D-Lab 0/D-Lab II/BAE Project: Prior Art Study for Flood Control for Rice Farming in Sisaket, Thailand

Raitong Organics Farm is a certified organic farm and social enterprise located in Sisaket, Thailand. Sisaket is a province located in Northeast Thailand, bordering Cambodian provinces to the South. Raitong was founded in 2007 with the goal of creating a strong community while teaching and integrating sustainable farming processes. To scale up their efforts, extend their network, and promote innovation on their farm, Raitong hosted the Summer 2017 International Development Design Summit (IDDS) under the International Development Innovation Network (IDIN).

Project Background

Raitong Organics Farm is a rice-growing farm that uses the wet paddy system. Raitong is facing a network of issues that hinders its productivity day to day. A large portion of its participating farmers are getting older, while landholdings are decreasing. Raitong also primarily relies on hands-on work, rather than mechanized, which puts a strain on the farmers and makes the whole process less efficient. When faced with frequent flooding, Raitong is forced to send out their farmers in extreme conditions to control the situation. In essence, the current system is too laborious, and calls for a safer, more efficient solution to mitigate rice paddy floods.

In partnership with Hackerfarm Japan, Raitong proposes the development and implementation of an app-friendly water depth monitoring system that relies on automated sluice gates to control field flooding. By developing a sensor that measures water depth, and connecting this to a long-range wifi network or meshnet, farmers will be able to access real-time information and warnings about the farm from their smartphone or computer. If notified that the water levels are too high due to flooding, farmers can activate the sluice gates in the rice paddies to close the crops off from the flood from their device.

Student Activities:

- Research application of water monitor controlled sluice gates in other farms in similar communities
- Design appropriate water depth monitor with sensors
- Investigate application of meshnet or wifi network with monitor controlled sluice gates
- Build and test sensors and sluice gates

Contact: Bryan Hugill, *Raitong Organics Farm Co-Founder*, bryan@raitongorganicsfarm.com