Geo-Optimization of Collection Centers and Factory Site Selection for Agro Boost Innovations'

NAVEEN KUMAR S, AJAY DHANVANTHIRI V

INTRODUCTION:

OBJECTIVE:

Optimize collection center and factory site selection for efficient procurement.

KEY ACHIEVEMENTS:

Identified ideal factory site (43 hectares) near a highway.

Established 3 strategic collection centers.Utilized QGIS for geospatial analysis and Canva for visual representation.

CROP VARIETY:

Diversified crop selection for procurement.

RISK FACTOR:

Addressed potential risks through detailed analysis and mitigation strategies.

METHODOLOGY:

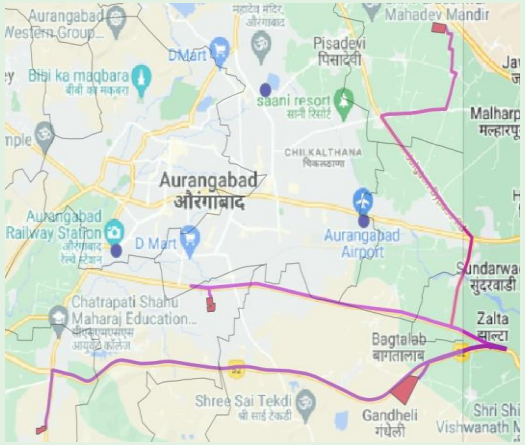
Leveraged geospatial analysis, criteria evaluation, and optimization algorithms.

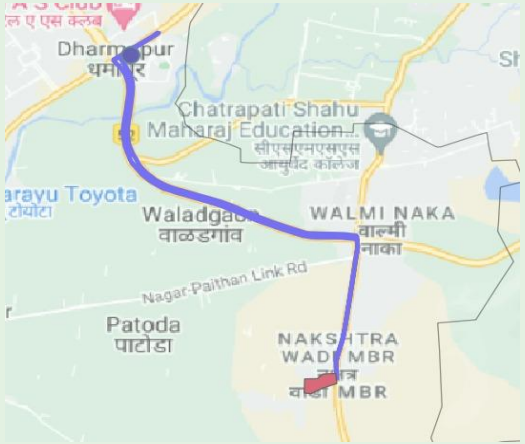
COST ESTIMATION:

Estimated expenses for land acquisition, construction, infrastructure, and miscellaneous costs.

Ideal Site for Factory :

Location : Gandheli
Land Area : 43 Hectares
Proximity to Highway : Yes
Rationale : Strategically chosen for its significant land area and close proximity to a major highway, ensuring efficient transportation of goods.
Advantages : Ample space for future expansion and development.
Convenient access to transportation network for streamlined logistics operations.





Collection Center Locations:

Nakshtrawadi Collection Center:
Location: Nakshtrawadi
Supply Point: Dharmapur
Rationale: Proximity to the supply point ensures timely and efficient procurement operations.

Ideal Site for Factory :

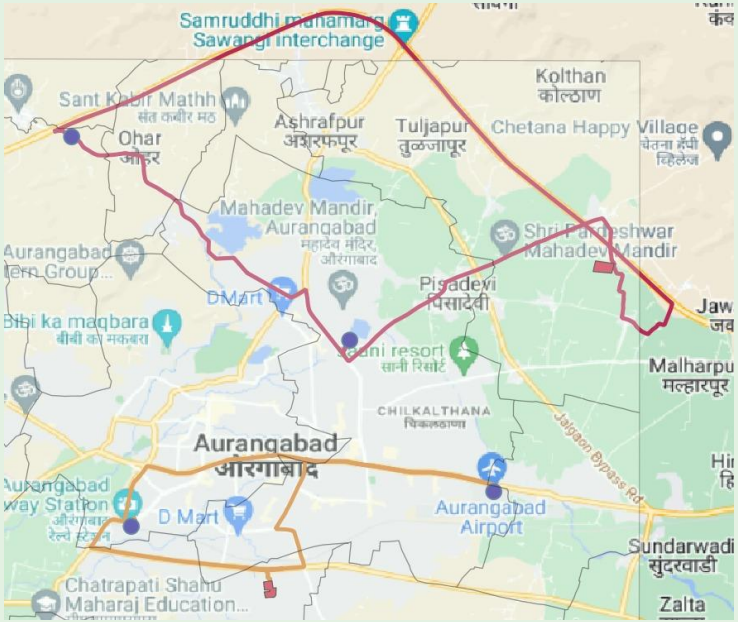
Collection Center Locations:

Satara Deolai Parisar Collection Center:

Location: Satara Deolai Parisar
Supply Points: Aurangabad's Airport, RailwayStation
Rationale: Positioned to serve critical supply points, enhancing procurement efficiency.

Daulatpur Collection Center:

Location: Daulatpur
Supply Points: Kamal Talaw, Pultanda
Rationale: Selected for its strategic location and accessibility to key supply points.



Key Considerations: Collection centers strategically placed to optimize procurement and supply chain operations. All supply points are within 50 meters from a road, ensuring accessibility.

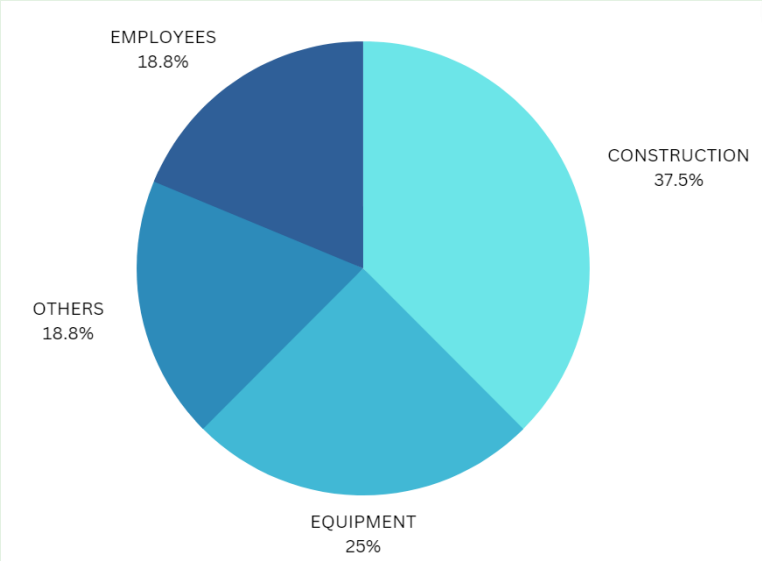
COST ESTIMATION:

- The cost of building an agricultural product factory in 46 hectares of space in Aurangabad's Gandheli, India will vary depending on a number of factors, including the size and complexity of the factory, the type of equipment that will be used, and the cost of labor in the area.

- **CONSTRUCTION & EQUIPMENTS:** However, as a rough estimate, An Average of around INR 50 crores to build a medium-sized agricultural product factory in this location. This includes the cost of construction, and equipment.

- **EMPLOYEES:**
  - Factory manager
  - Production managers
  - Quality control managers
  - Maintenance engineers
  - Operators
  - Warehouse workers
  - Security guards

- **OTHERS:** In addition to these costs, we need to factor in the cost of permits, licenses, transportations and other fees. These costs can vary depending on the location and the size of the project.



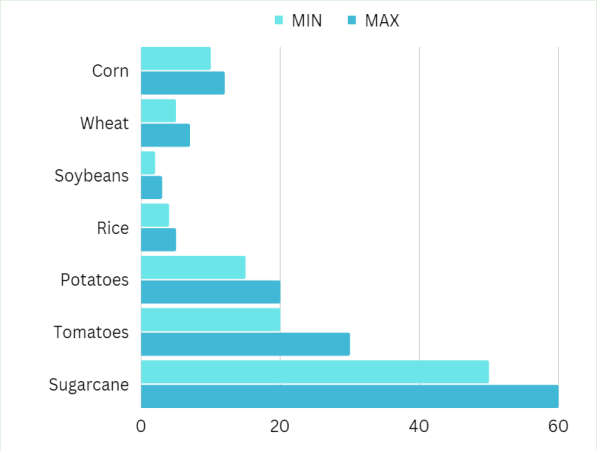
AGRO PRODUCTS RAW MATERIALS:

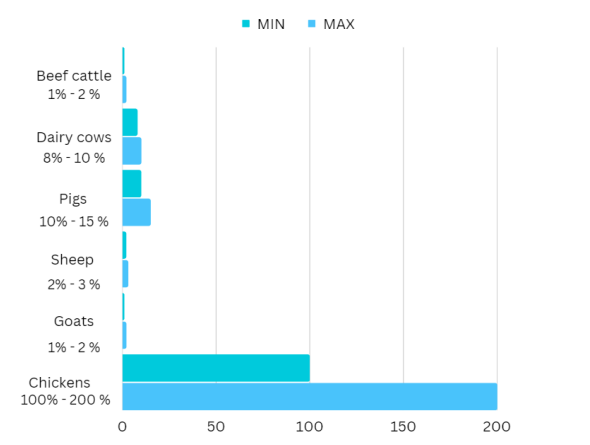
Crop Yields:

The region's agriculture sector features impressive yields. Corn yields 10-12 tons/hectare, while wheat offers 5-7 tons/hectare. Soybeans provide 2-3 tons/hectare, while rice offers 4-5 tons/hectare. Potatoes yield 15-20 tons/hectare, and tomatoes excel at 20-30 tons/hectare. Sugarcane stands out with an impressive 50-60 tons/hectare.

Animal Yields:

Livestock contribute significantly. Beef cattle and dairy cows yield 1-2 and 8-10 tons/hectare respectively. Chickens are prolific with 100-200 tons/hectare. Pigs yield 10-15 tons/hectare. Sheep and goats contribute 2-3 and 1-2 tons/hectare respectively, playing a vital role in the region's agriculture and livestock sectors.





RISK FACTOR:

Risk **:** The cost of manpower, equipment, and transportation may be higher than expected.
Mitigation strategy: Get quotes from multiple vendors and compare prices. Consider using less expensive equipment or transportation options.

Risk **:** The ideal route for transportation may not be feasible due to traffic or other constraints.
Mitigation strategy: Identify alternative routes and consider the impact of traffic and other constraints on the costs and time of transportation.

Risk **:** The raw material data may be inaccurate or incomplete.
Mitigation strategy: Verify the accuracy of the data and collect additional data if necessary.

Risk **:** The cost-benefit analysis may not be accurate due to unforeseen factors.
Mitigation strategy: Use sensitivity analysis to test the impact of different factors on the results of the cost-benefit analysis.

Risk **:** The risks and mitigation strategies may not be comprehensive.
Mitigation strategy: Conduct a brainstorming session with stakeholders to identify additional risks and mitigation strategies.

Methodology:

Geospatial Analysis:
Leveraged QGIS, renowned for its powerful geospatial analysis capabilities.

Criteria Evaluation:
Assessed proximity to highway, supply points, and road accessibility.

Optimization Algorithms:
Applied to streamline collection center placement.

Analytical Tools:

QGIS for Geospatial Analysis:
Chosen for its extensive features in geographic data processing and analysis.

Canva for Visual Representation:
Utilized for creating clear and informative charts.

Logic for Tool Selection:

QGIS: Recognized as an industry-leading tool for geospatial analysis, ensuring precise location assessment.

Canva: Ideal for crafting visually engaging charts to communicate complex data effectively.

THANK YOU…