

# આસાન કિસાન



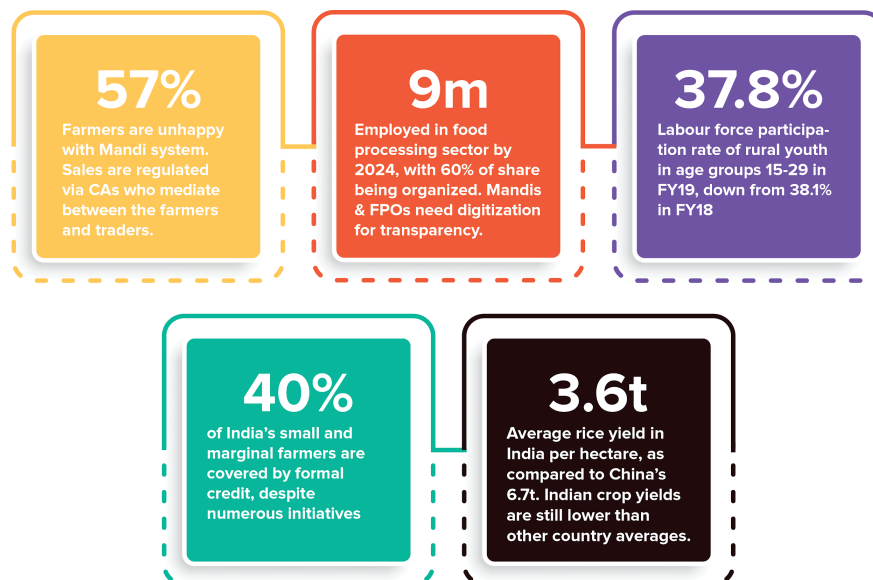
## Problem Statement:

Currently farmers face a shortage of warehouses and cold storage systems, unfair pricing for their produce, and low profitability. These issues, caused by a huge system of intermediaries, eventually lead to migration of rural youth to urban areas for better opportunities. They also face issues in procuring loans from banks, stemming from the lack of a credit history. These issues can collectively be solved through improvements in agricultural technologies to enhance farmer capacities, providing them incentive to develop their livelihood within their village.

### Defining the issues

1. Wastage of perishable goods due to lack of Warehouses/Cold storage.
2. Negligible profits due to lack of cold storage facilities
3. Unfair pricing for their produce and Limited reach of Mandis
4. Multiple intermediaries and lack of transparency and traceability
5. Rural youth is unemployed and unskilled
6. Lack of credit history of farmers
7. Poor Farming Techniques and resources and Water shortage for irrigation

### Data Supporting Issues



Major revelations were made about harvest and post-harvest losses in a report by ICAR/CIPHET revealing troubling indicators

### Hypothesis (To be tested by primary research)

1. Farmers are looking for fair prices for their produce and would prefer to not travel large distances to sell them
2. Farmers would require an easy way to raise credit to buy equipment, pesticides, fertilizers etc
3. Financial Institutions require a strong mechanism to identify the credit worthiness of the farmers
4. Youth are looking for better-paid jobs & want to work in the supply chain

## Solution Overview

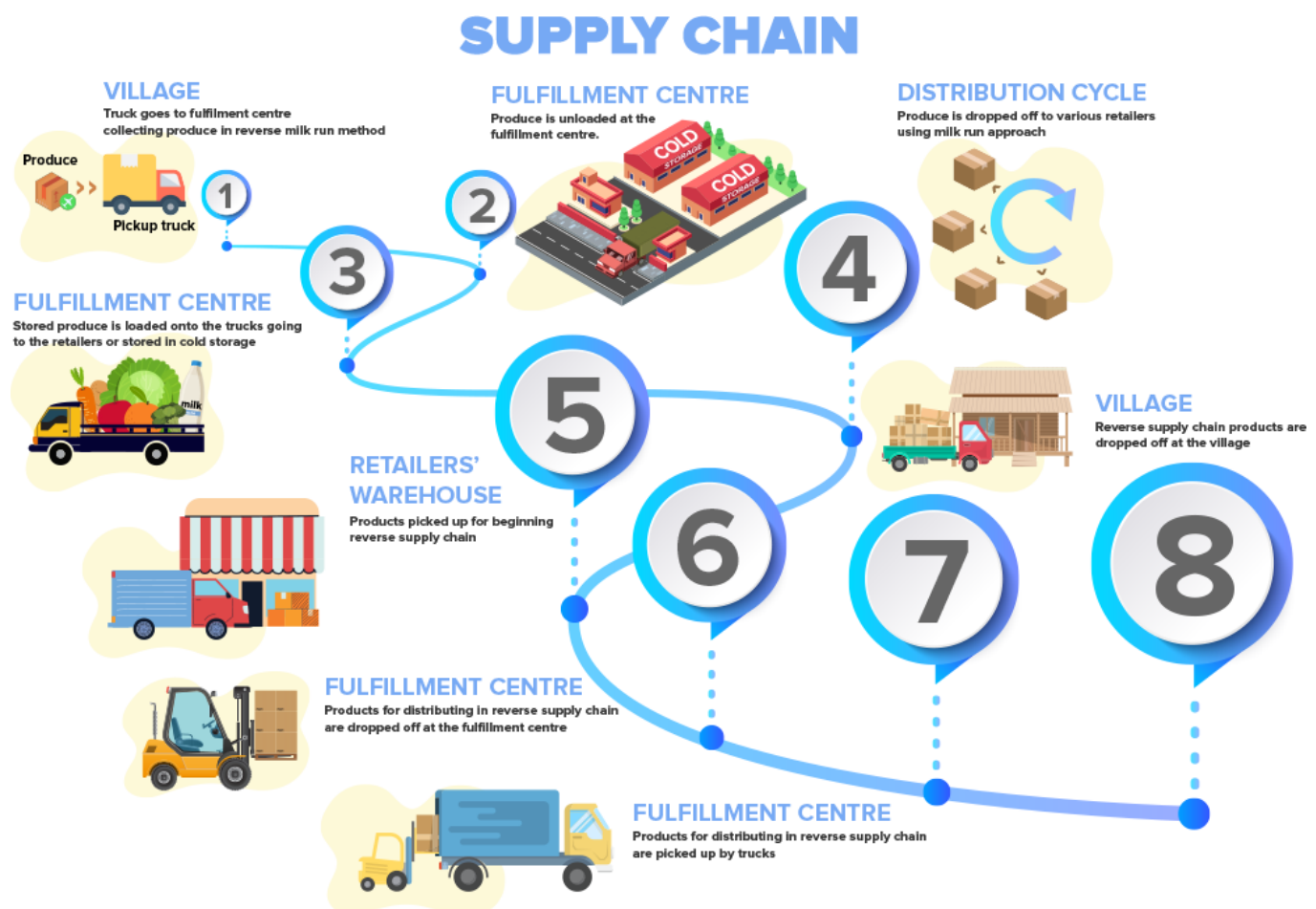
We propose the creation of a robust supply chain that is managed and operated by rural people with the help of the framework provided to them. The framework includes all processes, logistics as well as data that is used to provide them credit-based loans. In order to make the framework more effective, various value-added processes are added to the framework that includes the use of alternative ways to generate income from waste like poly houses, reverse supply chain, etc.

### Stakeholders

Stakeholder	Roles
<b>Farmers</b>	<ul style="list-style-type: none"> <li>•To sell produce and get credit scores using the platform</li> <li>•Use the platform to educate themselves about the best practices in Farming</li> <li>•Get pesticides, fertilizers and other products through reverse supply chain</li> </ul>
<b>Urban retailers</b>	<ul style="list-style-type: none"> <li>•To buy produce and obtain credit scores through the platform</li> </ul>
<b>Truck Drivers</b>	<ul style="list-style-type: none"> <li>•Transport produce and other products across the supply chain</li> </ul>
<b>Fulfillment center Employees</b>	<ul style="list-style-type: none"> <li>•Unload and load produce and other products in the trucks using dollies</li> <li>•Place excess produce in the cold storages and manage its settings</li> </ul>
<b>Fulfillment center Management</b>	<ul style="list-style-type: none"> <li>•To manage operations of fulfillment centers and mapping the supply &amp; demand</li> </ul>
<b>Financial Institutions (Banks and NBFCs)</b>	<ul style="list-style-type: none"> <li>•Using the credit scores generated and data collected to allot a suitable credit line to farmers and retailers to provide loans</li> </ul>
<b>IT Service Provider (App development + Analytics)</b>	<ul style="list-style-type: none"> <li>•Development and Maintenance of the application</li> <li>•Data analysis to optimize logistics and also find credit scores</li> </ul>
<b>Rural Kirana Stores</b>	<ul style="list-style-type: none"> <li>•Provide information about the demand and receive products from city</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>•Provide support and subsidies through Skill India, and Digital India initiatives</li> </ul>

## Establishing the Supply Chain Framework

A framework is developed which provides the complete solution to the rural right from producers to retailers, by eliminating the intermediaries and also providing them employment in villages and stops migration



## Logistics (Transportation)

Our objective is to minimize the transportation cost and delivery time. Transportation costs grow with the number of vehicles and the type of vehicle (such as trucks, tempos and so on). Delivery time involves optimizing distance between collection points and quality of routes chosen by the vehicles. The delivery time data can be collected and optimized via the usage of **Google Maps API**.

Currently, we are considering a reverse **milk run method** for delivering goods from farmers to fulfillment centres. The operator will follow their pre-decided routes, collect the produce depending on their capacities and drop it off at the fulfillment centres. This allows more frequent collection of materials and collect supplies from more than one area. Logistics companies like Blackbuck can be brought in to deal with setting up the logistics chains.

## Fulfilment Centers

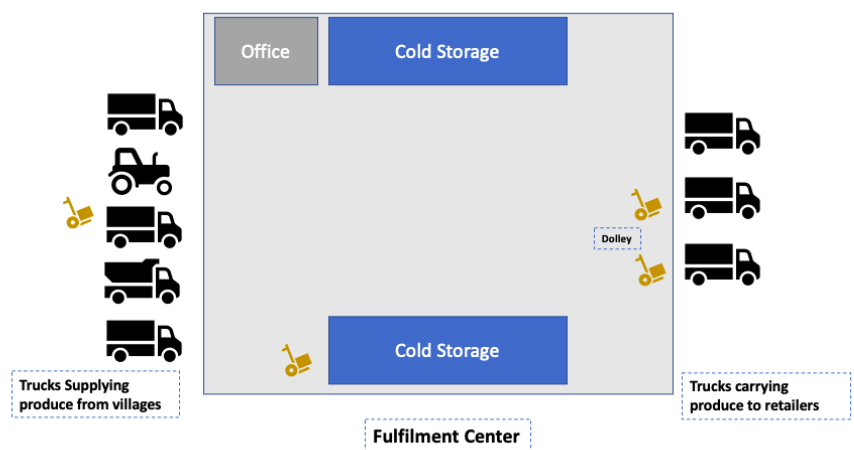
The fulfillment center is the physical location that will be built to cater to the demand and supply gap along the value chain. The fulfillment centers would be strategically placed to reduce the distance from the villages supplying produce and the city. This can be done by optimizing the location of the warehouse through **linear programming**. Moreover, the fulfillment center will be close to major villages or towns to get access to trucks from the vicinity. Loading and Unloading of produce from trucks will happen in the fulfillment center. The produce will be transferred by making use of dollies for fast and easy transfer. The extra produce will be stored in the cold storage in the fulfillment center as buffer stock.

The fulfillment center will be run entirely by **Rural Entrepreneurs**. The work involving the transfer of produce and managing the cold storages will be handled by the low-skilled rural people.

## Reverse supply chain

We plan to implement the reverse supply chain to reduce the insufficient utilization of resources owing to the fact that the trucks return back without any load. This reverse supply chain would involve local village vendors such as kirana owners

who are in constant need of products to sell to local villagers. They would have an option placing an order on the app which will be collected via the trucks delivering the crops to the cities on their way back to the fulfillment center. This would also be used to cater to the farmers in the need of fertilizers and pesticides.



## Agricultural Improvement Technologies

### Polyhouse

Def: Polyhouse is a house or a structure made of translucent material like glass or polyethylene where the plants grow and develop under controlled climatic conditions.

We plan to develop a polyhouse with the fulfillment center. The polyhouse will grow plants (Mostly fruit bearing ones) till the infant stage enough to be later planted on fields by farmers. Giving them proper care earlier will ensure that they can give better yields when replanted on the fields. This will enable farmers to grow better quality fruits at their orchard and get more profit.



### Solar cold storage systems

Solar as a primary energy source is sustainable and attractive because of its universal applicability, low environmental impact and low or no fuel cost. Solar adsorption refrigeration devices are of significance to meet the needs for cooling requirements such as air-conditioning, ice-making and medical or food preservation in remote areas. They are also

noiseless, non-corrosive and environmentally friendly. Food transport refrigeration is important as it maintains temperature during transportation and also reduces CO<sub>2</sub> emission.

### 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	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

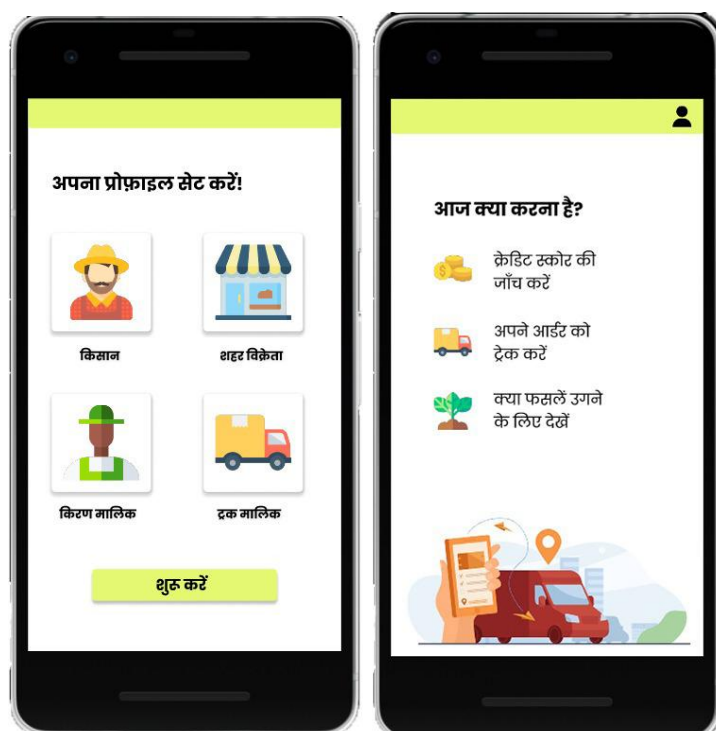
Assume cost per unit is Rs 6.

### Application

This app (prototype) integrates a centralized mechanism that allows farmers, kirana owners and village shop owners, city vendors and truck drivers to place orders, track orders in real time, check the credit score and help farmers with what crop they should grow.

The primary components will be as follows:

- **Buy:** This will enable the customers to buy the products which farmers have added to sell
- **Sell:** With this, farmers can sell their products and add the quantity and type of product they have
- **Tracking:** This will help the customers to track where has their order been reached
- **Soil and Agriculture Data:** This will contain the database of each farmer's agricultural data such as soil type, crops they grow, fertilizers they use (organic/inorganic), etc.
- **Credit History:** This is a kind of credit score by which they can get a loan. It will indicate how much a farmer's capability to pay back the loan if they are given one.



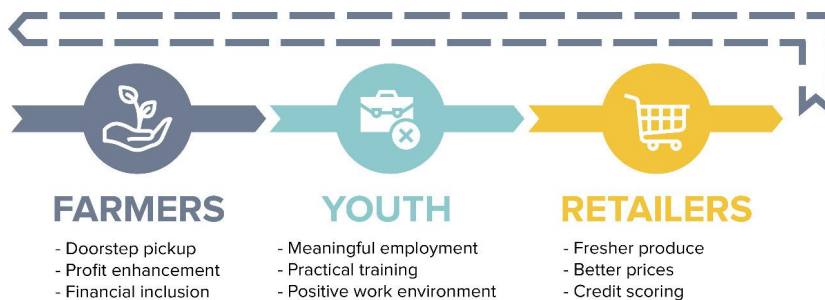


## Drishtee's Role



## Value Proposition

*Creating value at every node across the chain!*



Aasaan Kisaan envisions a profitable, self-sufficient and innovative **two-way** agricultural value chain operated **entirely** by rural stakeholders, by leveraging data-driven insights, key partnerships and Drishtee's significant executive experience.

## Our Team

