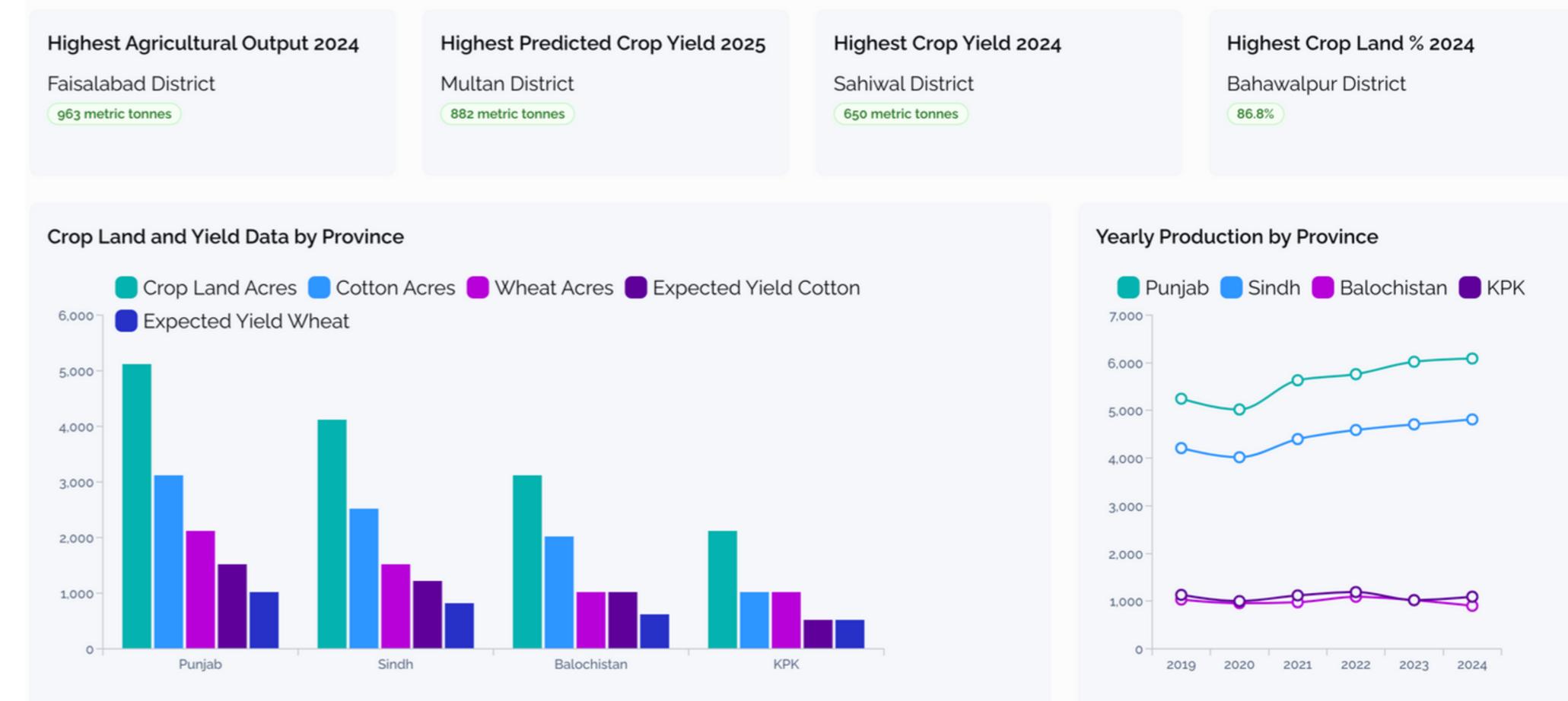


AgroData: Large-scale Early/In Season Crop-Type Mapping

Problem Statement

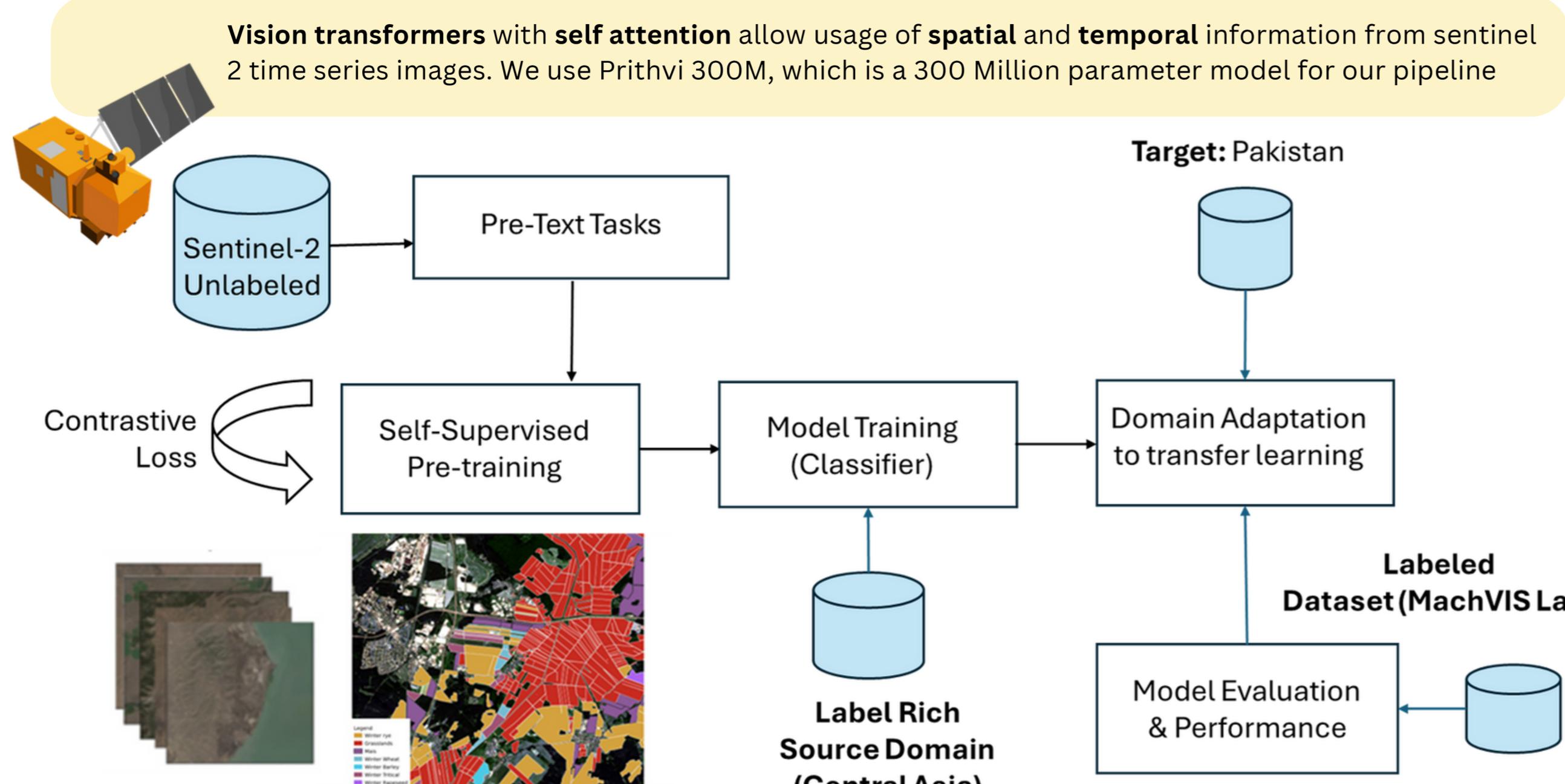
- Pakistan is experiencing a crop crisis due to inaccurate crop data.
- Inefficient resource allocation has resulted from the lack of reliable data.
- The country faces challenges in predicting crop yields and managing supply chains effectively
- Unstable wheat prices are a consequence of these data-related inefficiencies



Solution

A comprehensive **crop-type mapping system** utilizing remote sensing and geospatial technologies. This system will provide accurate, **regularly updated crop distribution maps** to **improve decision-making** and resource management in agriculture.

Methodology



Dataset

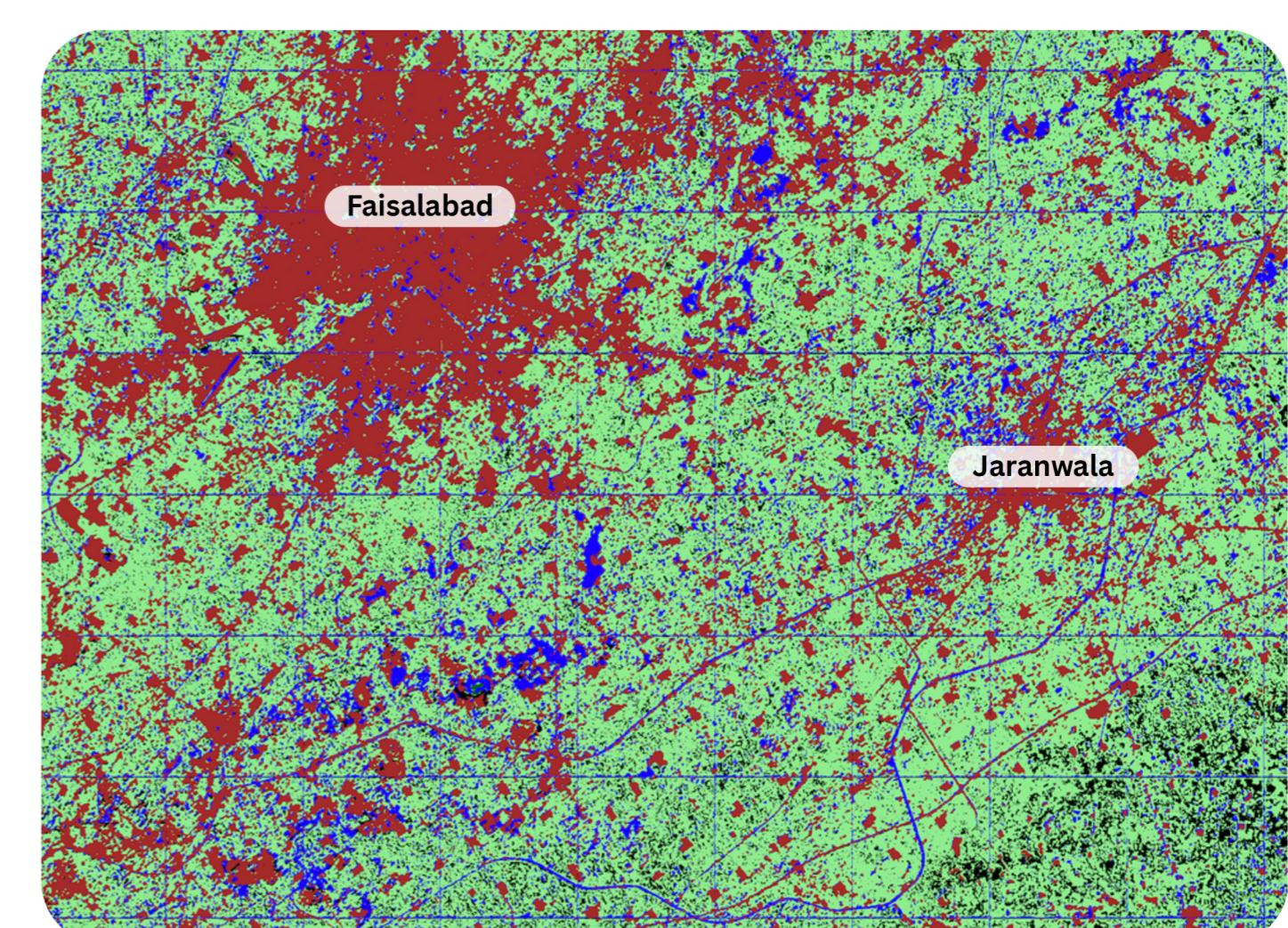
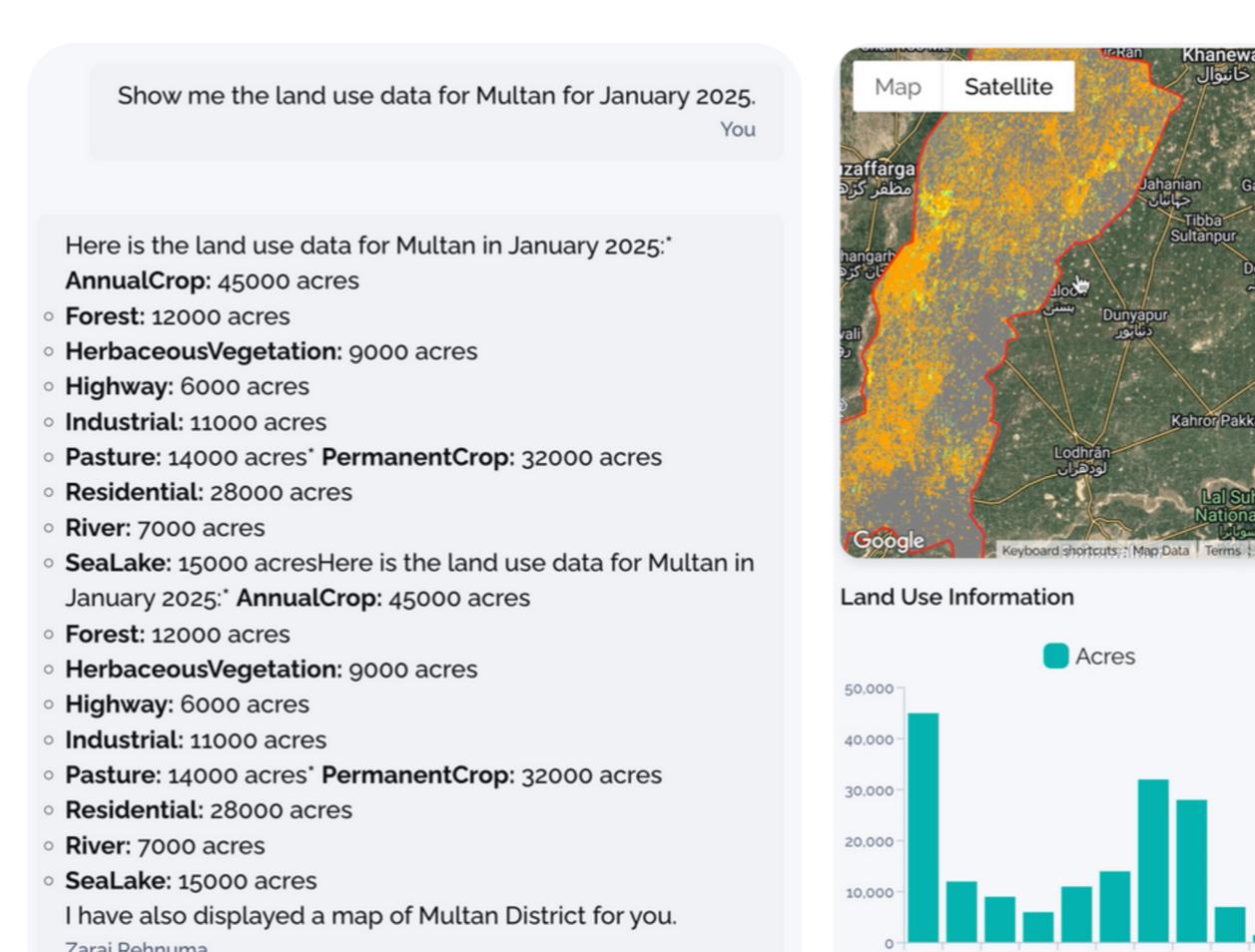
- Training Data:** Publicly available data from Central Asia with similar climatic regions like Uzbekistan, Tajikistan.
- Evaluation:** Collected at MachVis Lab NUST
- Bands:** 6: Blue, Green, Red, Narrow NIR, SWIR 1, SWIR 2
- Resolution:** 10m **Source:** Sentinel-2 **Timeseries:** 3 / season
- Cloud Cover:** <20%

Features

- Dashboard & UI:** User-friendly interface providing access to crop maps and analytics.
- Data & Model:** Central repository storing satellite data, AI model, and predictions.
- Quasi-Real-time Updates:** Frequent updates to crop maps using large-scale satellite data processing.
- Zarai Rehnuma:** An AI expert in agricultural data; can access data and generate insights.

Impact

- Invaluable Data Resource:** Further research will be greatly helped by the data analytics produced by our work
- Sustainable Agriculture:** Enable precision farming and policy agriculture, enabling timely data-driven decisions
- Economic Growth:** By improving crop yield predictions, enabling efficient crop planning, and increased farmer profitability.
- Disaster Management:** Improve crisis response with accurate crop data.



Faisalabad and neighbouring Jaranwala shown as Urban (Brown) and Agricultural (Green) areas. 30m HLS S2 Data