Satellite data for smallholder farmers

By Sadman Sadek
Agenda

• Introduction of mPower
• A look into the sky
• Application satellite data in agriculture
• Usability of this data
• mPower’s work in Bangladesh
  • GeoPotato
  • Geobis
• Learning & Challenges
• Key to make a service like this
• Key things to take away
• Q&A
we design & develop ICT-based innovative solutions to pressing development problems

A little bit about Us…

Founded by students of Harvard & MIT
In business for 8 Years
Spanning several countries, mostly Bangladesh

Domains we work in…

HEALTH
AGRICULTURE
LIVELIHOOD
EDUCATION
Our multidisciplinary team understands the complexities of development problems and includes domain experts.

103 People
11 Units
8 Years in operation
Digital Extension in the area of Crops & Livestock
Area under focus

- Decentralizing expert service delivery by connecting community entrepreneurs with Remote Agro Experts
- Better Agro Decision making through real time field data
- Smart training through ICT based approaches
- ICT driven BCC activity
- Smart Access to Agro Knowledge base
- Smart Agriculture through using satellite data
Let’s take a look into the sky

How many satellites are there in orbit right now?

a) More than 1?
b) More than 100?
c) More than 1000?

1381

And about to get double by next decade
But this estimation might be wrong by miles
The disruptive force

SpaceX: Reusable Rockets
The disruptive force

Nanosatellite
So what this leads to?

Tons of near real-time satellite data

Higher pixel and accuracy

Affordable cost
So what parameters we get from earth observatory satellites?

- Temperature
- Soil moisture data (just launched recently) [http://www.nasa.gov/smap](http://www.nasa.gov/smap)
- Weather observation
- Historic data
- Biomass
What service can we provide with this

- Crop growth
- Fertilization
- Weather and disaster
- Weather index based Crop insurance
- Drought monitoring
- Yield forecast
- Irrigation advice

Targeted and Customized Content
When it’s better suited to use this technology

Climate Change prone area

Weather department

Administrative mapping
When it’s better suited to use this technology

Availability of Satellite data

Tested Idea

Heavily relies on indigenous knowledge
Predicting Late Blight Disease of Potato
With the use of Remote Sensing Technology

DECISION SUPPORT SYSTEM FOR POTATO FARMERS

mPower is working with Wageningen university in Netherlands and Agriculture Information Services in Bangladesh to develop an early warning system for ‘Late Blight Disease’ of Potato and Tomato for 600,00 potato growers funded by Netherlands Space Office under G4AW

HOW IT WORKS

Based on Remote Sensing data of humidity, temperature and crop growth, the system will automatically trigger late blight warning through an algorithm and subsequent notification will be sent to farmers of the affected area

COST OF RECOMMENDATION

$2 per farmer in per crop season
The challenges

7th Largest potato growers

30% crop gets affected by Late Blight

Huge amount of pesticide gets sprayed without very little affect

Blue-13 Gene

© Wagengien University
Input: Weather Data, Crop Growth Information
Output: Targeted spray advice
The growth of potato in Munshiganj
With the use of Remote Sensing Technology

©terraSphere

Sentinel2a: NIR_R_G 20160217
Geodata Based Information Service for Smallholders in Bangladesh (GeoBis)

**TARGETED AGRO RECOMMENDATION TO VEGETABLE GROWERS**

mPower is working with Lalteer Seed Ltd. Alterra, NEO, BAU & Multisourcing to provide targeted agro recommendation to 330,000 vegetable growers and subscriber of Lalteer seed ltd. funded by Netherlands Space Office under G4AW

**HOW IT WORKS**

Based on weather data from BMD and Crop growth status the system sends targeted information to farmer about the best practices for this particular crop stage and weather scenario.
Geodata Based Information Service for Smallholders in Bangladesh (GeoBis)

**PHASE ONE (Current)**
Contextualized and targeted weather information and subsequent agro recommendation to the 422 bitter gourd farmer in Bangladesh based on BMD data

**PHASE TWO**
Based on phonological growth, targeted agro recommendation and precise weather information to farmer
Other efforts in Bangladesh

**IDSS**
Based on last seasons yield data, market price, climatic information advice farmer on crop diversification

**IFC-GreenDelta Crop Insurance Program**
Weather index based crop insurance program for the casava farmers in Bangladesh
What should be the partnership modalities?

- Remote Sensing Company
- Implementing Agency
- ICT Partner
- Content Provider
- Private Sector
Major Challenges & Mitigation strategy

- Scalability & User registration
  - Overlap with existing administrative map
- Lack of content
  - Work with content provider to develop new content
- Satellite data availability and quality
  - Use different data source such as portable weather station, UAV
- Administrative issue
- ICT is not the silver bullet
  - Work and collaborate with partners to increase adoption
Key Message

- Targeted agro recommendation in affordable cost now a reality
- Look for ‘Frugal innovation’
- Partnership is the key to success
- Content is the king
- Adoption & Implementation requires effort
- Make it automated as much as possible
THANK YOU

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