

Energy Consumption and Environmental Impact: Comparing Organic and Conventional Farming

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Global Problem Statement

Fossil fuel dependent agriculture contributes to one-third of total anthropogenic greenhouse gas emissions



The environmental impact of fossil fuel dependent agriculture on climate change



Variation in climate, soil, policies, infrastructure, require a local response

Current Status & Contextualization



Conventional agriculture uses synthetic fertilizers and pesticides



Fossil fuel dependence increases carbon emissions and energy dependence - contributing to climate change



Overuse of synthetic inputs depletes soil health and reduces biodiversity

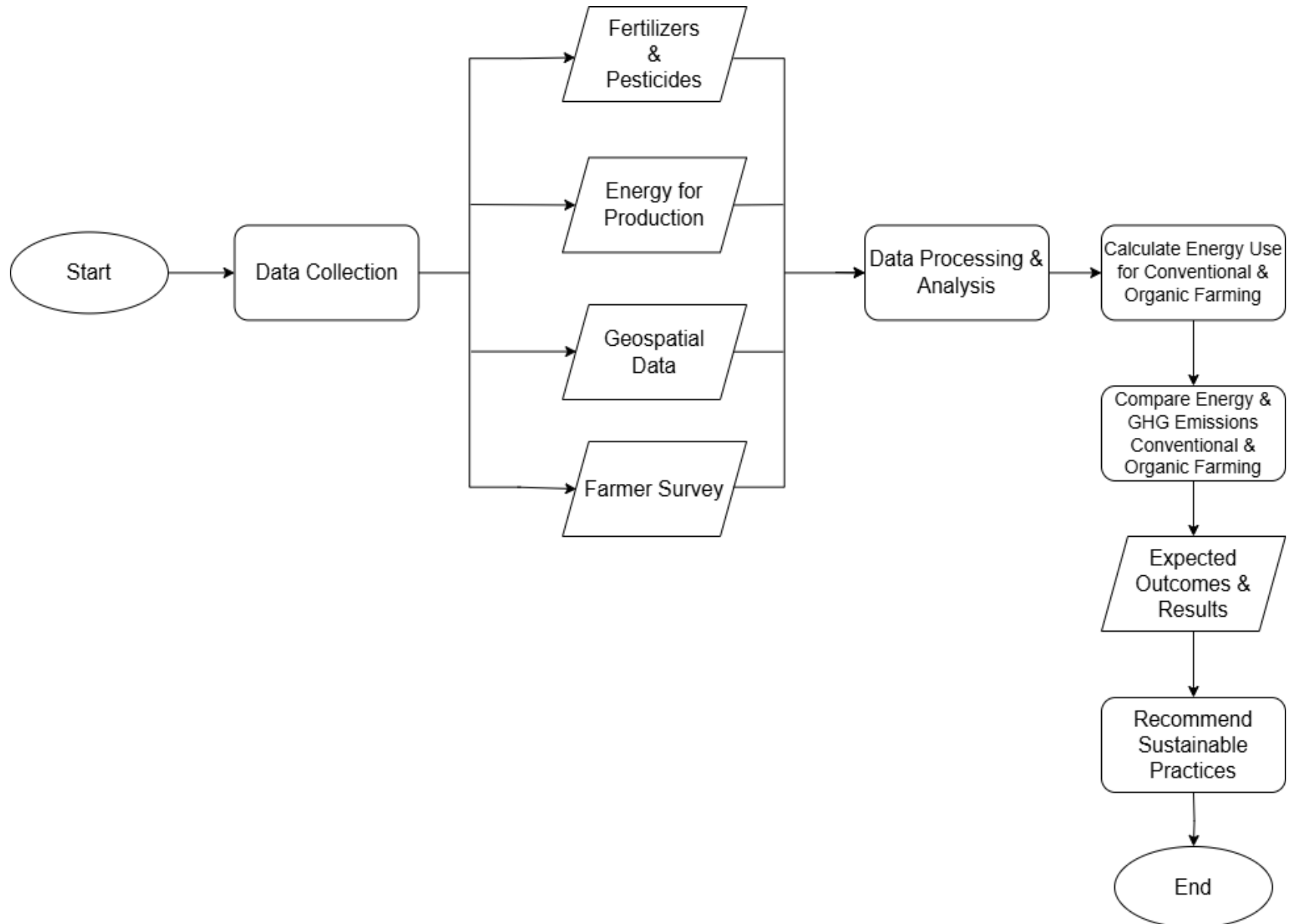
Project Objectives

To Assess Energy Use in
Conventional Farming

To Compare Energy
Efficiency of Farming
Methods

To Identify And Promote
Energy-efficient
Agricultural Practices

Methodology



Data Sources

- ▶ Energy consumption (Literature)
- ▶ Fertilizers and pesticides (Literature)
- ▶ Geospatial data (PDOK, ESA)
- ▶ Crop statistics (CBS)

Expected Outcomes

- ▶ **Compare Energy & Emissions** - Quantify energy wastage for conventional farming
- ▶ **Evaluate Alternative Practices** - Quantifying energy savings with organic farming
- ▶ **Proposed Workflows** - Data-driven recommendations for policymakers.





Proposed Solutions & First Ideas

- **Financial and Policy Support** - Provide subsidies, tax incentives, and regulations to make organic farming economically viable.
- **Technology and Innovation** - Use geospatial data, precision agriculture, and renewable energy to enhance efficiency and productivity.
- **Market Development and Awareness** - Strengthen supply chains, certification, and consumer awareness to boost organic farming demand.

Link to Global Frameworks and International Policies



Alignment with SDGs - Sustainable agriculture supports SDG 2 (Zero Hunger) by promoting resilient food systems, SDG 7 (Clean Energy) by reducing fossil fuel use, and SDG 13 (Climate Action) by lowering emissions.



Paris Agreement Compliance - Encourages emission reductions in agriculture through sustainable land-use and low-carbon technologies.



Geospatial Data for Policy - Integrating geospatial data helps policymakers drive climate-resilient and energy-efficient farming transitions.

Time Plan & Task Division



**WEEK 1 DATA
COLLECTION**



**WEEK 2
ANALYSIS**



**WEEK 3 FINAL
MAPS & REPORT**

Task Division

Task	Team Member
Literature Review	Prapti Sawant
Data Acquisition	Shaaban Abduba
Data Processing	Hashir Baig
Comparative Analysis	Meysam Mohammadi
Report Preparation	Armaan Farooqui

The background features a series of overlapping, semi-transparent green triangles and polygons that create a dynamic, layered effect. The colors range from a light, pale green to a deep, forest green. The shapes are primarily oriented vertically, with some extending horizontally, creating a sense of movement and depth. The overall composition is modern and minimalist.

Questions?