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# REPORT ON COMPREHENSIVE STUDY ON COLD STORAGE FACILITIES

VIS-À-VIS POTATO IN ASSAM



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Prepared by



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## Executive Summary

Potato, the king of vegetables, is a global crop as more than 100 countries are associated with this tuber crop. This fourth most important food crop is primarily produced in China, Russia, India, Poland and USA – who contribute a major share towards world production. The Indian potato production belt primarily encompasses Uttar Pradesh, West Bengal, Bihar, Punjab and Gujarat. Assam contributes 2.12 percent of the total potato production of the country. Assam has recorded continuous progress in coverage of area as well as production volume in last 10 years. Area under potato cultivation increased from 75,000 Ha in 2007-08 to 1.6 lakh Ha in 2016-17 and the production figure also increased from 5.2 lakh MT to 7.7 lakh MT during the same period. The growth of coverage of area and production during the period was 41.5 percent and 49 percent respectively. With this promising trend of growth of potato sector in the state, an attempt was made to analyze the gap in demand and supply of potato in Assam. It is revealed by even a conservative estimate that the state needs 40 to 45 lakh MT per year – taking 2.18 Cr adult population as consumers. The production estimate of the state during 2018-19 is 11 lakh MT which projects a gap of around 30 lakh MT per year. The vision 2020 document prepared by the Directorate of Horticulture & FP of Assam has set a target area and production as 140.23 Ha and 17.53 lakh MT respectively. Against this production scenario of potato in Assam, it is attempted to know the issues from farmer's point of view as regards production related problems with more focus on post-harvest, storage and marketing part of it. More precisely, a comprehensive study was undertaken to focus on backward linkages associated with farmers and other stake holder. The functioning of the existing network of cold storages in the state under private, public and co-operative sectors, was analyzed to know their contribution towards storage of potato with focus on local farmers in the category of commercial and non-commercial potato growers. The logic behind this study is to strengthen potato sector in Assam, economic growth of potato growers, strengthening of storage and cold storage system with healthy linkage with growers, optimization and stabilization of price behavior at producer and consumer level.

To go ahead as per mandate of the study a critical analysis on status and functioning of the existing cold storages was under taken. A suitable sampling design has been adopted for selection of districts, cold storages and the potato growers for the study. Seven major potato growing districts were identified based on production data of the districts. The farmers were segregated in two categories. One category was the farmers having around 1 ha area under potato cultivation, who are primarily commercial potato growers and the other was small growers of less commercial importance, but contribute to potato production in the state. Attempt was made to cover maximum number of cold storages dealing with potato in Assam.

### Study Deliverables:

- Production estimates of Potato District-wise
- Trend analysis based on coverage, production and productivity of potato in Assam

- Existing available cold storage capacity and utilization of capacity of the cold storages in the State
- Total Potato storage in the Districts current year vs. previous years
- To critically examine whether the farmers are real users, beneficiaries of the cold storages and are the farmers availing these benefits
- Asses the gap in Market regulatory mechanism regarding cold storages of potato in the state
- Price expectation and behaviour of farmers on release mechanism
- Recommendations for prospective cold storages in the state
- Success stories in the state
- Innovations in cold chain and cold storage facilities of potato
- Preparing a roadmap for the future

However, due to non-availability of the required & accurate data in respect of few items viz. Production of Baby potato, Storage of potato in the districts, Import of potato from outside the state, number of potato growers in the districts / state etc. this study has elaborated upon all deliverables except the above few.

During the period of 2009-2017, the number of cold storages in Assam has increased by 50% from 24 to 36 in numbers, and total cold storage capacity has increased substantially by 79% from 88 thousand MT to 157 thousand MT, according to the data furnished by NHB.

During the course of the study, market survey and based on the data provided by Department of Horticulture, Govt. of Assam, Assam State Agricultural Marketing Board and National Horticulture Board, the study team has drawn up a comprehensive list of 46 cold storages with 2.33 lakh MT built up capacity are available in Assam, as on date.

*(However, the study team does not claim that this list as the final and complete list of all cold storages in the state).*

Out of 46 cold storages, 6 cold storages are constructed by Assam State Agricultural Marketing Board, 3 are promoted by BTC 3 by Department of Agriculture and 1 by DRDA. The remaining 33 (72%) cold storages are privately owned cold storages in Assam.

29 cold storages out of 46 cold storages i.e. more than 63 % cold storages are having capacity between 1000 MT to 5000 MT. 3 cold storages are of 500 MT each, out of which 2 are non-operational. 11 cold storages have capacity between 5000 MT to 10000 MT. Large cold storages of capacity above 10000 MT are only 3 in numbers in Assam.

Cold storages are established based on the available facility of rail and road communication, primarily for transporting potato while storing and also releasing the stock. The locations of the cold storages are hardly in the major potato growing belts except few.

Availability in bulk of adequate quantity of potato from the nearby areas appeared to be the main issue. On one hand it is not economic proposition for the cold storage owners to collect small quantities from individual fields and on the other hand it is not economical and feasible for

individual farmers to carry their produce to the cold storage incurring substantial transportation cost.

Few cold storage owners have attempted in the past to link the local growers even by offering incentives like free seeds, e.g. Lalit cold storage and Kay Dee Cold Storages in Cachar district, but the attempts did not yield the desired outcome.

However, Sonitprabha cold storage in Biswanth district reportedly utilising 60% of the space for local growers. Furkating cold storage in Golaghat district had good connection with local growers till the Government closed down the cold storage due to technical issues, after the local growers faced substantial loss of seed potato.

Chenijan cold storage in Jorhat district and all the units of Mahabir cold storage in Tinsukia district maintain good relations with the local growers and keep their produce in cold storages ranging from 25%-40% of the total space but there is no consistency in the system.

Sorbhog cold storage in Barpeta and Kamrup Thanda ghar in Bijoynagar of Kamrup district also stores potato grown by the local growers in Mandia and Barpeta areas. However, it appeared that the wholesalers are mainly storing their potato procured from these areas.

The stock of local potato growers are being accommodated in Sonitprabha Cold Storage, Gingia in Biswanath district, which is collected primarily through potato growers' society. Similar trend was also observed in case of Golokganj Cold Storage unit under Dhubri district and Furkating Cold Storage unit under Golaghat district but both of them are non-operational at present.

The absence of any approved system of pre-booking arrangements, committed quantity of storage, price assurance and trading of bonds issued by cold storages etc. are major handicaps in the process.

Frequent power failures force the cold storage owners to ensure supply of uninterrupted power through generator causing further increase in cost of operation and consequently the rent for the storage.

There are 29 cold storages with 1.81 lakh MT capacity is available for potato storage in the state, which is only 16 percent of total production considering production of 11 lakh MT in 2018-19. Out of the total cold storage capacity available in the state less than 10% space is in practice available for local potato growers of the state.

No co-relation was found between the locations identified for setting up of cold storages and the level of production of potato in the district or catchment area of production belts.

The local potato growers also prefer to sell the produce immediately after harvest for meeting the local demand which is much higher than the total production in the state, as discussed earlier.

It was evident from the study that for the farmers at individual level to utilize cold storage spaces for better price realization may not be feasible, unless the Government takes measures to form clusters of potato growers in groups.

A crucial study was undertaken to know the existing scenario of potato under the perspective of commercial potato growers, non-commercial potato growers and thirdly owners of cold storages to focus on inter relationship amongst these three stake holders. It can be summarily said that:

- a. Commercial potato growers, though few in numbers, are steps ahead over non-commercial potato growers as regards production, management, adoption of technology, post-harvest handling, storage and marketing.
- b. Non-commercial growers' participation in cold storage system is negligible with very few exceptions but the silver lining is that, if organized with hand-holding support, they can minimize the production gap in a big way.
- c. Cold storage owners – private, public or co-operative, function in similar pattern purely on business module – not much concerned about local production due to some obvious reasons. Few exceptions in this regard were also noticed.

A few innovative low cost mechanisms have been identified, which primarily can be utilized at farmers' field, household or in small groups for temporary storage for limited period and limited purpose. These innovations may have significant contribution towards minimizing post-harvest lost, increase in self-life even in interior villages and better price to the producers

The innovative options namely viz. cool chamber of 10 MT capacity, solar powered cold storage and thirdly zero energy cool chamber which can be explored as per necessity and feasibility and may be as initial demonstration under government finance.

The Cold Storage Order, 1980 was rescinded in May, 1997. The repeal of the cold storage order of 1980 aimed at enabling the government in the removal of licensing, price control and requisitioning of the cold storage space with a view to allowing the functioning of free marketing mechanism for demand based growth of cold storage industry in the country free from all kinds of administrative interference.

The Cabinet Committee on Economic Affairs has approved the inclusion of onion and potato under the purview of stock holding limits under the Essential Commodities Act, 1955 on 20.08.2014. The state Government has also kept potato out of the purview of APMC Act to reduce the price gap.

As desired, the study team visited few potato growing belts in North Bengal districts of West Bengal, which are in close proximity to Assam and reportedly farmers from bordering areas in Assam are also storing their potato in the cold storages in these areas, unofficially. The study team discussed with the officials of the concerned departments, cold storage managements and farmers for better understanding of the rules and regulations governing operations of cold storages in west Bengal.

To review the entire system of production, marketing and accommodation of potato in cold storages the government of West Bengal took number of measures. The series of bold initiatives as per need of the situation has made a success story on storage of potato in cold storages. The concerned chapter, which details all those initiatives, projects scopes for adoption of such strategies to make cold storages in Assam more meaningful for the farmers in particular and other stake holders in general. Some of the salient initiatives are:

- a) The Government reserved minimum 60% of the cold storage space for the farmers up-to a certain date, beyond which the cold storage owners shall be free to allot the space to anyone or use it by themselves.
- b) The government also arranged to provide finance for the cold storage owners through State Co-operative banks against the cold storage receipts.
- c) At the same time fixed the selling price and offered to compensate on an agreed formula, any loss to the cold storage owners in the process.

Key findings of the study:

The study revealed that against an estimated demand of 40-45 lakh MT every year, total production in the state is approx. 11 lakh MT. Storage capacity in the State is available for only 1.81 lakh MT or 16.5% of total production in the state.

Therefore, it is evident that out of approx. 30 lakh MT imported from outside states only 1.8 lakh MT is routed through cold storages, the remaining 28.2 lakh MT is sold directly through storages in godowns spread across the state.

In this scenario, it is obvious that the price prevailing in neighbouring states and transportation cost with marked up profit margin as decided by the wholesalers determines prices of potato in local markets.

The study has also thrown up another dimension in this business in terms of operation of organized and unorganized sectors.

The local potato growers also prefer to sell the produce immediately after harvest for meeting the local demand which is much higher than the total production in the state.

The commercial potato growers in the state, though limited in number, by and large, has some association with cold storages inside or outside the state but non-commercial growers due to various limitation have not started dealing with cold storages. But the demand for such unit in potato growing belts does exist in Assam.

The recommendations of the study team on way forward are:

- a) Increasing level of Production and productivity of potato in following process : To identify the major potato growing districts, prepare database of all potato growers at the GP level, organize farmers societies or groups, provide quality seeds and deliver on time , educate modern scientific practices for improving productivity per unit area and post-harvest management including benefit of cold storage in better price realization and arrange finance from the banks for cultivation as well as against cold storage receipts and also explore crop insurance support.
- b) Cold storages –
  - i) Regulatory mechanism- Notify a nodal agency / department to monitor the operations of the cold storages in the state, create a geography based database of all cold storages, introduce regular reporting system by the cold storages, inspect to monitor quality control of infrastructure and stored produce, bring uniformity in insurance, rent charges, release mechanism and time and ensure policy makers can take informed decisions based on data on any given situation.

- ii) Creating additional capacity: As the study could not find any co-relation between existing cold storages and major potato growing areas, it is suggested that cold storages need to be created in the higher potato growing geographies on priority. A suggested list for the same is prepared in the report. Also suggested that all existing non-operational cold storages owned by Government agencies may be commissioned on priority and wherever feasible may be handed over to potato growers societies of that area on DOT basis i.e. Develop it, make it Operational and Transfer ownership under terms and conditions.
- iii) The cold storages may be designed in 2 categories
- a) Above 5000 MT, to be utilized for storing large quantity of potato and shall be under the suggested monitoring mechanism. These cold storages can be located in central location with convenient communication facilities. Solar power generation facility may be installed on the roof to reduce cost of operation of power charges.
  - b) Below 5000 MT but not less than 1000 MT, these can be located in major potato growing belts and allowed to be managed by the farmer societies and groups, mainly catering to local farmers. Solar power may be used extensively in these smaller size of cold storages to increase viability.
  - c) It is suggested that 25%-30% of the local production may be facilitated to route through cold storages for better price realization.
- iv) Cold chain- although strictly speaking cold chain facility is not required in case of potato but drying, sorting and grading improves the storage quality and can help in better price realization. Therefore, it is suggested that post-harvest, potato may be routed through pack houses for drying, including solar drying, mechanical sorting and grading before reaching either market or cold storages. Transport vans can be linked to such pack houses to reduce cost of transportation and ensure bulk arrivals at cold storages. All these infrastructures / logistics may be created by the government but may be handed over to the farmer societies / groups for management.
- v) Strategies for better price realization- Imported potato from outside the state need to be facilitated to reach markets directly during peak arrival season, whereas major part of graded local produce of potato should find its way to cold storages only to be released during low arrival season. It has been seen that prices are usually low during peak arrival season. However, the farmers need to pre-book the space in the cold storages and the potato growers need to be assisted with financial support from banks for cultivation during next cropping season and also unlock the capital through financing against cold storage receipts, once the potato reaches the cold storage.
- vi) Exposure of farmers and other stake holders to locations where success have been experienced by the farmers inside or outside the state will facilitate to create an atmosphere on proper backward linkage and thereby replicate the success in their own area. This motivational part is sure to give good mileage towards reaching a complementary relationship between cold storage owners and farmers of the state.
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**Interaction with cold storage owners at Hojai**



**Interaction with Potato growers at Golokganja, Dhubri**



**Harvested potato ready for transhipment at Furkating**



**Temporary storage of potato before transhipment at Golaghat**



**Inside view of Kharupetia Cold Storage**



**Field view of the Kufri Jyoti variety of potato – most preferred for cold storage at Barpeta district**

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