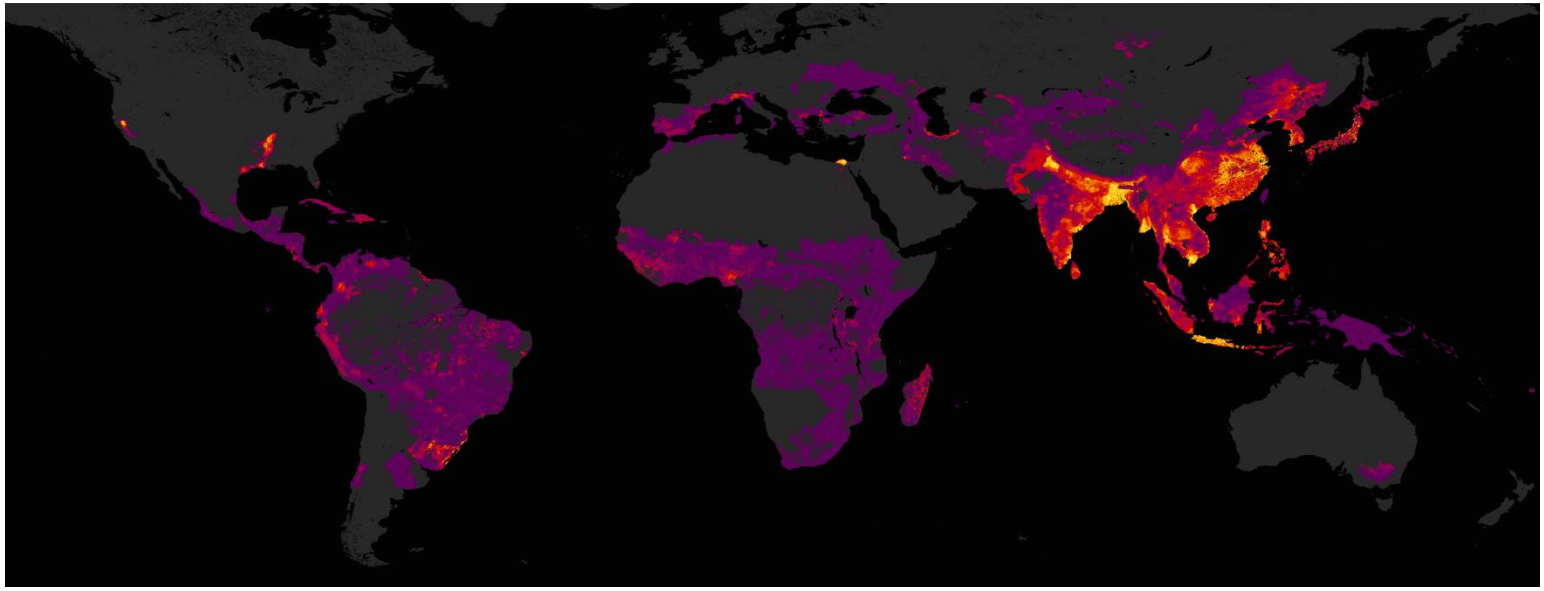
New technologies:
What are opportunities and challenges for private sector development?

RIICE

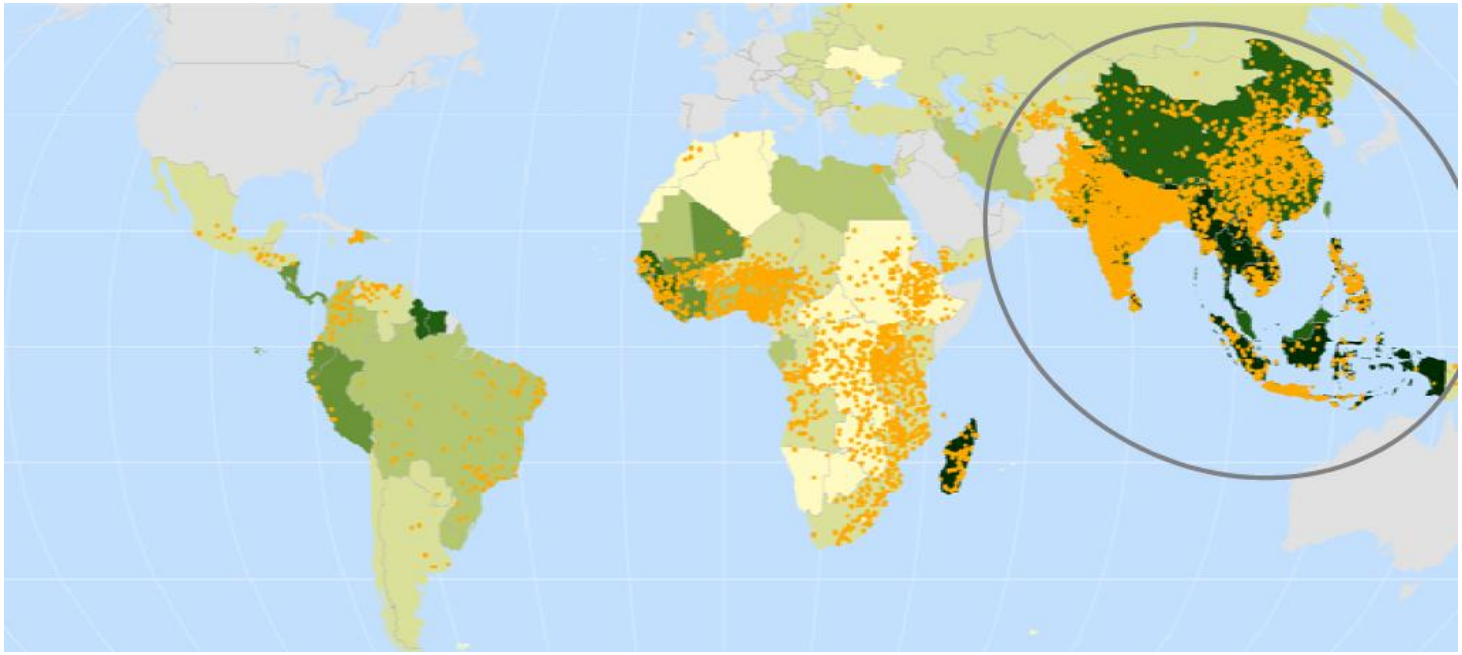
Rice in Asia: the most important crop.

Rice alone accounts for over 30 % of the total crop value in Asia.



Value of rice production in USD per hectar

90% of **the world´s rice** is produced and consumed in Asia.
Over 70% (900 million) of the world´s poor are in Asia.



Rice Consumption

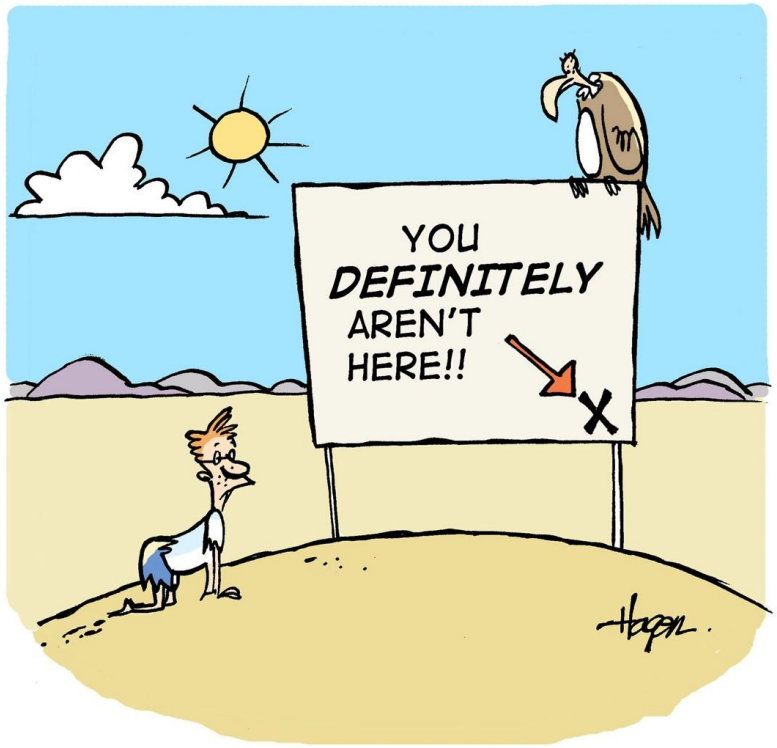
Annual consumption per capita

< 5 kg	5-25 kg	25-50 kg	50-75 kg	75-100 kg	> 100 kg

Poverty

= 250,000 people living on less than $ 1.25 a day (2005)

But only **few information available** on where it is grown and the yields it is delivering. Despite its economic weight.



Sensing how rice is growing from space

We've come a long way since the beginning of the 20th century:

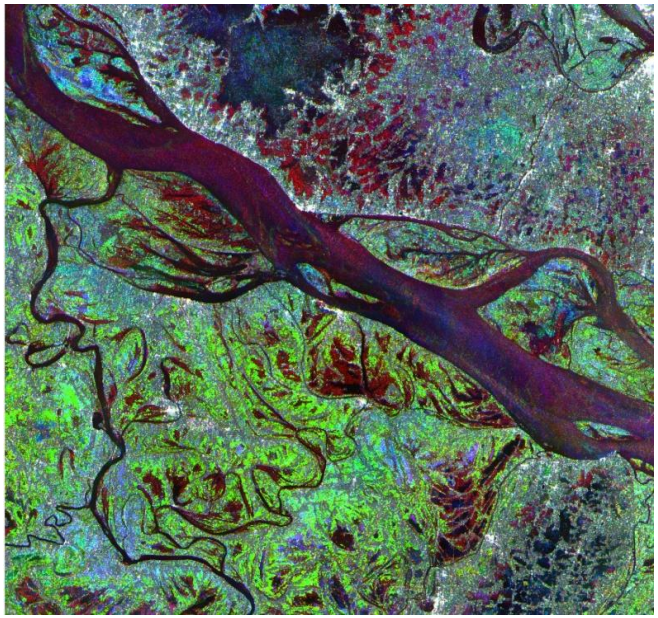
Julius Neubroner had the idea of stripping a 75-gram camera to a pigeon. This technique was not only used in the art context but also by the military.

What is remote sensing?

The ability to detect and interpret change on the earth's surface without direct observation various wavelengths across the visible and infrared parts of the spectrum – usually using satellite or airborne images.

Bildquelle: esa – 2004 – P. Carril

Regular observations with satellites provide valuable information used in policy planning



Use for land planning.

Use of irrigation improvements or pest & disease control

Use for yield forecasts and assessments

Can satellites help to mitigate government and farmer risks?

Government‘ Needs

1. Fiscal security

2. Income provision to farmers

3. Protection to farmers

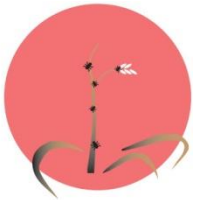
Farmers‘ risks

1. flood

2. drought

3. lack of irrigation

4. pest and diseases



* Data provided by GIZ Philipines, 2010

RIICE operational model for delivering risk management through technology

Government seeks better information rice growth...

....and plan for expected yields or shortcomings thereof.

Local insurers offer crop insurance....

...protecting farmers against natural catastrophes

satellite imagery

yield forecasting

insurance product

Who is RIICE?

Aims

1. **Help Governments and NGOs to better plan for food crises through better crop monitoring.**
2. **Increase efficiency and effective-ness of crop insurance solutions and turn it into a viable business also in emerging markets.**

Partner

- sarmap — Satellite data procurement & processing
- Swiss Agency for Development and Cooperation SDC — Funding and in-country support in two countries
- giz — In-country support in three countries; implementation, access to policy-makers,
- IRRI International Rice Research Institute — Ground validation & yield modelling
- Allianz — Insurance product development

Timeline

02/2012 — Technical proof of concept; «dry-test» of satellite-supported insurance products

05/2015 — Nation-wide upscaling of yield monitoring in collaboration with governments. Selected implementation of insurance.

04/2018

Multi-stakeholder projects work differently

Push & Pull: Partners need a solution, not a technology

Stakeholder engaged in risk mitigation strategies look for a solution.
Pitching a particular project does not meet their needs.

Irrationality of client needs: The best solution can still lose out to politics

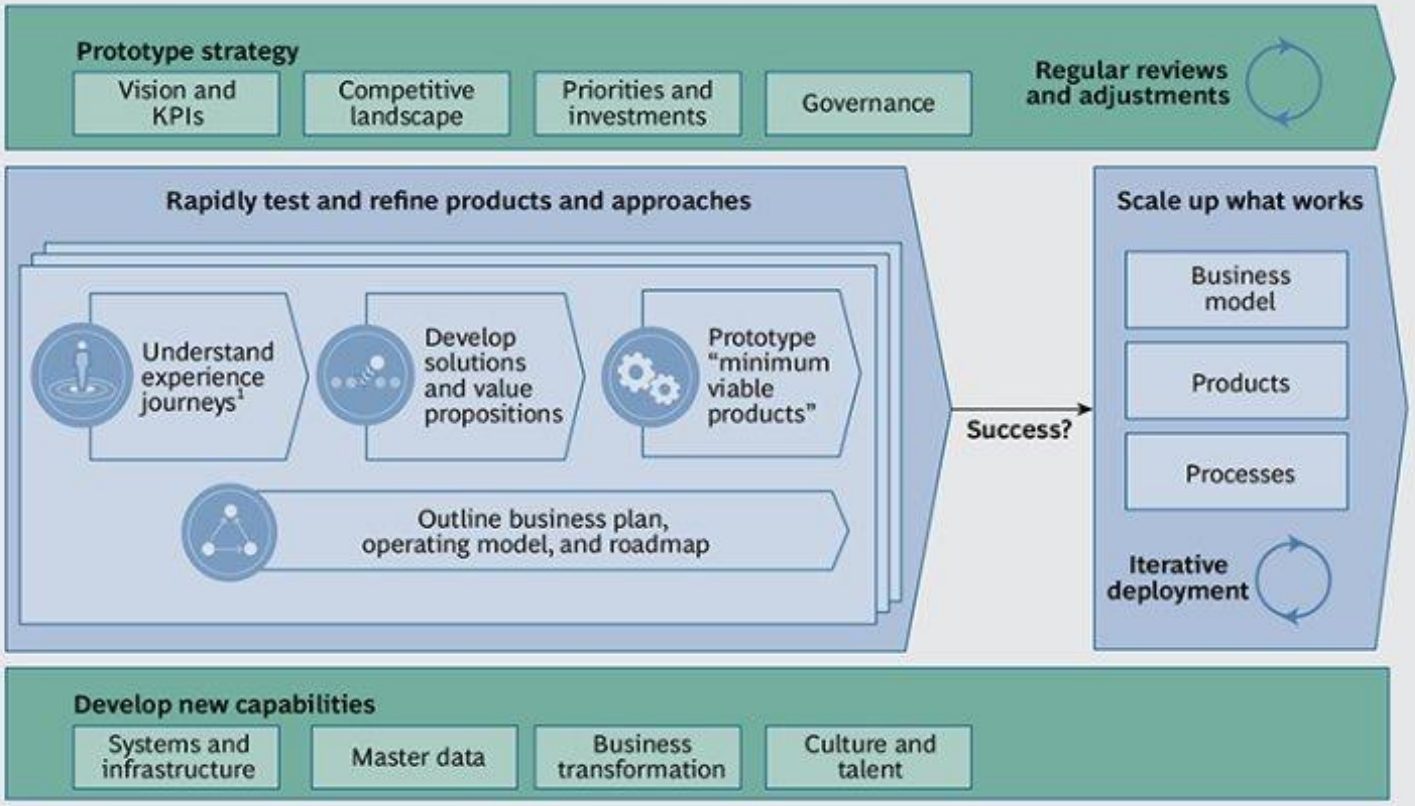
Governments decide for a solution for political reasons, not necessarily to address a particular scientific challenge. Politics is the gatekeeper.

News to use: Eventually all will be public

Open source will be the order of the day

- Private partners will find it more difficult to hold on to exclusivity
- Governments will have to make public the results of development work

Technology-adaptation is complex



Source: BCG analysis.
[1]Experience journeys can include experiences with a company, product, or service by customers, suppliers, partners, employees, users on connected devices, and others.

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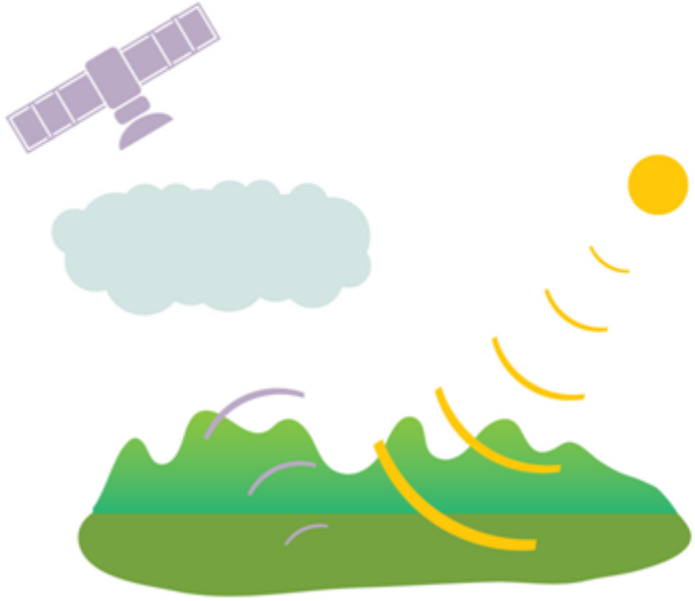
What is the advantage of remote sensing?

optical remote sensing



synthetic aperture radar (SAR)

RIICE

Making crop insurance part of an integrated RIICE risk management approach.

Government's and farmers options

- Disaster relief programmes
- More productive crops
- Better information on yield
- Insurance

FARMERS' BENEFITS

- Stabilized income and hence worthy for agricultural credits
- Less vulnerability and hence more money available for securer life
- Less likely to migrate to cities