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Eco-Intelligence: Harnessing Data Science for Climate-Smart Food Systems

Thinking Machines
Data Science

Thinking Machines is a technology consultancy building AI & Data Platforms to solve high-impact problems

WHAT WE OFFER

Fully customizable enterprise data solutions

- **Core Product Solutions**
  Data Platforms, Location Intelligence, Document Intelligence, Customer Intelligence
- Capable in building **enterprise data platforms** and **customizing AI solutions**

SELECT CLIENTS AND PARTNERS

Climate impacts threaten food security

Home › Economy › Agricultural damage from Typhoon Odette rises to P13.4B

ECONOMY EDITORS' PICKS

Agricultural damage from Typhoon Odette rises to P13.4B

BusinessWorld

January 14, 2022 | 6:45 pm

Photo credit: PHL Coast Guard via Reuters

24% of emissions come from food, agriculture, and land use

MONGABAY
NEWS & INSPIRATION FROM NATURE'S FRONTLINE

The Hungry Mills: How palm oil mills drive deforestation (commentary)

Commentary by Rob McWilliam on 12 March 2021

MONGABAY.COM

Climate Smart Agriculture

Increase yield

Lower emissions

Increase resilience

COASTAL WETLAND PROTECTION

CONSERVATION AGRICULTURE

FARM IRRIGATION EFFICIENCY

FOREST PROTECTION

IMPROVED RICE PRODUCTION

INDIGENOUS PEOPLES' FOREST TENURE

NUTRIENT MANAGEMENT

PEATLAND PROTECTION AND REWETTING

REDUCED FOOD WASTE

REGENERATIVE ANNUAL CROPPING

SUSTAINABLE INTENSIFICATION FOR SMALLHOLDERS

SYSTEM OF RICE INTENSIFICATION

Smart decisions need data

Increase yield

Lower emissions

Increase resilience

Farmers

Policy-Makers

NGOs

Businesses

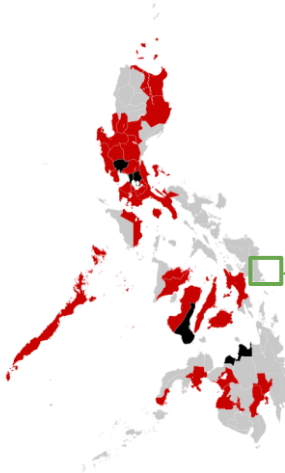
Identify interventions that are best suited for different locations and conditions

Estimate carbon stock and emissions
Analyze land use, land cover change

Prepare for climate risks
Monitor changing climate conditions

Eco-Intelligence: Using spatial data science to scale out nature-positive food production

We empower project developers, land owners, policy-makers, businesses, and non-profits with the information they need to implement nature-based solutions, monitor progress, and understand risks.



Prioritize Site
Deploy team for on-the-ground evaluation
- Primary forest
- High deforestation risk
- High carbon stock

Drop Site
- Secondary forest
- Low deforestation risk
- Medium carbon stock

Country-Wide: Gain a holistic view of conservation or restoration potential at a country or even regional level

Landscape-Scale: Visualize site potential on a granular heatmap of your landscape of interest

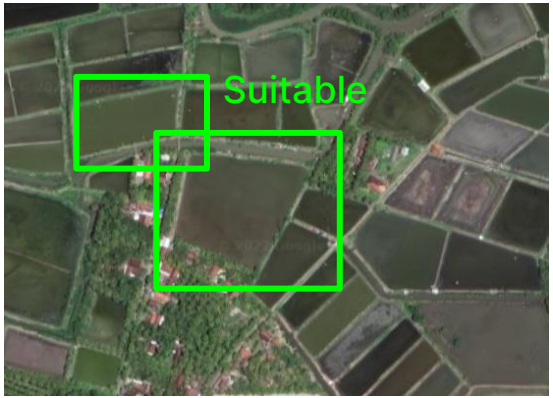
Site-Level: Prioritize sites based on success criteria customized to your project design

CASE STUDY

Analyzing the suitablity of shrimp ponds for Climate-Smart Aquaculture in SEA

We are using **computer vision** and **satellite imagery** to identify fish and shrimp ponds that can be sustainably intensified and partially restored with mangroves across Southeast Asia.

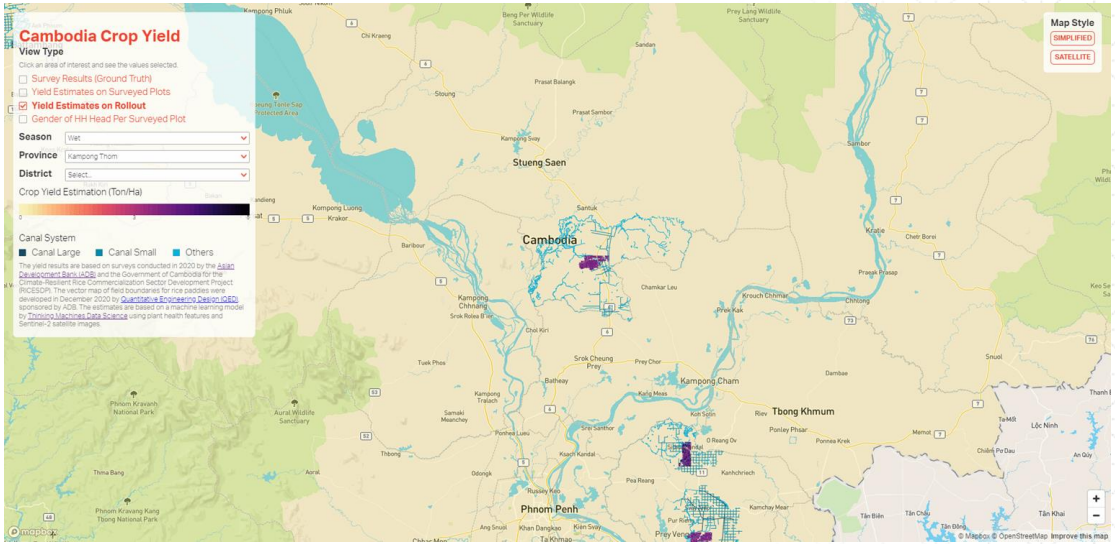
Winner: 2021 Climate Change AI Innovation Grants



CASE STUDY

Predicting yields of smallholder rice farmers in Cambodia for ADB

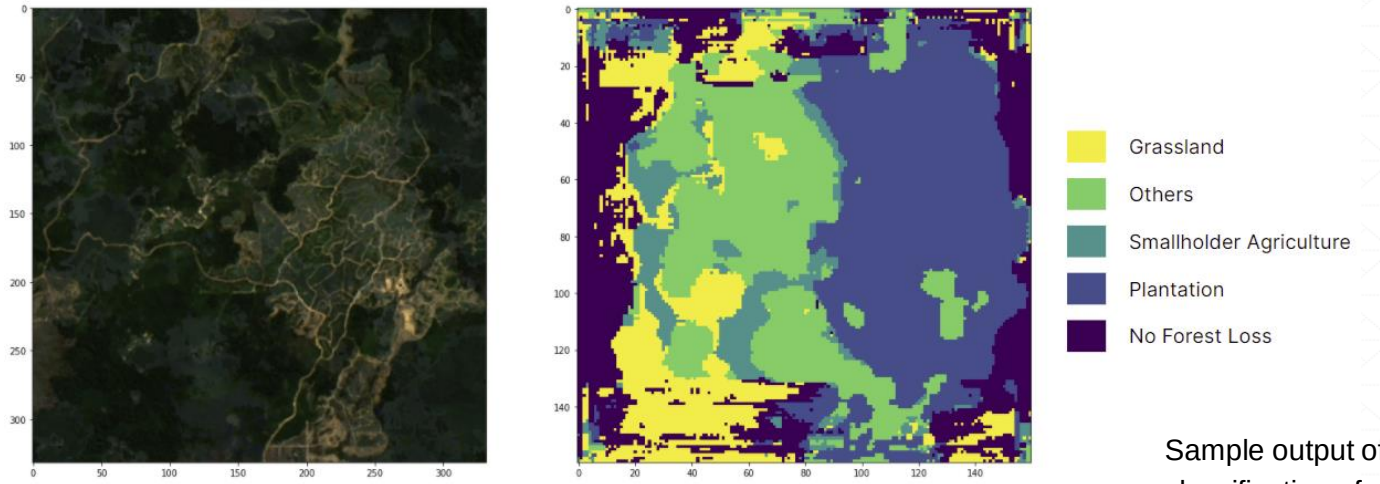
We supported the Asian Development Bank's **assessment of agricultural productivity gains from improved irrigation programs**. We generated plot-level rice yield estimates for over 67,000 plots of land in Cambodia by training an AI model to predict yield using open-source geospatial data:



CASE STUDY

Targeting grant-giving by quantifying forest cover changes at landscape level

The Gerry Roxas Foundation is granting $16M to CSOs working on ecosystem restoration efforts in 30 bioregions of the Philippines. They want to use data to fund projects that directly address the main deforestation drivers in their areas of concern.



Sample output of deforestation driver classifications for an area in Indonesia, from the methodology of Irvin et al., 2020

Let’s chat! Reach out at data-for-good@thinkingmachin.es

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