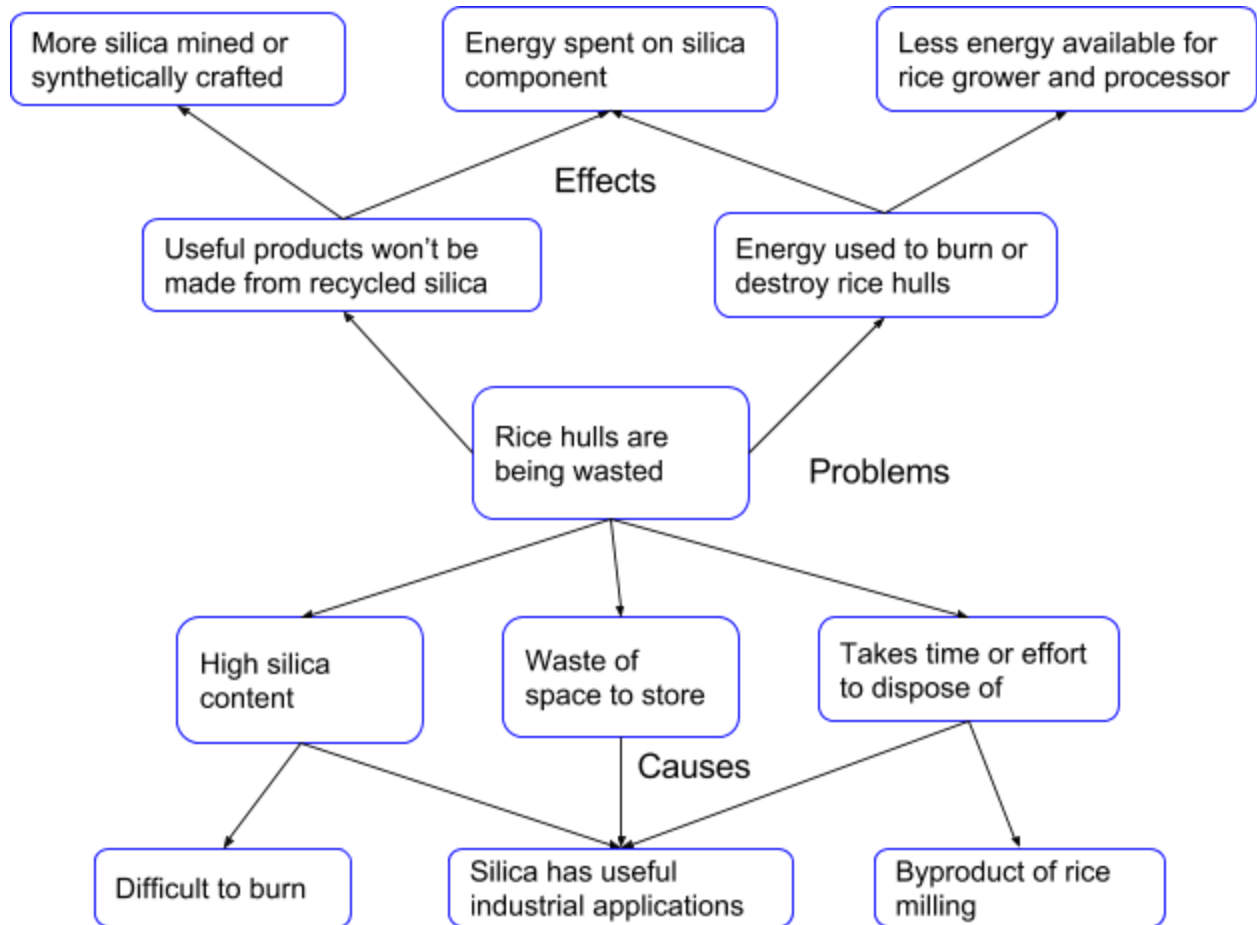
FRC owns and operates a complete line of facilities in the processing of quality rice along the Sacramento River. This allows FRC to directly control every step of the production, from the planting of the fields through the shipping of the finished product.

### **Problem statement**

Rice hulls are generated in processing, and have high silica content, which makes them difficult to burn or dispose of. We are looking for silica applications for the hulls, preferably a manner of recycling these materials for clever usage.

(we were told to say our pitch if possible)

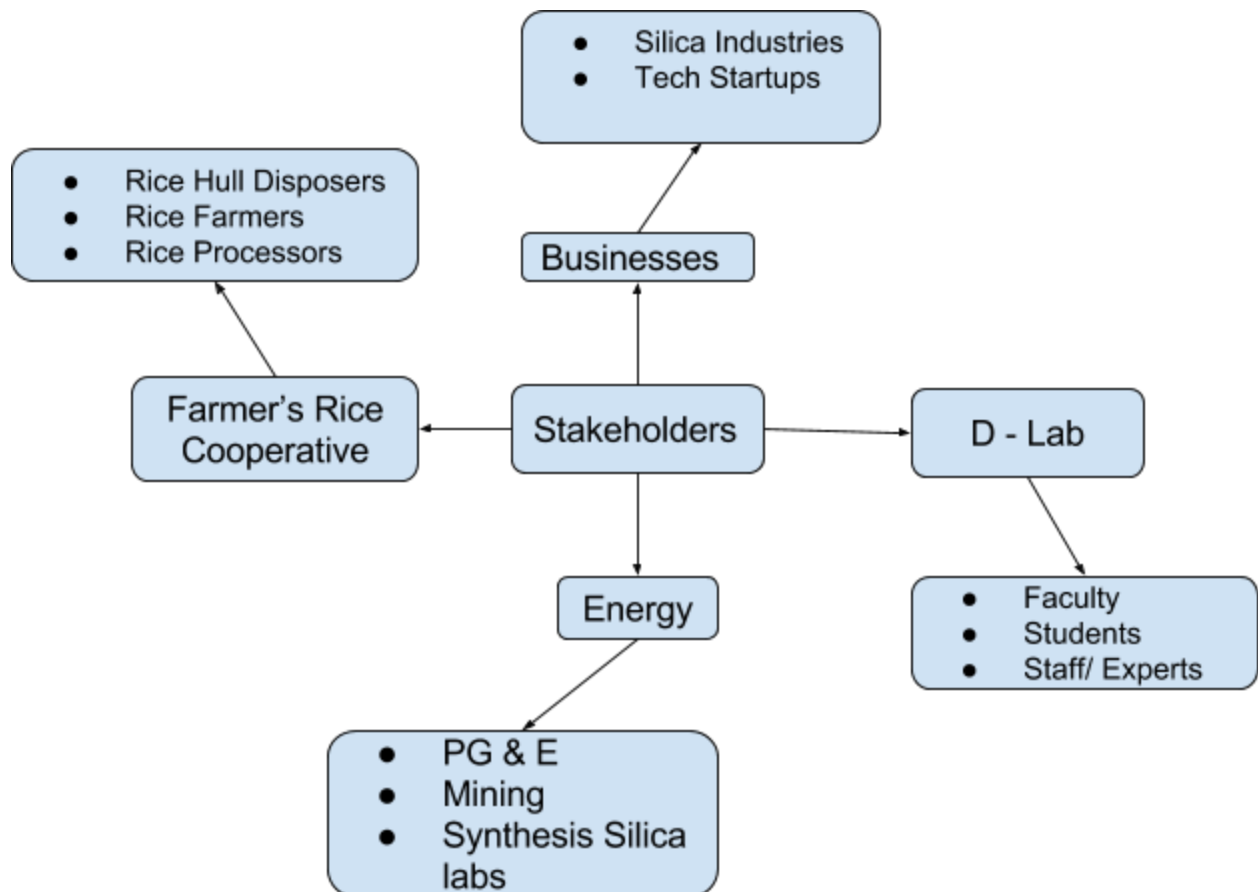
### **Problem and solution tree**



### Prior art

- What people have been doing with rice hulls:
  - Garden medians (composting)
  - Animal bedding
  - Source of fuel in gasifier technology
  - Mixed with cement for building construction
  - Building insulation

## Stakeholders



## Policy

- Policies that would help with the rice hulls:
  - California incentive for energy production (they would be encouraged to make use of rice hulls as an energy source)
  - A regulation that would encourage rice hulls to be sold as animal feed
- Policies that would limit the use of rice hulls:
  - Policy to control the environmental contamination of rice hulls being used as fertilizer
  - California to closely regulate the amount of smoke released from the burning of rice hulls (as a method of extracting silica from rice hulls)

## SWOT analysis

- Strengths:
  - Market share
  - Processing power
  - Contest with other farmers
- Weakness:
  - Waste of resource
  - Lack of technology to extract silica from hulls
  - Lack of space
- Opportunities:
  - Reduce financial cost
  - Useful consumer Product
  - A more sustainable system
  
- Threats:
  - Chances of toxic waste
  - Waste of useful space
  - Technology cost to separate silica

## Summary

People have been using rice hulls for thousands of years. There are certainly more sustainable uses for rice hulls than sending them to the incinerator. Rice hulls can be used for building materials, fertilizer, insulation, or fuel. Depending on the needs of FRC, a recycling program could be created for the better utilization of rice hulls.

## Citations

<http://www.ussilica.com/business-segments>

<https://www.maximumyield.com/simply-silica/2/1077>

<http://agrowastevietnam.com/news/the-use-of-rice-husks/652.html>

<http://www.farmersrice.com/>