

## **RESULTS- STUDY OF COLD STORAGES**

SFAC Scheme for Agribusiness Development provides interest-free Venture Capital to setup agribusiness projects and Project Development facility to assist individuals, producer groups/organizations for preparation of detailed project reports. The Scheme envisages a single window approach for extending Venture Capital along with bank term loan/working capital to the beneficiary. SFAC implements the Scheme in close association with nationalized banks, SBI & its subsidiaries, IDBI, SIDBI, NABARD, NCDC, NEDFi, Exim Bank, RRBs and State Financial Corporations.

It was visualised that the initiatives under the Scheme will improve farmers' income and their engagement in the market. Increased income will be realized, by means of decrease in post-harvest waste, resulting in increased sales and incomes for the small farmers, crop diversification and adoption of better farming practices. It will facilitate emergence of a viable business model run by private entrepreneurs especially agricultural graduates and other rural youth. In the long run, these initiatives will be addressing the broader national issue of food security, by reducing post-harvest losses across the country.

This study of cold storages, assisted under the VCA Scheme of SFAC, was undertaken with a view to evaluating the performance of the Scheme, during the XII Plan Period (2012-2017). The study covered 5 districts selected from three States viz. Uttar Pradesh (2), Maharashtra (2) and Gujarat (1). It entailed evaluation of project under cold storage scheme and assessment of the performance of the scheme at various levels as well as a evaluation of the roles of stakeholders of the project, the constraints encountered by them and to also suggest on the potential for further financing on such projects in these 5 districts.

The study has covered a total of 192 samples, which included 40 cold chain units and 120 backward linked producers / farmers (@3 farmer producer per sample cold chain unit) in the selected 5 districts. The list of 40 units was provided by SFAC, that were to be covered in the five districts identified for the study. The study adopted multiple research methods to accomplish its objectives. Both qualitative and quantitative methods were used and made to build on each other, facilitating triangulation of findings.

### **1. Physical and financial performance of the scheme:**

As on 31.03.2017, 426 Cold Storage projects were extended Venture Capital Assistance to an extent of Rs.162.20 crore. Around 80 % projects were sanctioned during XII FYP period. The average Venture Capital Assistance was Rs.38.07 lakh with minimum assistance of Rs.2.5 Lakh sanctioned for a unit in Pune, Maharashtra,

while a maximum of Rs.300 Lakh extended for a unit in Solan, Himachal Pradesh. Among states, maximum projects (38.03%) were sanctioned in the state of Uttar Pradesh, followed by Maharashtra (18.54%), Gujarat (15.73%) and Haryana (7.04%). Bank-wise distribution of project syndicates that, 22 commercial banks & 04 other banks have sanctioned projects under VCA Scheme. Maximum number of projects were sanctioned by Bank of India (50), followed by Canara Bank (50) and Punjab National Bank (48).

## **2. Gap in cold storage space**

- i. Production profile of horticulture crops:** Among these five districts, Banaskantha has a more diversified profile of vegetable crops as well as the highest total production (23.25 Lakh MT), followed by Agra district (17.52 Lakh MT). Hathras mainly produce potatoes and some Okra, whereas, in Nashik, tomatoes consist above 95 per cent of total vegetables produced.

Among fruit crops, Nasik has more diverse fruit crops, as well as the highest quantity of fruit production (2015-16), i.e. 19.67 Lakh MT comprising of 12.37 Lakh MT of grapes and 7.29 Lakh MT pomegranates and some strawberry. Pomegranate was the single most grown fruit crop in Banaskantha (1.01 Lakh MT) and grape was the largest grown fruit crop in Sangli (6.11 lakh MT).

- ii. Consumption profile of horticulture crops:** Important vegetables raised and consumed in the districts include okra, tomato, cabbage, cauliflower, carrot, peas, onion, potatoes, brinjal and beans. Among the five districts, Agra has the highest annual consumption of vegetables (3.29 Lakh MT), followed by Nasik (3.26 Lakh MT) and Banaskantha (1.91 Lakh MT).

In respect of fruit crops, Nasik tops among the five districts (with 35,474 MT) in annual fruits consumption, followed by Agra (16,266 MT), Sangli (12,527 MT), Banaskantha (9,073 MT) and Hathras (4,801 MT). Major fruits consumed in the districts include apple, mango, orange, grapes, pineapple and pears.

- iii. Requirement of cold storage space:** Among vegetables, the major items raised in the respective districts, such as potato, okra, tomato, cabbage, cauliflower, carrot, peas, beans, capsicum and in respect of fruits, apple, orange, grapes, pears, pomegranate, strawberry were considered for assessment.

Based on certain assumptions on production period, storage cycle and marketable surplus, this study estimates that total requirement of cold storage space for vegetables in Agra is 13,26,924 MT, for Banaskatha 14,52,364 MT, for Hathras 11,46,532 MT, for Nasik 6,269 MT and for Sangli 1146 MT, respectively.

Being a major producer of grapes and pomegranates in the country, Nasik requires 1,10,727 MT cold storage space for fruits, followed by Sangli (52,093 MT), Banaskantha (1207 MT), Agra (1048 MT) and Hathras (306 MT).

**iv. Available cold storage space:**

Among the five sample districts, Agra has the highest cold storage space of 20,91,247 MT, followed by Banaskantha (14,000,00 MT), Hathras (12,13,627 MT), Sangli (74,642 MT) and Nasik (61,593 MT).

- v. Gap:** In case of Agra, total available cold storage space is 20.9 lakh MT, which is higher than the estimated requirement of 13.27 lakh MT for the district. Similarly, there is excess storage space around 66,790 MT available in Hathras. Despite higher availability of cold storage space, most of the cold storages in these districts are being operated at 100% capacity, because large number of farmers from adjacent districts in Aligarh and Agra Divisions prefer to store their produce in these cold storages. Trade benefits, better quality storage and past-relationship etc. are among the major reason behind this trend.

In case of Sangli, there is surplus cold storage space of 21,402 MT available. However, this additional cold storage space is being used to store turmeric and raisins arriving from Vijayapura, Bagalkot, Belagavi, Hubli districts of Karnataka and Nizamabad district of Telangana.

In order to stock increasing production of potatoes and pomegranate in Banaskantha district, the district needs an additional 53,571 MT cold storage space. Similarly, Nasik needs an additional cold storage space of 55,404 MT space to meet the estimated storage need for perishable horticulture commodities produced and consumed in the district.

### **3. Observations of the study**

#### **A. Profile of cold sample units**

- i. Storage capacity:** The average cold storage capacity of assisted units varied significantly. It was 160 MT in Nasik whereas in Hathras, the average capacity of the units was 9410 MTs. Similarly, the average storage capacity of units in Agra, Banaskantha and Sangli were 7502 MT, 7181 MT

and 2111 MT respectively. The ratio of total capacity of the unit and SFAC assisted capacity are the highest in Banaskantha (99.5%), followed by Sangli (98.8%), Agra (92.7%), Nasik (92.2%) and Hathras (64.7%).

- ii. **Commodities handled:** Most of the units deal with a single produce/commodity only. All the sample units covered in Agra, Hathras and Banaskantha deal with potatoes, Nasik based units deal with grapes and Sangli based cold storage units deal exclusively with raisins.
- iii. **Storage and allied services offered:** The study observed 80% units were offering only the cold storage facilities. Of the total 40 units studied, only 15% had grading and sorting facility; 17.5% had pre-cooling infrastructure and 2.5% units had ripening unit.
- iv. **Other services offered by cold storages:** In addition to the cold storage and allied services, 71.6% sample units provided pledge finance to the farmers. The units (27.5%) also provided transportation facility either by linking farmers/traders to logistic service providers or with the self-owned logistic facilities. Among 40 sample units covered under the study, 45% (or 18 units) provide necessary arrangement to link farmers with the markets through suitable traders.
- v. **Project cost:** Average Project Cost of the units assisted under VCA scheme of SFAC was the highest in case of Banaskantha (Rs. 601.4 lakh), followed by Nasik (Rs. 407.8 lakh), Agra (Rs.349.2 lakh), Hathras (Rs.341.2 lakh) and Sangli (Rs.235.7 lakh). As all the sample cold storages based in Nasik handle grapes, requiring specialized infrastructure, this district had the highest project cost per metric ton (Rs.2,75,540/ MT) among the 5 districts.
- vi. **Duration of project completion:** Average duration of project completion was 9 months for the units covered in these Agra, Hathras and Banaskantha districts. However, average project completion period was 10 months in Nasik and 11 months in Sangli.
- vii. **Business Model:** 70% of the sample cold storage units were rental business models, whereas 5% were captive models and remaining 25% followed mix business model.

## **B. Financial performance of cold storage units**

- i. **Annual turnover:** Average annual turnover was found to be the highest for grapes based cold storage units, i.e. Rs.123.6 lakh, followed by potato based cold storage units (Rs.102.1 lakh) and raisins based cold storage

units (Rs.58.5 lakh). There has been a rising trend in annual average turnover in the last three years.

- ii. **Profit:** Average profit of sample units more than doubled, (from Rs.26 lakh to Rs. 57.1 lakh) during 2014-15 to 2016-17.
- iii. **Expenditure:** As most of the cold storage units covered under the study were established after 2012, a large part of annual cost (37%) was incurred by financial expenses such as repayment of term loan. Major operational expenditure in running a cold storage unit was power (25%), followed by salary & wages (19%) and other miscellaneous expenditure (17%).
- iv. **Return on Investment:** Among the cold storages studied, grapes based cold storages had the highest ROI of 19.9%, followed by potato based cold storages (11.5%) and raisins based cold storages (9.2%).
- v. **Financial viability and bankability:** The average internal rate of return (IRR) with the assistance under VCA as per the units' financials was highest in grape based cold storages (37%), followed by potato based cold storages (28%) and raisins based cold storages (27%). It was found that the average IRR reduce significantly without the assistance under VCA.

### C. Scheme related observations

- i. **Average assistance amount expected vs. received:** Average assistance expected by the sample units from SFAC was almost similar to that of the assistance received
- ii. **Adequacy of SFAC assistance under VCA scheme:** The assistance amount was adequate for all the sample units covered in Agra and Sangli. However, in case of 60% units in Hathras, 50% in Nasik and 12.5% in Banaskantha district have expressed that the VCA was inadequate. They wished amendment to the prescribed limits.
- iii. **Rating of the scheme:** 97% units expressed that getting information about the scheme was *easier*, 85% felt meeting compliance requirements of the scheme was *very easy*, 93% units expressed that getting assistance under the scheme was *very easy* and 70% units rated the assistance amount to be *sufficient*.

### D. Impact of the scheme

- i. **Benefits to the users of the cold storages:** The study indicates that because of the operation of cold storage units assisted under VCA, on an average, 360 farmers and 3 traders get benefitted per unit. Average

catchment area for procurement of raw materials for these sample cold storage was estimated to be 984 acres.

- ii. Price increased for products handled in cold storages:** Under captive model, the promoters realized an increase of 166.3% in the farm gate price of grapes after an average storage period of 45 days. Under rental model, the average price of grapes increased by 65% in Nasik and 53% in Sangli. In case of potatoes, the average increase in price after storing in cold was 54% and average price increment in case of raisin was 22%.
- iii. Employment generation:** The average number of permanent employment generated in the sample district ranged from 5 in Banaskantha to 15 in Nasik. In addition, an average of 33 laborers got employment of 101 days in a year by each of the cold chain units for various activities such as loading, unloading, grading and sorting etc. An average of 2 indirect employments is generated per cold storage through general stores, groceries store, hawkers etc. and 100-150 annually through logistic service providers.

#### **4. Macro impact of scheme:**

- i. Capital formation:** This scheme of SFAC has supported 426 cold storage and cold-chain projects with VCA assistance worth Rs.162.2 crore. This grant has contributed to capital formation (private investment) of Rs.2168.32 crore in the economy.
- ii. Value addition and wastage reduction:** Value addition happens on every stage during storage and processing of agricultural raw materials. Many of the agriculture produce entering these storage facilities are now being sorted, graded and packed in better condition due to the infrastructure facilities provided by the cold storages. The reduction in post-harvest losses ranges from 30% to 60% which varies from crop to crop.
- iii. Backward linkage:** The study observed that, on an average, 360 farmers and 3 traders get benefitted from the operation of a cold storage facility. So, it is estimated that, 426 cold storage projects funded so far, must have benefitted 1.53 lakh farmers and 1278 traders. The availability of sufficient storage space, has enabled farmers and traders to stock their produce in these facilities and hold on these stocks till an opportune time to sell, resulting in better price realizations.
- iv. Employment generation:** It is estimated that the operation of 426 cold storage units assisted under VCA scheme of SFAC, has resulted in creating

additional 4260 permanent employments and 14.19 lakh mandays, for various activities such as loading, unloading, sorting, grading etc. Indirect employment generated due to operation of assisted cold storages has been calculated as: 852 persons through general stores, groceries store, hawkers etc. and 42,600 to 63,900 through logistic service providers.

- v. **Diversification of crops and storage of produce:** Farmers, surveyed in the study expressed that due to availability of more cold storage space, they have been able to take risk for diversifying their cultivation from food crops to perishable but profitable horticulture crops in their land.
- vi. **Reduction in distance of cold storage facility:** Average distance travelled by farmers for cold storage facility was found to be 4.8 km in case of potato farmers and 12.18 km in case of grapes and raisins producers. the average distance travelled by them for storage has reduced significantly due to the operation of cold storages assisted under VCA. Closer availability of cold storage space to the production areas has significantly reduced the cost of transportation and valuable time of farmers which was appreciated by farmers.
- vii. **Price appreciation of stored commodities:** The study reveals that average price of grapes appreciated by 59% after storage in cold storage. Similarly, price of raisins went up by 22% and potatoes increased by 54% after storage in cold storage facility.

## 5. Major observations and suggestions

- i. As most of the Cold Storage owners expressed satisfaction over the assistance and the scheme has significant impact at various levels, should be renewed to ensure that the benefits are made available to upcoming units.
- ii. For improving farmers' participation, SFAC can make WDRA accreditation & tie up with banks for Pledge financing mandatory for the units.
- iii. Some units were found to be incurring operational losses mainly due to utilization limited to only few months of the year., which should be taken care by banks while financing the units.
- iv. In order to avoid possible multiple assistance for the single facility, an all India portal of Cold storage units need to created that should have facilities to account for all types of benefits accruing/availed by each unit.
- v. CS unit to be encouraged to install solar systems in their units through government subsidy.

- vi.** In order to increase the awareness about the benefits of cold storage among farmers, there is a need for conducting awareness camps for farmers in areas of operation of the CS units.
- vii.** For maximizing benefits to farmers, small size Cold Storage units (20 – 30 MT) can be popularized to small groups of small and marginal farmers, so that they can construct CS for self-use.
- viii.** Preference should be given to the areas with lesser available storage facility than those areas concentrated with large number of cold storages.
- ix.** For FPOs to grow, thrive and fulfill their intended objectives there should be a separate consideration for them under the Scheme.