

3IK

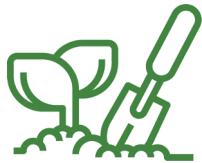
AASAAN KISAAN

A DRISHTEE INITIATIVE

Krishi Kasht

(Problems to tackle)

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₹19.48T

Total agricultural
revenue



₹1.28T

Total income of farmers



6%

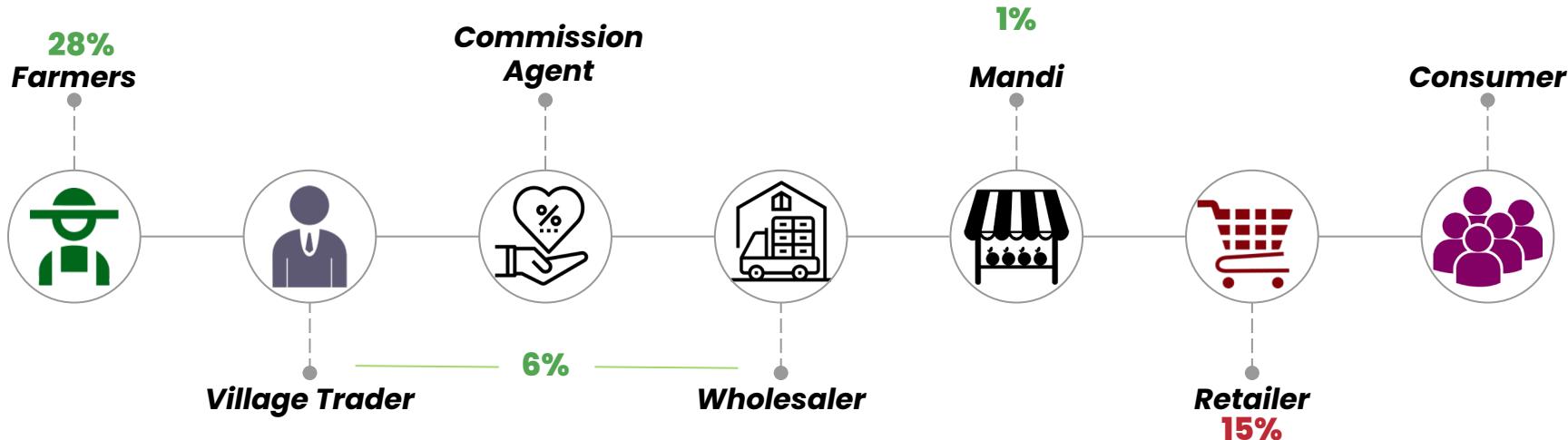
Of the money trickles
down to the farmers



85% hold 9%

of the total income

Samasya (Supply chain)



MATERIAL FLOW

- Lack of storage/Cold Chain
- Poor transportation
- Multiple intermediaries
- Food safety, Hygiene (pesticide MRL)

INFORMATION FLOW

- Deficient and inefficient production management
- Non demand linked production
- Improper post harvest mgmt.
- Quality inputs

MONEY FLOW

- No transparency in prices
- Lack of collateral for credit
- Long delays from producer to retailer
- Poor Marketing infrastructure

Competitive Landscaping

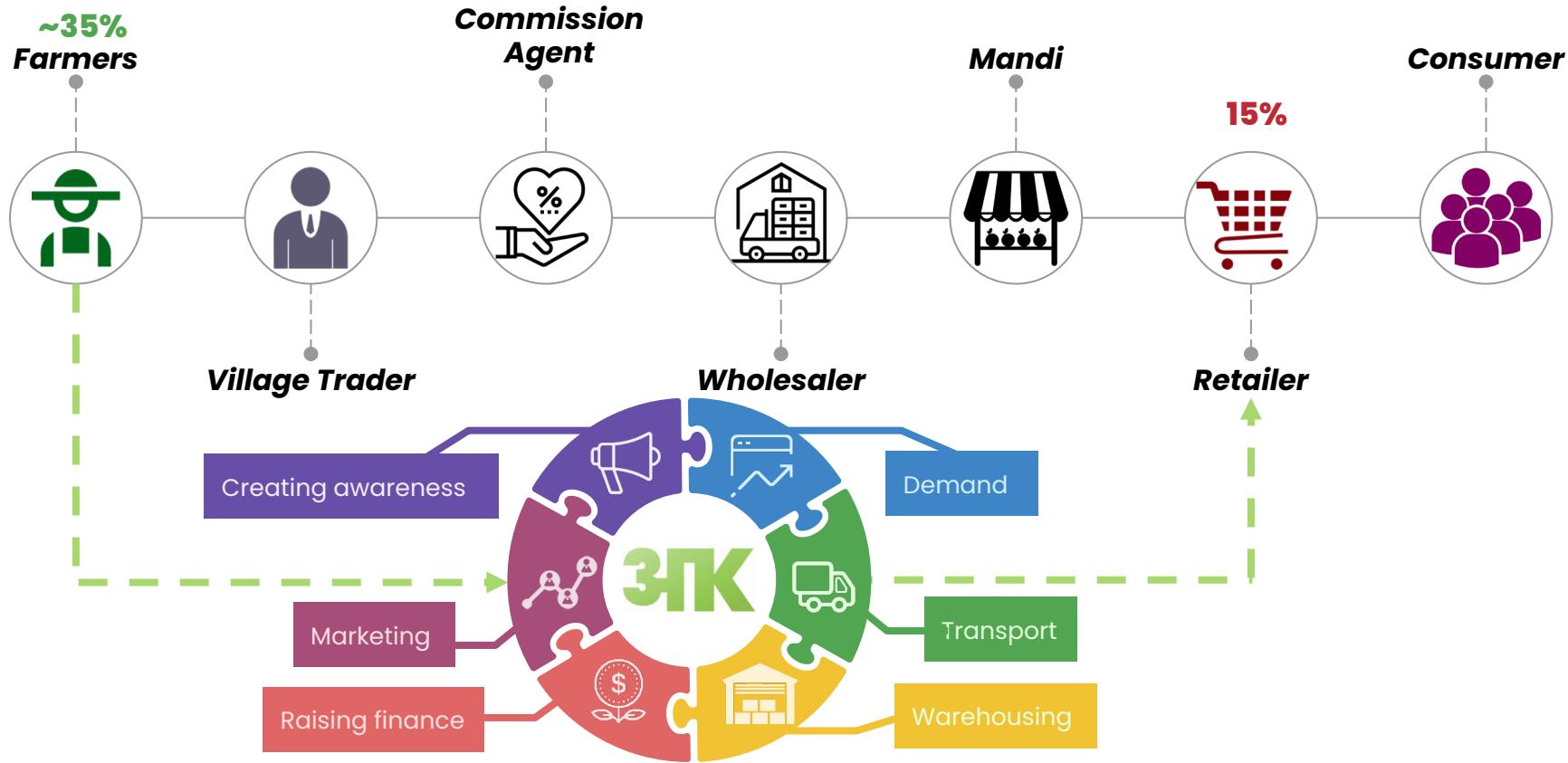
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| USUAL SUSPECTS | UNUSUAL SUSPECTS |
|---|---|
| ninjacart  SUPPLY CHAIN PLATFORMS (NINJACART, eNAM) |  agribazaar  crofarm  DIRECT SALES (AGRIBAZAAR, CROFARM, FARMPAL) |
| GOVERNMENT POLICIES (NABARD, SFAC) |  MARKET TRENDS (FARM LAWS) |
| NON-INCLUSION OF RURAL PEOPLE | LACK OF TRANSPARENCY & TRACKABILITY |
| LAB WORKERS/COMPANY PERSONNEL NOT EXPERTS |  |

SHORTCOMINGS

Kiya Aasaan for Kisan (Value Added)

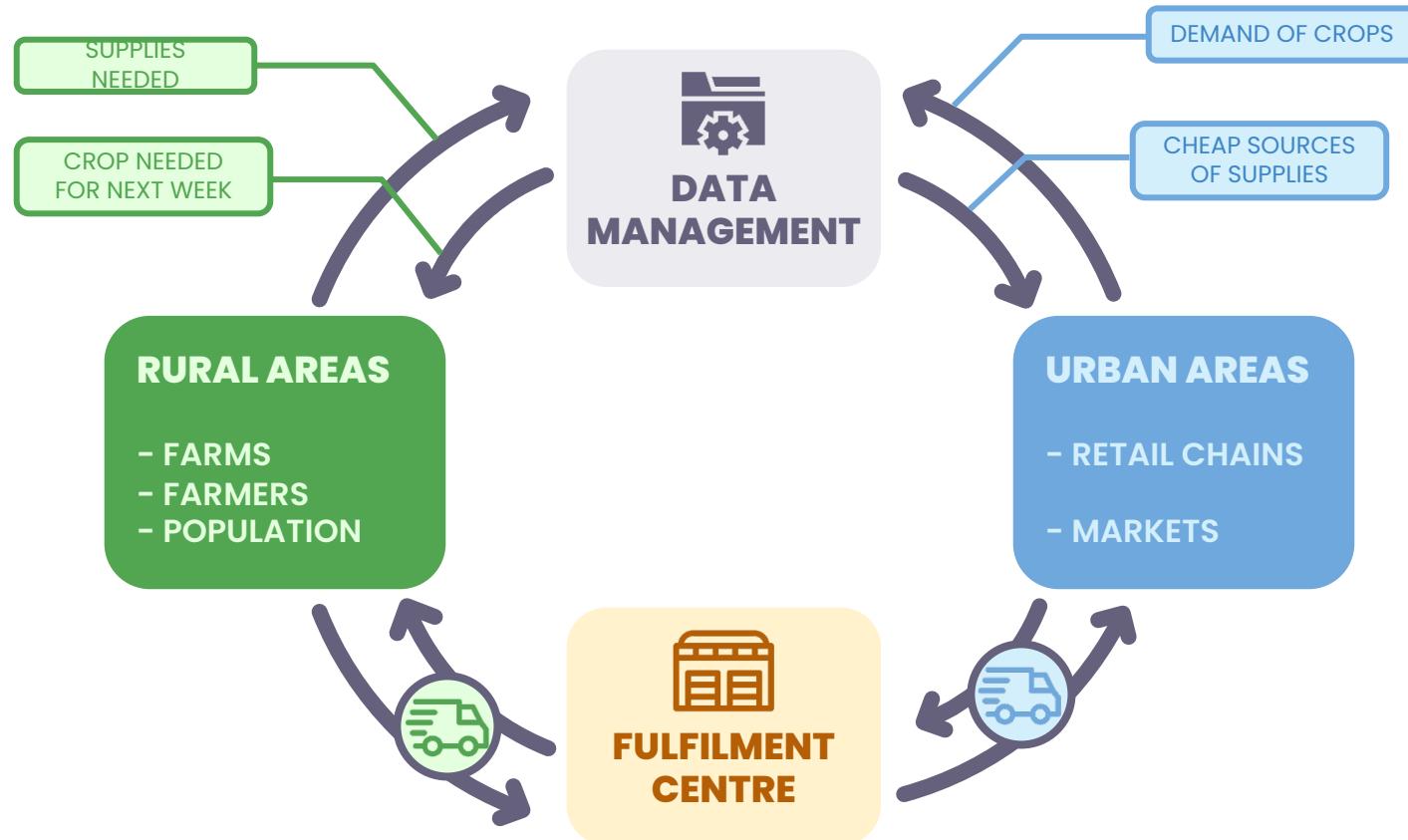
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Kaam ekdam Asaan

(New Supply chain)

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How It Works?

MATERIAL FLOW



Transport:

- Collaborative
- Optimized routes
- Milk run method



Warehousing

- Fulfillment facility
- Solar cold storage

INFORMATION FLOW



Creating awareness

- Practices
- Policies
- Prices



Demand

- Forecasting demand
- Sourcing cheap supplies

MONEY FLOW



Raising finance

- Initial investment
- Working capital



Marketing

- Dedicated retail channels
- Personal branding

Samadhan Ek, Fayde Anek!

3TK

| | FARMERS | RURAL PEOPLE | BANKS | RETAIL SHOPS | DRISHTEE |
|------------|--|---|---|---|--|
| ROLE | <ul style="list-style-type: none"> - Provide forecasted crops - Update crop status | <ul style="list-style-type: none"> - Manage FC - Manage flow of data/information - Transportation - Express demands | <ul style="list-style-type: none"> - Finance initial capital required - Finance working capital | <ul style="list-style-type: none"> - Provide demand forecast - Space | <ul style="list-style-type: none"> - Set up - Training - Manage - Expand |
| INCENTIVES | <ul style="list-style-type: none"> - More profits - Enable with tech - Information access - Reduced hassle | <ul style="list-style-type: none"> - Employment - Cheaper, greater variety of supplies | <ul style="list-style-type: none"> - Data of farmers - Data of retailers - Great returns | <ul style="list-style-type: none"> - Quality produce - Cheaper and fixed rates - Supply meets demand | <ul style="list-style-type: none"> - Alignment with vision - Profits |

What sets us apart?

- Tech framework for supply chain
- Enable tech adoption & accessories

2. TECHNOLOGY

- Managed by Rural people
- Transparent system

1. FOR RURAL, BY RURAL

- Cost effective cold storage
- Strategic fulfillment centres

6. COLD STORAGE & WAREHOUSING



5. MODERN METHODS

- A farmer first brand for consumers
- A trusted brand for farmers

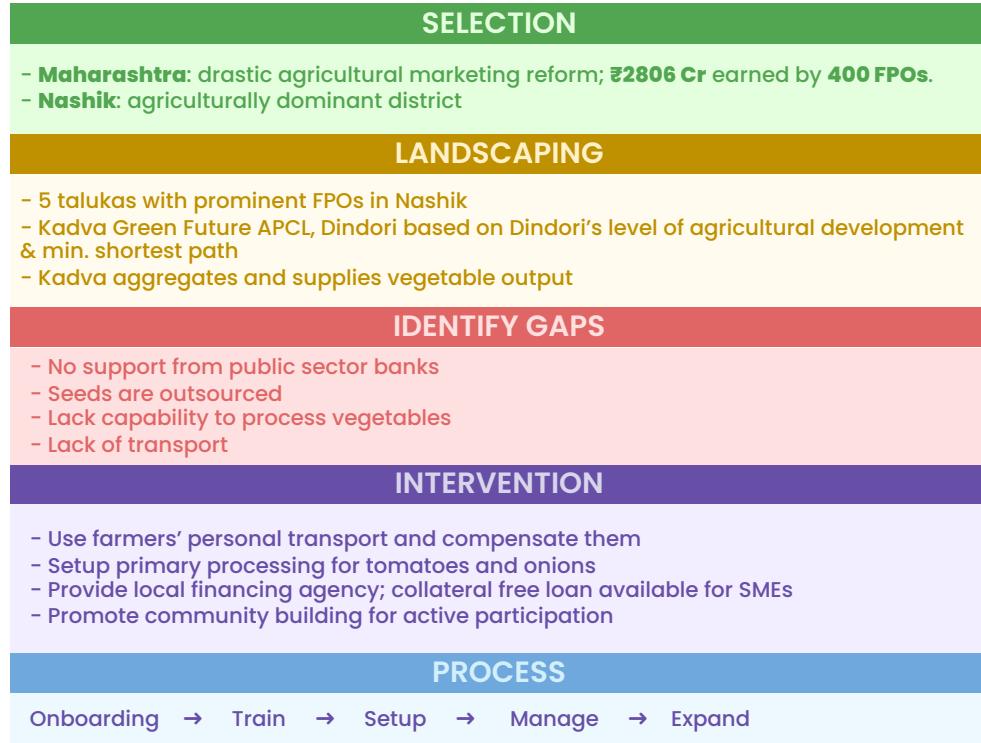
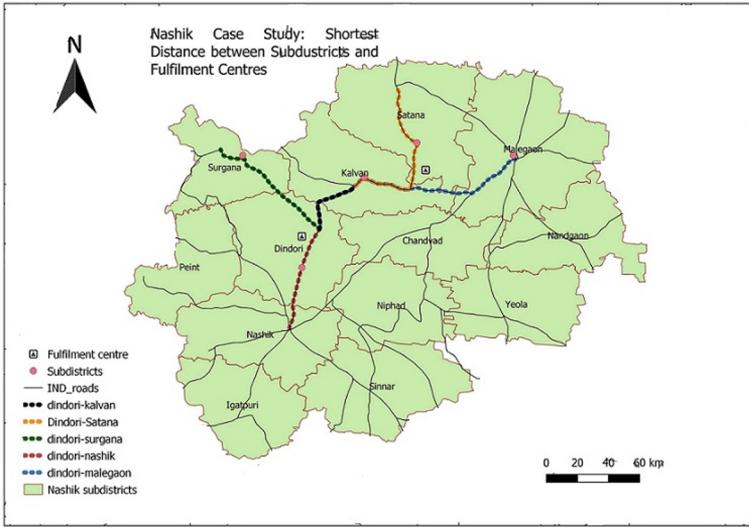
3. BRAND

- Assistance in trading
- Training of members

4. ADVISORY

- Organic and mixed cropping
- Integrate dairy, animal husbandry
- Polyhouse method

How do we go-to-market?



Financial Model

3TK

₹48L

Profit in 2nd year

₹12L

required in
Initial investment

30%

Increase in revenue for
district farmers

1 yr

To break even on
investment

*Detailed financial model in appendix

Why now?



Government targets
2x income by 2022 &
3 Farm Bills



Growth declined by
2.5% because of COVID-19



Agritech growing at
25% CAGR

Why us?



Community Building



Strong grassroot hold of
6k+ villages



Public and Private support

Thank You!

Questions?

Financial

- Breakeven period
- Cash flow schedule
- Fulfillment centre finances
- Agricultural Revenue
- Reverse Supply chain
- Transportation costs

Fulfillment Center

- Description
- Location

Technology

- Polyhouses
- Solar Cold Storage
- Mobile Application
- Expansion?(Blockchain)

Transportation

- Transport Method
- Milk Run Method

Others

- SWOT Analysis
- Market Forecasting
- Demand Forecasting

APPENDIX

How we did it, you ask?



Income Statement - I

| | Growth Rate | | 10% | | | | | | | | |
|------------------------|-----------------------|-----------|-----------|------------------|------------------|-----------|-----------|------------------|-----------------|-------|--|
| | Q4FY0 | Q1FY1 | Gro | Q2FY1 | Q3FY1 | Q4FY1 | Q1FY2 | Q2FY2 | Q3FY2 | Q4FY2 | |
| Revenue | Q4FY0 | Q1FY1 | Q2FY1 | Q3FY1 | Q4FY1 | Q1FY2 | Q2FY2 | Q3FY2 | Q4FY2 | | |
| Retailer Sales | 1,005,248 | 2,010,496 | 5,691,041 | 6,132,574 | 4,423,090 | 4,423,090 | 8,346,860 | 6,745,832 | | | |
| Credit Sales | 3.4% of farmer sales | 34,178 | 68,357 | 193,495 | 208,508 | 150,385 | 150,385 | 283,793 | 229,358 | | |
| Reverse Supply | 21.6% of farmer sales | 217,134 | 434,267 | 1,229,265 | 1,324,636 | 955,388 | 955,388 | 1,802,922 | 1,457,100 | | |
| Total Revenue | | 1,256,560 | 2,513,120 | 7,113,801 | 7,665,718 | 5,528,863 | 5,528,863 | 10,433,574 | 8,432,290 | | |
| <i>Total Revenue</i> | | | | | | | | | | | |
| Fundraising | | | | | | | | | | | |
| Debt financing | 1145000 | | | | | | | | | | |
| Grants | 105000 | | | | | | | | | | |
| Costs | Costs | | | | | | | | | | |
| Farmer Payment | 492,212 | 984,423 | 3,715,431 | 3,002,767 | 2,165,732 | 2,165,732 | 4,086,975 | 3,303,044 | | | |
| Transportation | 111,437 | 222,874 | 807,543 | 702,814 | 490,322 | 490,322 | 888,297 | 773,096 | | | |
| Fulfillment Centres | 69,250 | 138,500 | 277,000 | 277,000 | 277,000 | 277,000 | 277,000 | 277,000 | | | |
| Reverse Supply - costs | 206,277 | 412,554 | 1,167,802 | 1,258,404 | 812,079 | 859,849 | 1,622,629 | 1,311,390 | | | |
| IT services | 65,000 | 130,000 | 260,000 | 260,000 | 312,000 | 312,000 | 312,000 | 312,000 | | | |
| Miscellaneous | 47,209 | 94,418 | 311,389 | 275,049 | 202,857 | 205,245 | 359,345 | 298,826 | | | |
| Total Cost | Total Cost | 991,384 | 1,982,768 | 6,539,165 | 5,776,035 | 4,259,990 | 4,310,148 | 10,148,7,546,246 | 6,246,6,275,356 | | |

Income Statement - II

| Capital Expenditure | | | | | | | | | |
|------------------------------------|---------|---------|----------------|------------------|----------------|----------------|------------------|------------------|---|
| Fulfillment Centres | 1100000 | | | | | | | | |
| IT infrastructure | 150000 | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| EBIT | 265,176 | 530,351 | 574,636 | 1,889,683 | 1,268,873 | 1,218,715 | 2,887,328 | 2,156,934 | |
| Tax | 92,811 | 185,623 | 201,123 | 661,389 | 444,106 | 426,550 | 1,010,565 | 754,927 | |
| Interest | 103,050 | 89,856 | 61,443 | 33,356 | 0 | 0 | 0 | 0 | |
| | 0 | | | | | | | | |
| <i>Income without debt payment</i> | 146,602 | 315,703 | 312,071 | 1,194,938 | 824,767 | 792,165 | 1,876,763 | 1,402,007 | |
| | | | | | | | | | |
| | | | | | | | | | |
| Debt Schedule | | | | | | | | | |
| Principal outstanding | 1145000 | 1145000 | 998,398 | 682,695 | 370,624 | 0 | 0 | 0 | 0 |
| Principal paid | 0 | 146,602 | 315,703 | 312,071 | 370,624 | | | | |
| ending principal | 1145000 | 998,398 | 682,695 | 370,624 | 0 | 0 | 0 | 0 | 0 |
| Net Income | 0 | 0 | 0 | 824,313 | 824,767 | 792,165 | 1,876,763 | 1,402,007 | |

Agriculture - I

| Name | Price/quintal | Amount in quintals | Rs | Quarter of harvest | Assumption |
|-------------|---------------|--------------------|------------|--------------------|-----------------------|
| BAJRA | 2150 | 2445000 | 5256750000 | Q3, Q4 | Sep-Oct split equally |
| MAIZE | 1850 | 860000 | 1591000000 | Q3, Q4 | Sep-Oct split equally |
| RAGI | 3295 | 402000 | 1324590000 | Q3 | May-Sept |
| Tur (Arhar) | 6000 | 65000 | 390000000 | All throughout | |
| MOONG | 7196 | 100000 | 719600000 | Q1, Q2 | Mar-Apr split equally |
| Jowar | 2630 | 135000 | 355050000 | Q3, Q4 | Sep-Oct split equally |
| Paddy | 1878 | 702000 | 1318356000 | Q3, Q4 | Sep-Oct split equally |
| WHEAT | 1975 | 813000 | 1605675000 | Q1, Q2 | Mar-Apr split equally |
| GRAM | 5100 | 245000 | 1249500000 | Q1, Q2 | Mar-Apr split equally |
| Cotton | 5515 | 200000 | 1103000000 | Q1, Q2 | Mar-Apr split equally |
| Onion | 1000 | 2442000 | 2442000000 | Assume uniform | |
| Grape | 3500 | 700000 | 2450000000 | Assume uniform | |

Agriculture - II

| District | Total Area (km2) | % of GCA | GCA | |
|---|------------------|-----------|-----------|-----------|
| Dindori | 6128 | 64.01 | 3922.5328 | |
| Satana | 7502 | 42.32 | 3174.8464 | |
| Kalvan | 859.7 | 26.09 | 224.29573 | |
| Surgana | 821 | 49.62 | 407.3802 | |
| Malegaon | 1818 | 48.37 | 879.3666 | |
| | | | 860842% | |
| Our talukas propor Coverage within talukas | | | | |
| | | 1.08% | 5.00% | |
| | Q1 | Q2 | Q3 | Q4 |
| Quantity | 920.6 | 920.6 | 1667.7 | 1451.5 |
| Revenue | 1968846.9 | 1968846.9 | 3715431.4 | 3002767.1 |

Transportation

| To Fulfillment Centre | | | | | |
|---------------------------|---------------|---------------|-------------|-----------------|-------------|
| Route | Distance (km) | Load fraction | Total Load | Trucks | Fuel Cost |
| Satana-Dindori | 82.5 | 0.368807024 | 180.7479741 | 362 | 516664.5 |
| Kalvan-Dindori | 53.2 | 0.02605538356 | 12.76943628 | 26 | 23929.36 |
| Surgana-Dindori | 69.5 | 0.04732344822 | 23.19266401 | 47 | 56510.45 |
| Malegaon-Dindori | 113 | 0.1021518959 | 50.06343975 | 101 | 197444.9 |
| Dindori | 5 | 0.4556622483 | 223.3146955 | 447 | 38665.5 |
| From FC to Nashik | | | | | |
| Distance | 26 | | | Annual load | 490.09 tons |
| Load per truck | 1.5 | | | Truck capacity | 0.5 tons |
| Fuel efficiency per truck | 2 | | | Cost of fuel | 86.5 Rs/l |
| Number of trips per annum | 327 | | | Fuel efficiency | 5 km/l |
| Total cost (outbound) | 367711.5 | | | | |

Reverse Supply Chain

| Category | % of NAE | % from cities | Amount |
|--------------------|----------|---------------|--------------|
| Cereals & pulses | 19.88% | 40% | 8% |
| Fruit & vegetables | 7.82% | 20% | 2% |
| Household | 2.38% | 100% | 2.38% |
| Clothing | 4.28% | 90% | 4% |
| Footwear | 0.50% | 90% | 0% |
| Personal care | 2.73% | 90% | 2% |
| Electrics | 2.94% | 100% | 3% |
| Durable goods | 3.47% | 80% | 3% |
| | 44.00% | | 1818 24% |
| Agriculture | 100% | 20% | 20% |
| | | | Our talu |
| | AE | NAE | |
| Revenue factor | 50% | 50% | |
| Scaling factor | 24% | Q1 20% | Q2 |
| | Quantity | | 920.6 21.60% |

Information Technology

| Costs in INR | | | | |
|--------------------------|--------|--------------|---------------------|---------------|
| No of helpline employees | 5 | Employees | | Monthly costs |
| No of tech employees | 5 | | Helpline | 60000 |
| | | | Maintainence (Tech) | 125000 |
| One time investments | 150000 | Server rents | | 75000 |

Fulfilment Centre

| Setup Costs | | Running Costs | | | |
|-------------------------|---------------|-----------------------|----|---------|------------|
| Area | 4000 sqft | Employees | | | |
| Cost of construction | 100 rs / sqft | Manager | 1 | 14000 | rs / month |
| Cost of land | 100 rs/ sqft | Workers | 10 | 7000 | rs / month |
| <i>Total setup cost</i> | 800000 | | | | |
| Cold storage | 300000 | <i>Employee costs</i> | | 1008000 | |
| Total | 1100000 | <i>Utilities</i> | | 100000 | |
| | | Total | | 1108000 | |

Polyhouse

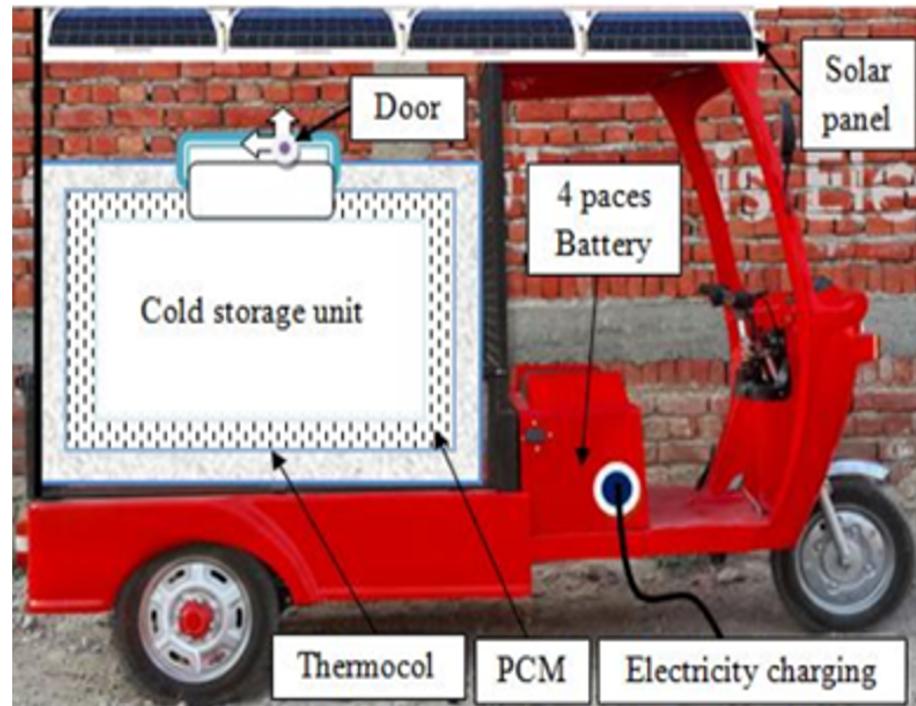
- Situated near the fulfillment center
- Grow fruit bearing crops till infant stage
- Hand over these crops to farmers to grow in their field
- Better quality fruits and more profit



Solar cold storage chamber

Solar Hybrid Mobile Multipurpose cold storage system

- Similar to vapour compression refrigeration system,, just additional part as an electric circuit for determining whether the temperature of the inverter in the mobile hybrid cold storage is greater than the first predetermined temperature, and an electric circuit for controlling a rotational speed of the compressor according to requirement.
- When the temperature of the inverter in mobile hybrid cold storage is greater than the first predetermined temperature, the electric circuit decreases the rotational speed of the compressor and vice versa



Solar cold storage chamber

Solar Adsorption Refrigeration cold storage system

- Initially, adsorbent is at low temperature TA and at low-pressure.
- Then heating of adsorbent, along with adsorbate.
- The collector is connected with the condenser and the progressive heating of the adsorbent, causes some adsorbate to be desorbed and its vapor to be condensed
- When the adsorbent reaches its maximum temperature, desorption ceases.
- Then the liquid adsorbate is transferred into the evaporator and the collector is closed and cooled.
- The decrease in temperature also induces the decrease in pressure.
- Then the collector is connected to the evaporator and adsorption and evaporation occur while the adsorbent is cooled.
- During this cooling period heat is withdrawn to decrease the temperature of the adsorbent.
- This cycle continued and provide the desired cooling



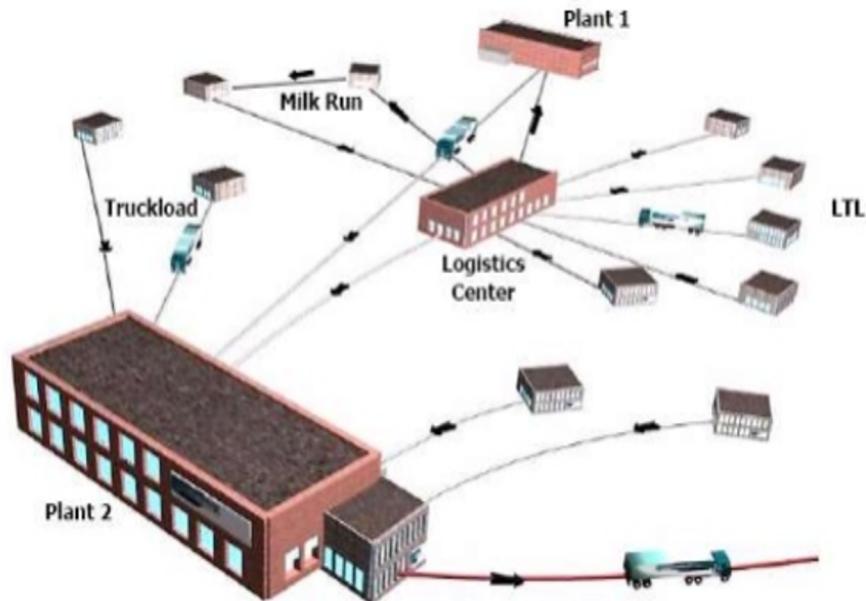
Cost comparison of two models

| S.No | Parameters | Solar Hybrid Mobile Multipurpose Cold Storage System | Solar Adsorption Refrigeration Cold Storage System |
|------|-------------------------------|--|--|
| 1 | Principle Used | Solar hybrid vapor compression refrigeration | Adsorption refrigeration |
| 2 | Total input power (Watts) | 1000 | 600 |
| 3 | Operation Time | 12 hrs | $\frac{1}{3}$ hr |
| 4 | Components that consume power | Motor + cold storage | Compressor |
| 5 | Coefficient of performance | 1.11 | 0.28 |
| 6 | Cost per day (Rs) | 72 | 2 |

Assume cost per unit is Rs 6.

Milk run method

- A delivery method used to transport mixed loads from various suppliers to one customer.
- One truck (or vehicle) visits the suppliers to pick up the loads for that customer every week.
- A reverse milk run method for delivering goods from farmers to fulfillment centres.
- The operators will follow pre decided routes, collect produce depending on their capacities and drop it off to the fulfillment centres.



Mobile Application

Allows farmers to sell crops, get soil and other agricultural insights, have credit history and allows customers to place and track orders.

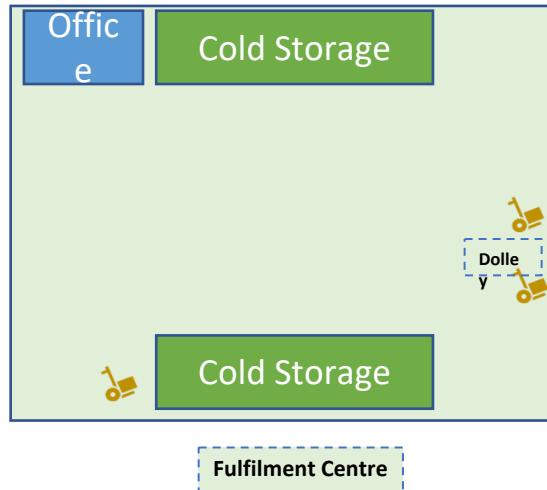


Fulfilment Centre

Placed close to major villages or towns to get access to trucks from the vicinity

Strategically placed to reduce the distance from the villages and the city

Transfer of produce from the trucks



Extra produce will be stored in the cold storage as buffer stock

It will be run by Rural Entrepreneurs as managers.

Transfer of produce and cold storage handled by rural workers

IT infrastructure in office to provide information about the supply chain

Locating the Fulfilment Centre

Set of customers (Villages) $C = \{1 \dots n\}$

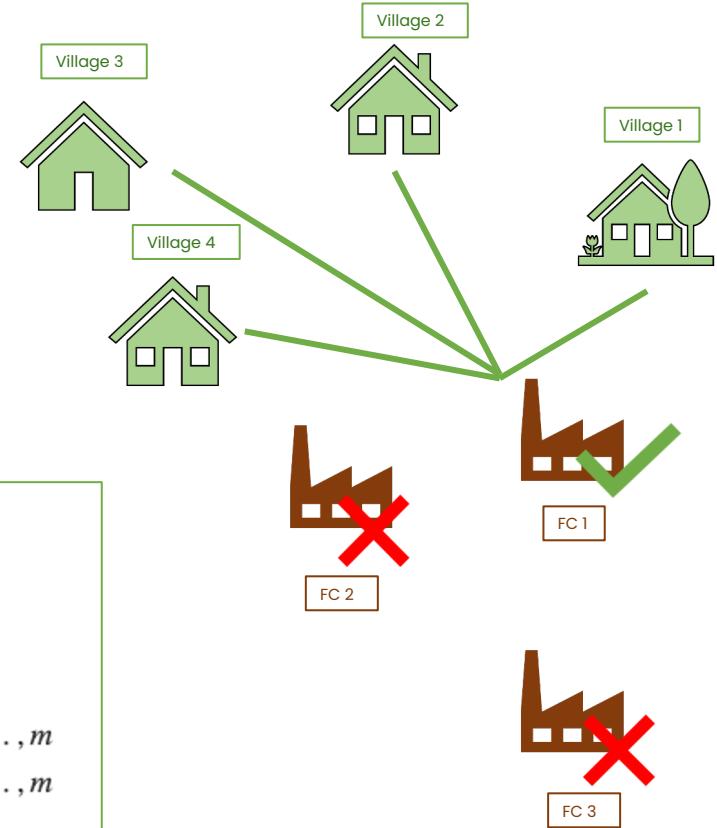
Set of possible Fulfilment centre $W = \{1 \dots m\}$ that could be built.

Cost function: transportation cost from a customer to a warehouse

Fixed cost associated with each warehouse if it is built

x is the selection of path between villages and fulfilment centre, y is the selection of the fulfilment centre

$$\begin{aligned}
 \min \quad & \sum_{i=1}^n \sum_{j=1}^m \text{transportcost}_{i,j} \cdot x_{i,j} + \sum_{j=1}^m \text{fixedcost}_j \cdot y_j \\
 \text{subject to} \quad & \sum_{j=1}^m x_{i,j} = 1 \quad i = 1, \dots, n \\
 & x_{i,j} \leq y_j, \quad i = 1, \dots, n \quad j = 1, \dots, m \\
 & x_{i,j} \in \{0, 1\} \quad i = 1, \dots, n, \quad j = 1, \dots, m \\
 & y_j \in \{0, 1\} \quad j = 1, \dots, m
 \end{aligned}$$

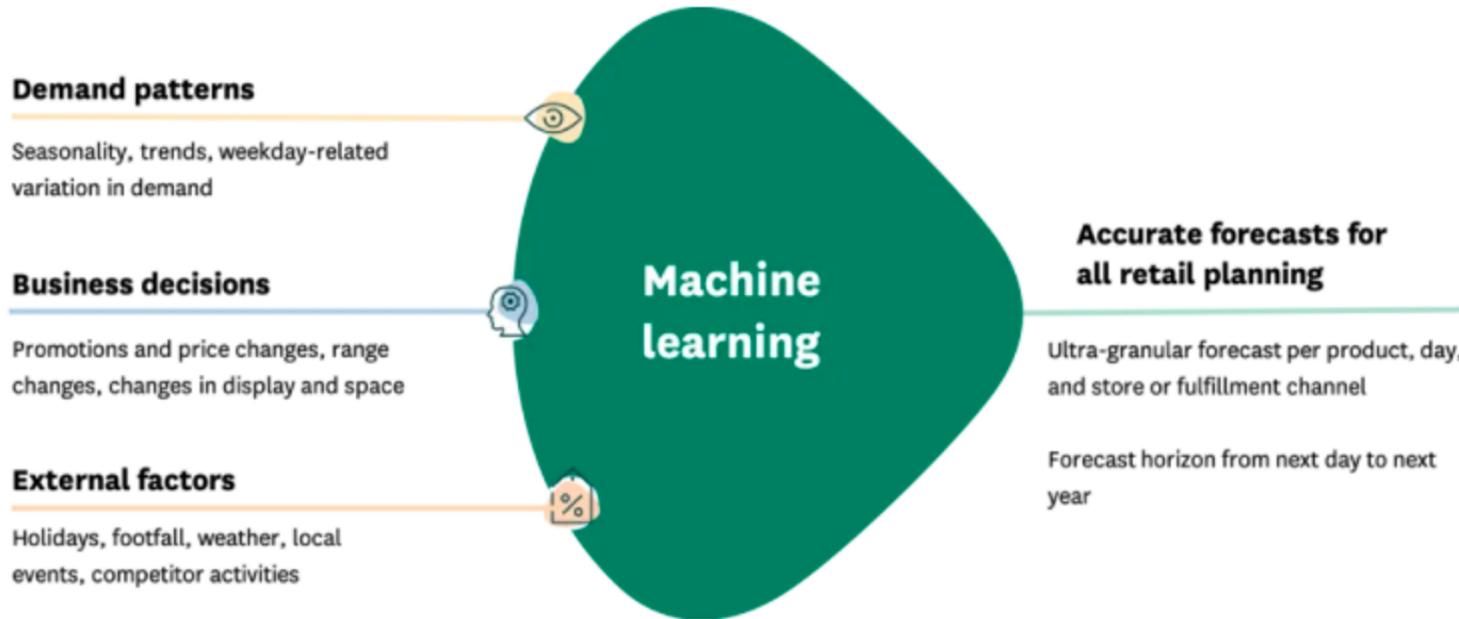


Demand Forecasting



- Store replenishment
- Inventory allocation, such as force-outs or scarcity allocations
- Delivery flow smoothing
- Distribution center replenishment
- Capacity management
- Workforce optimization
- Promotion and markdown optimization
- Sales & Operations Execution (S&OE)
- Assortment planning and store clustering
- Space planning and optimization
- Capacity planning
- Financial planning
- Sales & Operations Planning (S&OP)

Demand Forecasting



Raising Capital



Finance

Quantum of loan
(Min/Max):

Min: Rs. 50 lacs

Max: Rs. 10 Cr (higher limit allowed as per Bank's discretion)

Interest Rate: 9.65% onwards

Repayment Period: 66 - 120 months.

Repayment in EMI basis
Upfront Fee : 1% of the limit



Loans

Quantum of loan:

SHISHU: Upto Rs.50,000

KISHORE: from Rs.50,001 to Rs.500,000

TARUN: from Rs.500,001 to Rs.10,00,000

Interest Rate: 8.05% onwards

Repayment Period: 3 - 5 yrs (moratorium upto 6 months)

Repayment in EMI basis
Upfront Fee : Nil - 0.5%



NABKISAN FINANCE LIMITED

A Subsidiary of NABARD
(Formerly Agri Development Finance (Tamilnadu) Limited)

Loans to FPOs

Quantum of loan:

Min: Rs. 3,00,000 for WC

Min: Rs. 5,00,000 for Term Loan

Max: Up to 6 times of the net worth of the FPO or Rs.1 crore

Interest Rate: 15% onwards

Repayment Period: WC- 1 year and term loans- 3-5 years

Repayment in EMI basis
Upfront Fee : 0.5%



Agriculture Loans to Farmers



Crop Loan



Term Loan



Farm Mechanization Loan



Allied Activities Loan

- Interest Rate: 7.5% onwards
- Upfront Fee : 0 - 4%



3ΠK



SWOT
ANALYSIS