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India small farmers needs is: Mini Cold Storage

Potato farmers in Gujarat are at their wits' end after incurring a loss of nearly Rs 500 crore this year. All over India the losses are 44,000 crore (one crore=160,000 USD) total loss of 10 Billion USD per year. The reason for this huge loss is said to be the shortage of proper cold storages for the bumper potato yield, forcing farmers to disburse the perishable commodity at lower cost.

With the Gujarat government not offering any subsidies, the farmers will be forced to sow lesser potato crops, thereby disturbing the entire production cycle this year.

P C Chhib, the president of the Gujarat Cold Storage Association, said: "There should be a proper cold storage facility for potatoes, so that the commodity can be preserved for at least six months. While the Bihar government has set up cold storage facilities in each taluka (county), Gujarat has just 200 cold storage facilities."

Ganpat Kachhava, head of Deesa Food Cold Storage Association, said: "North Gujarat, including Deesa, Rajkot, Jamnagar, Bhavnagar and Veraval, has suffered a loss of around Rs 300 crore."

Likewise, Anand, Ahmedabad, Surat, Rajkot, Jamnagar, Bhavnagar, Vapi and Valsad, have incurred losses of Rs 200 crore. There are just 62 cold storages for potatoes alone in Deesa, where farmers are now selling the produce at lower prices, he added.

He further said: "Earlier, the price for each potato gunny bag was around Rs 300. Now it is being sold at Rs 200."

Shanker Mali, the president of the Deesa Vegetable Association, said: "Interestingly, farmers who have orders from McCains India and Pepsi are not at a loss, as they were given orders at the beginning of the year. Deesa gets maximum orders for potatoes from Mccains India and Pepsi."

He added: "Farmers had been reaping profits for the last two years due to a good demand as well as favorable weather. Therefore, this year they invested more, but it did not work out. The farmers are worried as the state government has no special subsidies for the emerging problem, which might disturb the entire cycle of potato production. The loss has made them extra cautious and they are not investing much in potato farming. This might lead to a rise in the prices of potatoes."

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India small farmers needs Mini Cold Storage

President Farmers Association, Kumbakonam farmers market:
"Earlier, the vegetables which are kept here for the next day became dry and we sold them for half their price. The rest became dry and turned into waste. We need keep the remaining vegetables in the cold storage unit. The next day we are able to get profit and for our customers too it is very beneficial. On behalf of the farmers market and also on behalf of the customers, We are in need of this Mini Cold Storage unit"

The Need of the Hour:

Food Security is a major concern for any nation, especially for a developing country like India. Ensuring food for all', is a pre-requisite for the stability of any democratic Country, like India. Recognizing this, the Government of India initiated a number of food security measures.

Way back in the 1970's, the Green Revolution in India ensured adequate food production. This was followed by another major initiative in food security – the Public Distribution System. A massive network of public distribution stores ensured fair and equitable distribution of food to all sections of the society. More value added nutritive food security initiatives like the White Revolution for adequate production of milk and eggs and targeted initiatives such as Free Noon Meal Schemes, then followed. Still 225 million Indians are mal-nourished with 45% of them being children who are under- nourished and suffering from mal-nutrition problems. Paradoxically, of the 180 million tons of vegetables and fruits produced every year in India, 25 to 30% is wasted. This is a whopping $6 billion vegetable wastage. India has only 5,386 cold storage facilities which cater to a mere 13% of the requirement. There are large scale cold storage units in India, meeting the requirements of large farmers and there are home refrigerators which cater to domestic purposes. A sea of small farmers is completely left out.

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India small farmers needs
Mini Cold Storage

A Perennial Problem for Small Farmers:

In tropical climate conditions, where day time temperatures are high, the wastage of vegetables and fruits are huge, cutting into the income levels of farmers. This problem is even more intense among the small farmers, who cannot afford the usage of large cold storage facilities. These results in huge wastage of vegetables and also adverse loss of value, leading to colossal loss of revenue for the small farmers.

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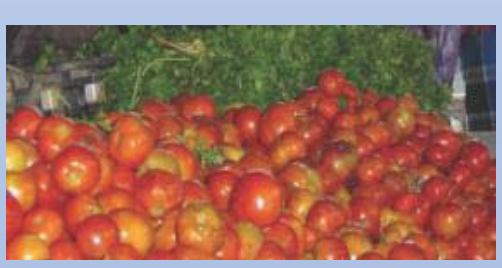
The objectives of the project are:

Reducing the wastage of vegetables, by 50% or more. In the vegetables and farmers markets. Incubating Public-Private-Partnership units with the entrepreneurial drive of trained youth, in running the proposed cold storage units as a viable business, thus creating new jobs and project sustainability l Developing a successful market-focused development model, for enabling faster replication of the project Initiatives, across the country and elsewhere



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India small farmers needs is: Mini Cold Storage

Mini Cold Storage Units, with Senergy solar cooling,
Bringing Immense Relief to the Farmer's Community

Under this Development Market Place supported project, to suit the requirements of the small farmers. These Mini cold storage units are designed as sharable common facilities which are useful to the small farmers and to restore few dollars more to their hands.

Earlier, to understand the small farmer's requirements, we had conducted a series of structured surveys, interviews and interactions with farming communities, government personnel, technologists, market managers and other interest groups, to analyze and understand the problem and field requirements of farmers markets.

To suit the seasonal conditions and vegetable storage requirements, we have designed modular cold storage chambers of varied sizes in each cold storage unit. By having modular construction, in the lean periods and in winter the farmers can operate only one chamber and thus reduce the power cost. Humidifiers with automatic sensors were also installed in each chamber to maintain the freshness of the vegetables.

Under the Development Marketplace project, we have agreement with local company to train semi-urban and rural youth in Air Conditioning and Refrigeration Technology and Business skills for ensuring effective operation of the Mini Cold Storage units. On-site technical training will also provided to the youth at the installed mini cold storage units. With these Development Marketplace supported Mini Cold Storage units, the small farmers are able to bring and sell more vegetables everyday in the markets and are able to restore more than 50% value of the vegetables which, otherwise would have gone as waste without the cold storage facilities. Thus the Cold storage units designed and will providing the small farmers increased income levels while reducing the wastage of vegetables. Mass replication of this innovative initiative shall create wealth for many more small farmers and also new jobs for the rural unemployed.

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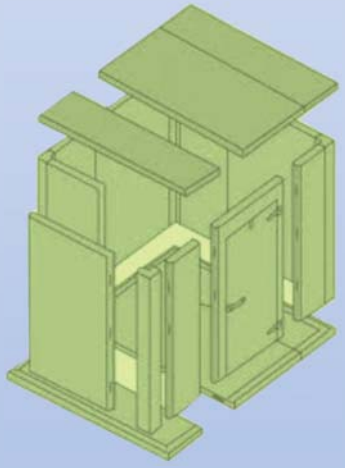
SENERGY SOLUTION FOR MINI COLD STORAGE

Different type and sizes of walk in coolers

3X3m

2X2m



3X4m

2X3m

Solar Cooling

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Different type and sizes of walk in coolers

There are 2 types of solar cooling system

Type-1 Solar PV

Solar PV is standard cooling system that runs on electric source.
The solar system is off Grid which allow you to operate anywhere.
We also have a new technology of ON/OFF Grid system, that allow
You to operate on the sun when it available and switch to the Grid
When there is no Sun, the advantage is that you don't need Batteries.

Type-2 Solar Thermal

Cooling system that utilizes the sun in all its aspects, light, heat and radiation. Air conditioner is not running by compressor and it is classified as a cogeneration operated unit. System that uses the light for PV cells, the heat to stress pressure, and UV light to increase pressure for condensation.

How does absorption cooling work
Absorption cooling functions according to two main physical principles: Vaporizing water that takes away thermal energy (= generates cooling) Lithium bromide (Li-Br) as a highly hydrophilic solution absorbs water easily
Diluted Li-Br solution is pumped from the Absorber (Abs) to the Generator (Gen) where it is heated to boiling point by the heating medium circulating through the Gen heat exchanger.