

Revolutionizing Crop Residue Burning Mitigation with Satellite-Powered Insights

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Scan for more detail
dulapahv.dev/internship.pdf

ABOUT GISTDA

GISTDA (Geo-Informatics and Space Technology Development Agency) is a Thai space agency and space research organization that specializes in remote sensing and technology development satellites.

GISTDA offers services such as optical satellites, radar satellites, measurement devices, unmanned aerial vehicles (UAVs), and information & analytic.

THINGS I DID



Plan

Design Three-Tier Architecture
Presentation, Application, DB



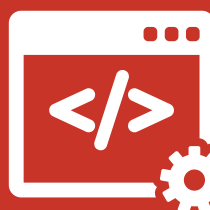
GUI Design

Planned and designed in Figma



Data Preparation

From GISTDA open-data to
PostgreSQL database



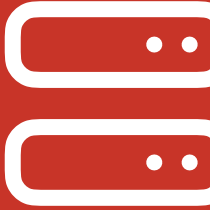
Frontend Development

React.js, Tailwind CSS, and more



API Creation

Node.js, tested with Insomnia



Deployment

Deployed on GISTDA server
with a reverse proxy

TECHNOLOGIES USED

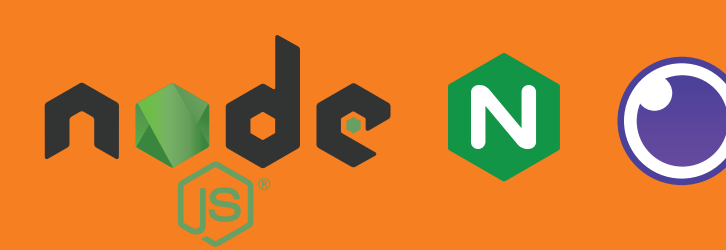
Programming Languages



Frontend Development



API Development



Backend Development and Database Management



Design and Internationalization



Geospatial Analysis and Data Visualization



Operating System



Repository and Version Control



DEVELOPMENT OVERVIEW

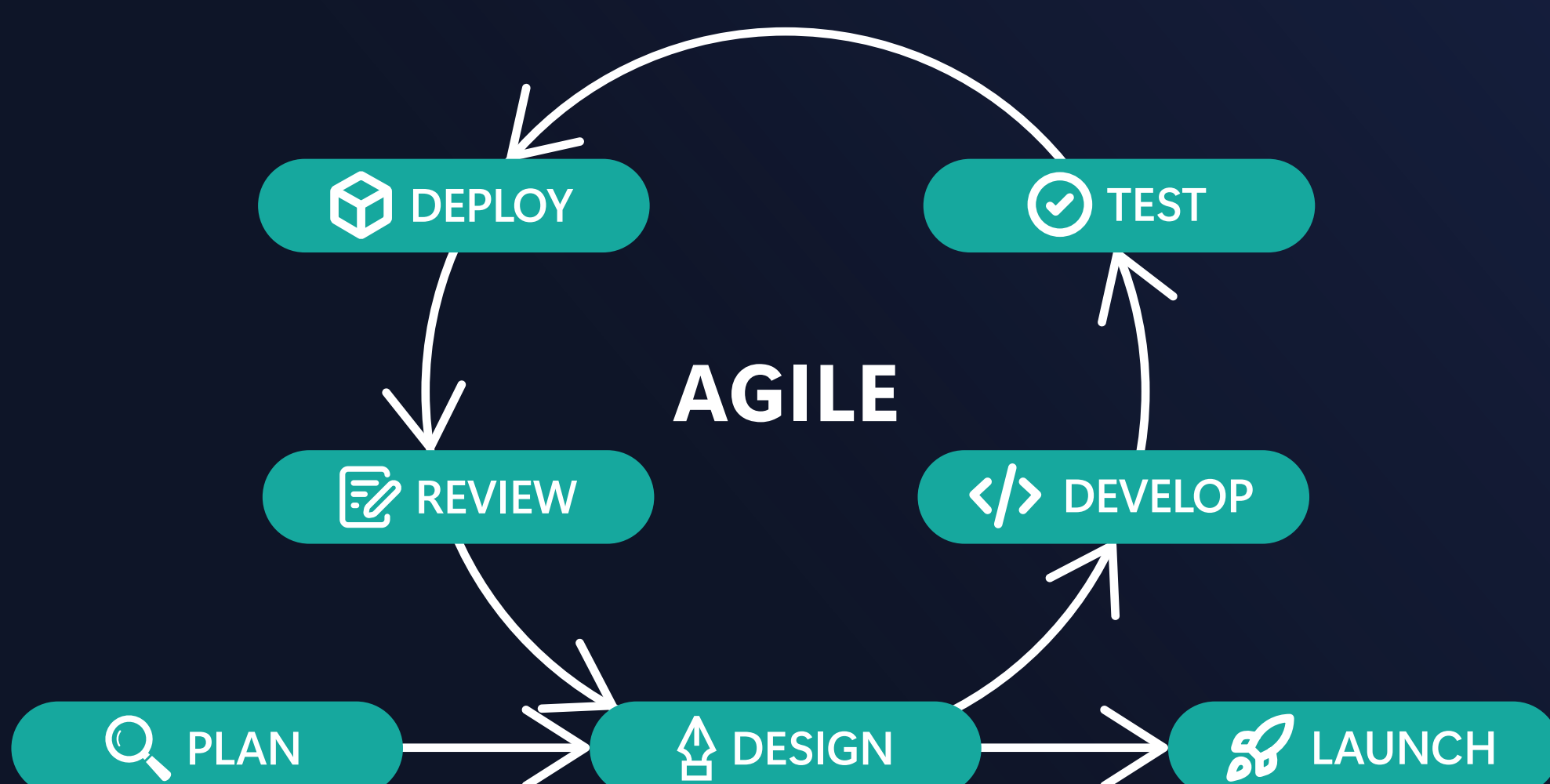
Background, Proposed Solution, and My Contribution

- Farmers in Thailand commonly burn crop residue after harvest instead of proper plowing in order to save cost and time, leading to problems like wildfires and air pollution.
- Satellites with advanced imaging capabilities, like infrared and multispectral imaging, help identify crop types, ages, and hotspots.
- This data enables the government to predict and prevent fires, making informed decisions for authorities and vulnerable communities.

How I Process Data to Make Prediction and Analysis



Development Methodology



Agile is a flexible and iterative approach to software development. Instead of planning out every detail upfront, it breaks projects into smaller parts, known as "iterations" or "sprints."

Advantages of agile:

- Flexibility: Allows for changes and improvements throughout the project.
- Customer-Centric: Focuses on customer needs and feedback.
- Faster Delivery: Releases small, usable parts of the product quickly.
- Improved Quality: Continuous testing and reviews enhance product quality.
- Cost-Efficiency: Minimizes risks and reduces unexpected expenses.
- Better Communication: Encourages team collaboration and transparency.
- Higher Satisfaction: Clients and stakeholders see results sooner, boosting satisfaction.

ACHIEVEMENTS AND REFLECTIONS

Self Validation

This internship offers valuable insights into software developer positions and various other roles within the company.



Expanded Knowledges and Experiences

I have gained lots of experience in frontend development and learned a lot about APIs, backend development, and GIS.



New Techniques and Good Practices

My internship supervisor taught me new techniques and good practices for writing optimized and maintainable code.



Expanded Connections

I met many talented colleagues and experienced developers. We got in touch and shared each other's contact information and LinkedIn.



Figure 1: Overview Page

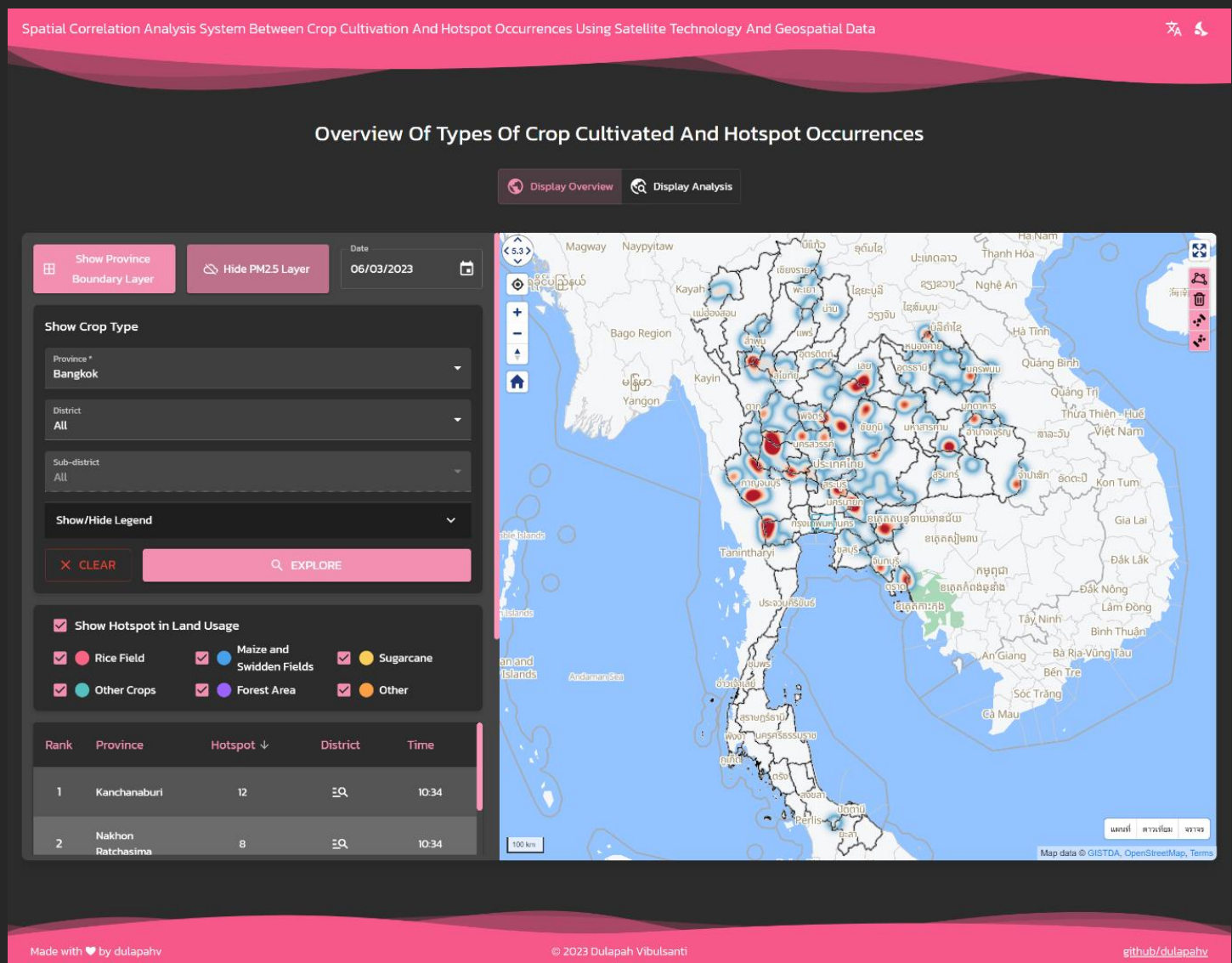


Figure 2: Analysis Page

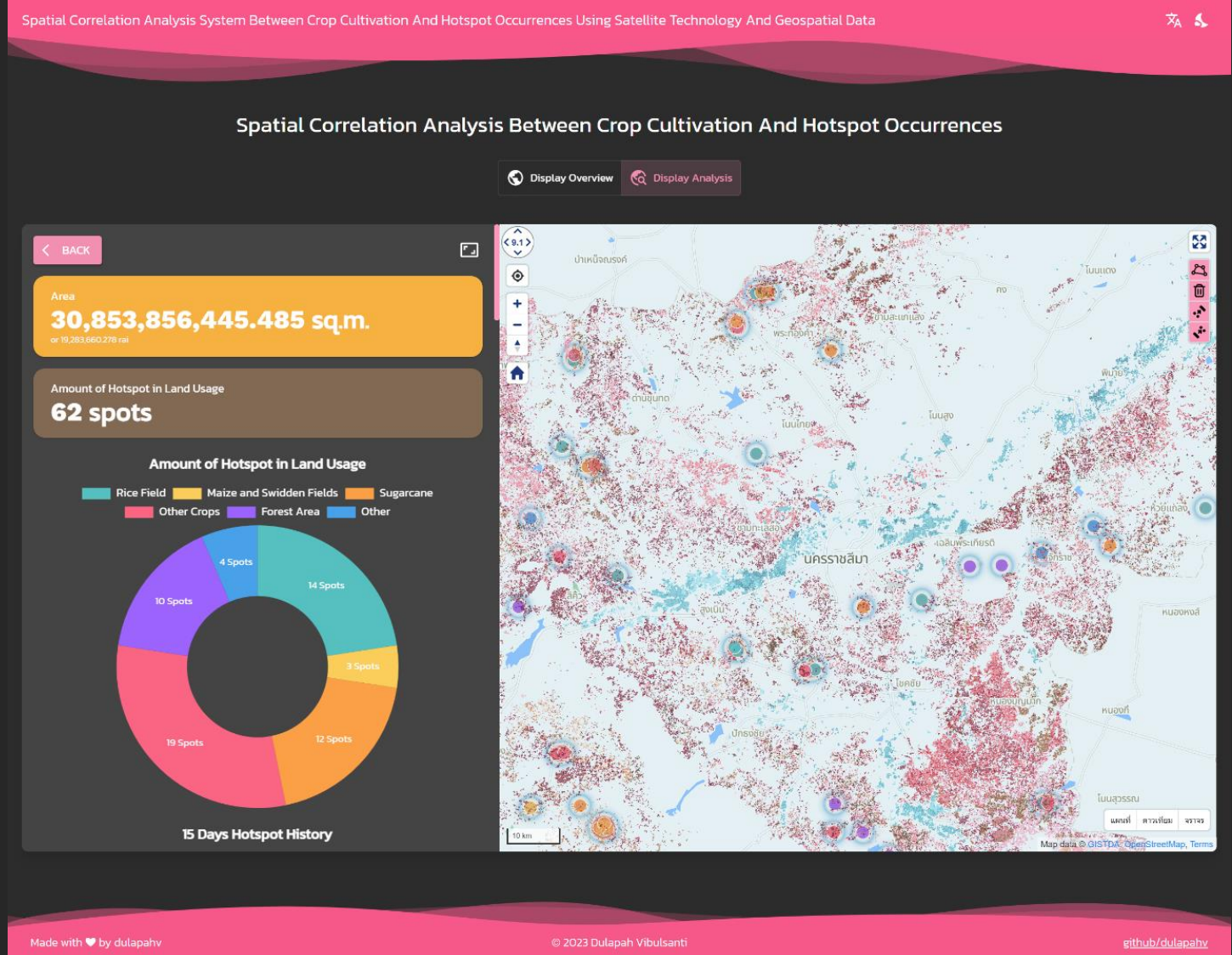


Figure 3: Expanded Analysis Page (Dark Mode)

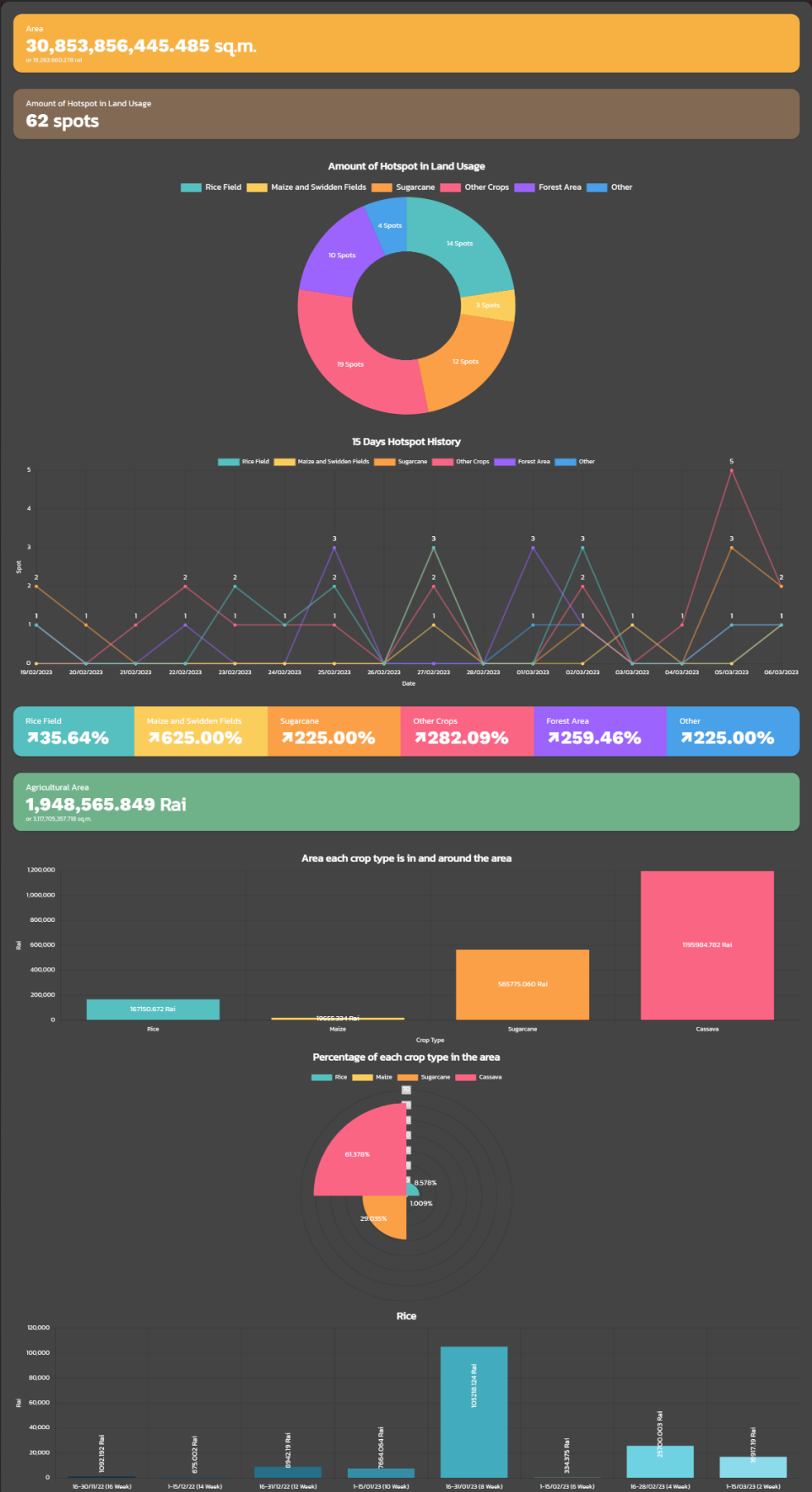


Figure 4: Expanded Analysis Page – Continue (Dark Mode)

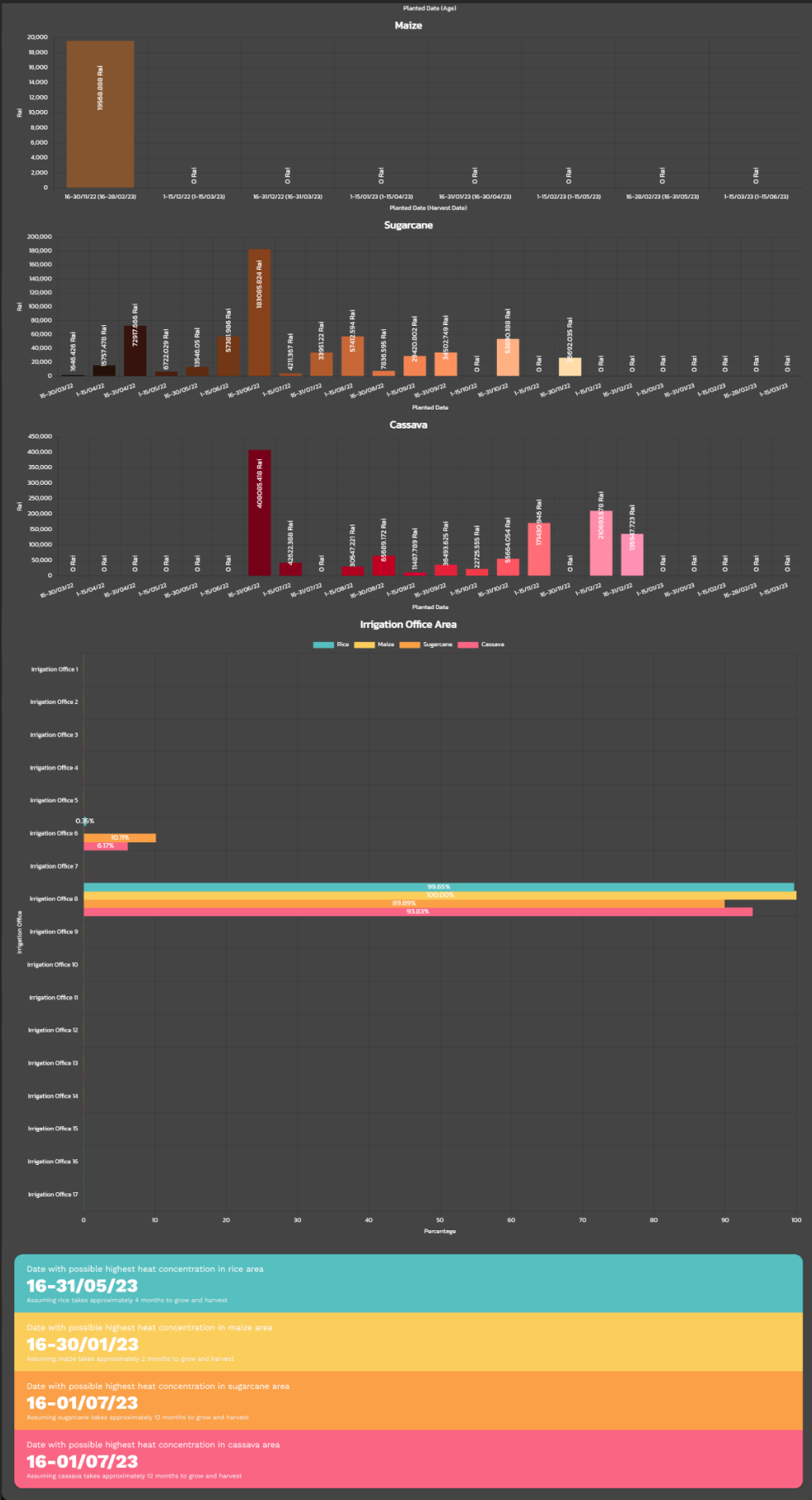


Figure 5: Expanded Analysis Page (Light Mode)

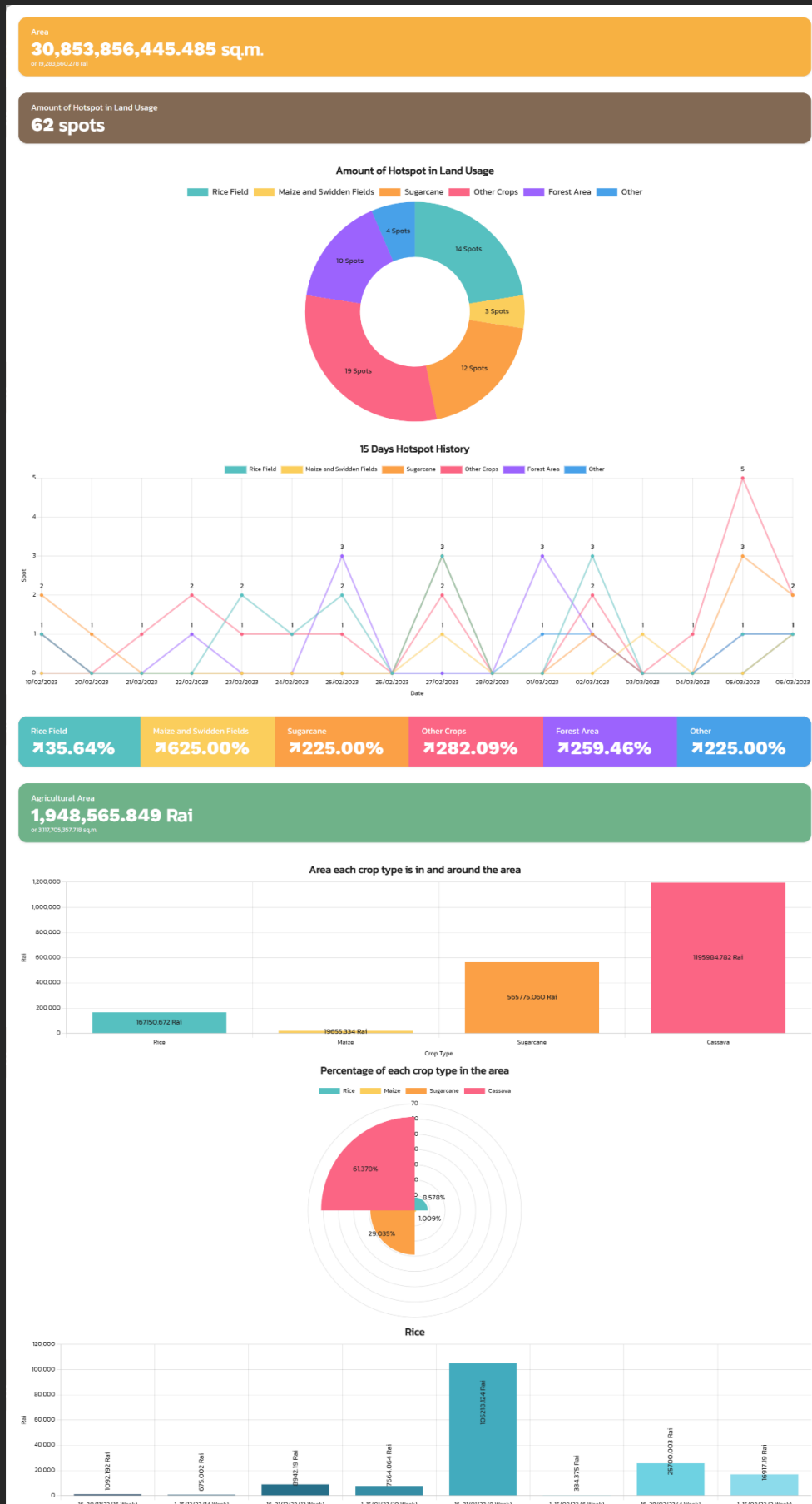


Figure 6: Expanded Analysis Page – Continue (Light Mode)

